

# Introduction to IIIF: Sharing, Consuming, and Annotating the World's Images

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# Welcome to DHSI 2019!

Thanks for joining the DHSI community!

In this booklet, you will find essential course materials prefaced by some useful information about getting settled initially at UVic, finding your way around, getting logged in to our network (after you've registered the day before our courses begin), and so on.

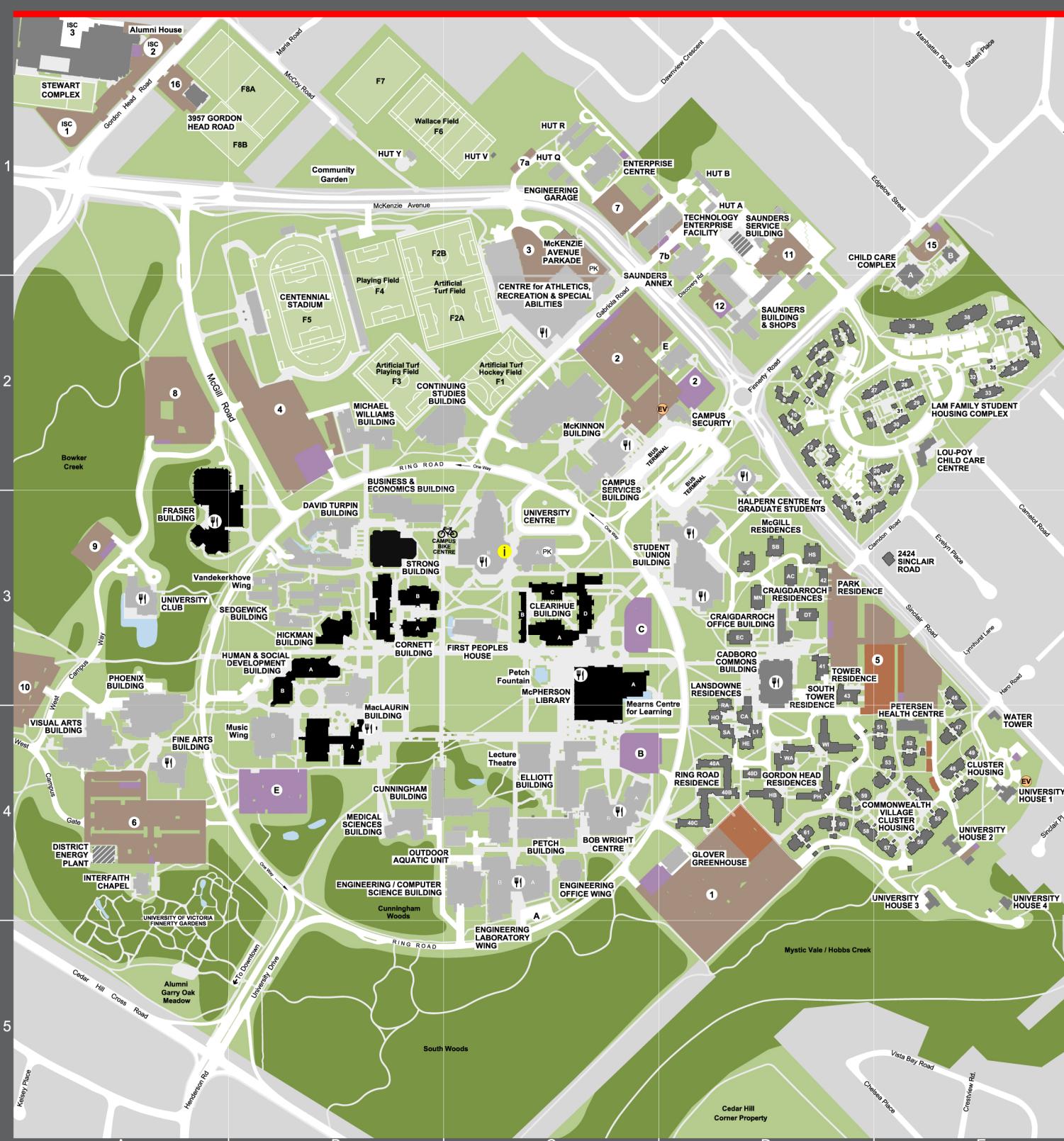
Given our community's focus on things computational, it will be a surprise to no one that we might expect additional information online for some of the classes - your instructors will let you know - or that the most current version of all DHSI-related information may be found on our website at [dhsi.org](http://dhsi.org).

Do check in there first if you need anything that's not in this coursepak.

To access the DHSI wifi network, simply go into your wireless settings and connect to the "DHSI" network and enter the password "dhsi2019".

And please don't hesitate to be in touch with us at [institut@uvic.ca](mailto:institut@uvic.ca) or via Twitter at @AlyssaA\_DHSI or @DHInstitute if we can be of any help ....





- DHSI Buildings
- Residences
- Buildings Under Construction

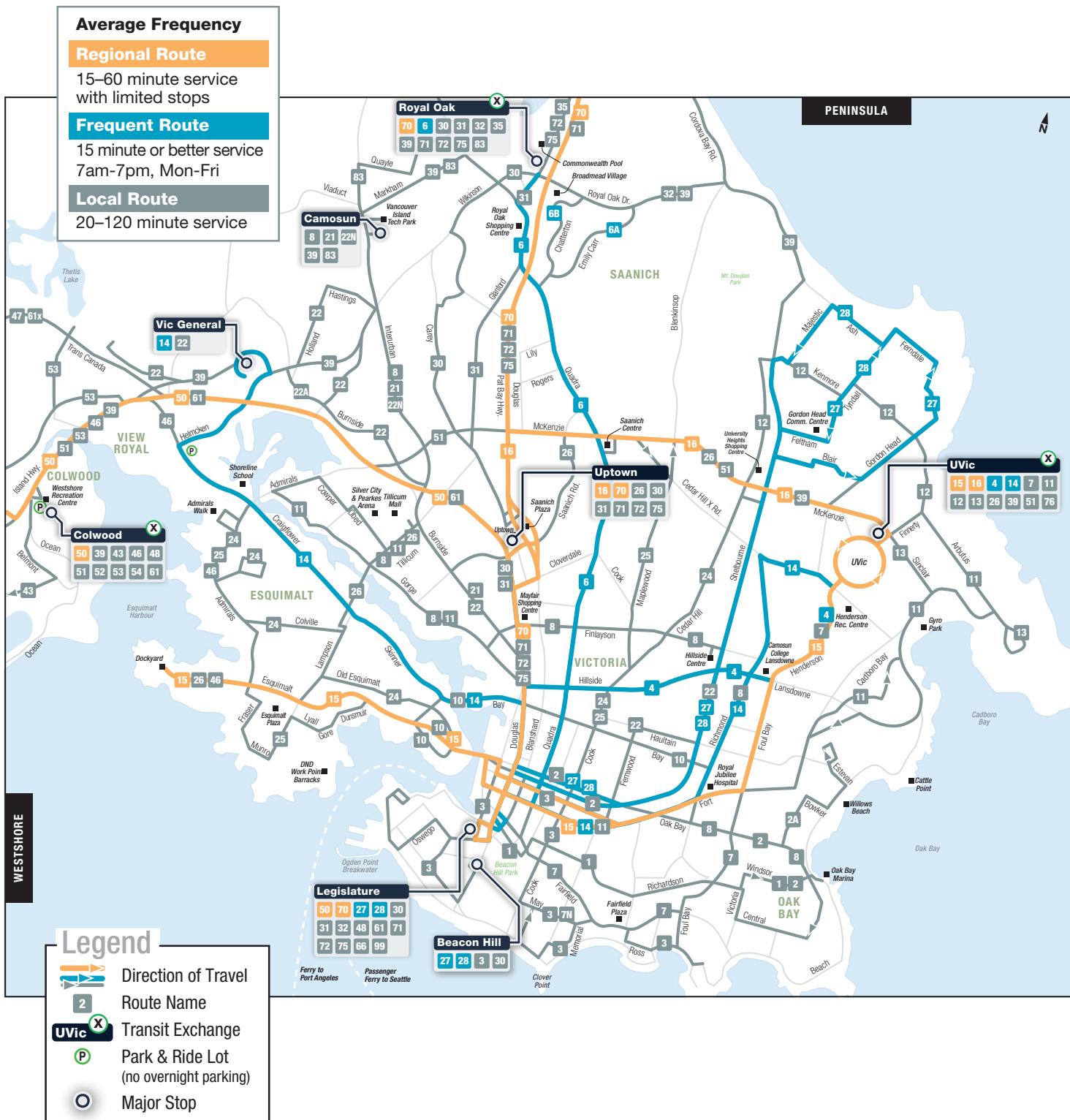
- General Pay Parking
- Reserved Parking
- Student Resident Parking

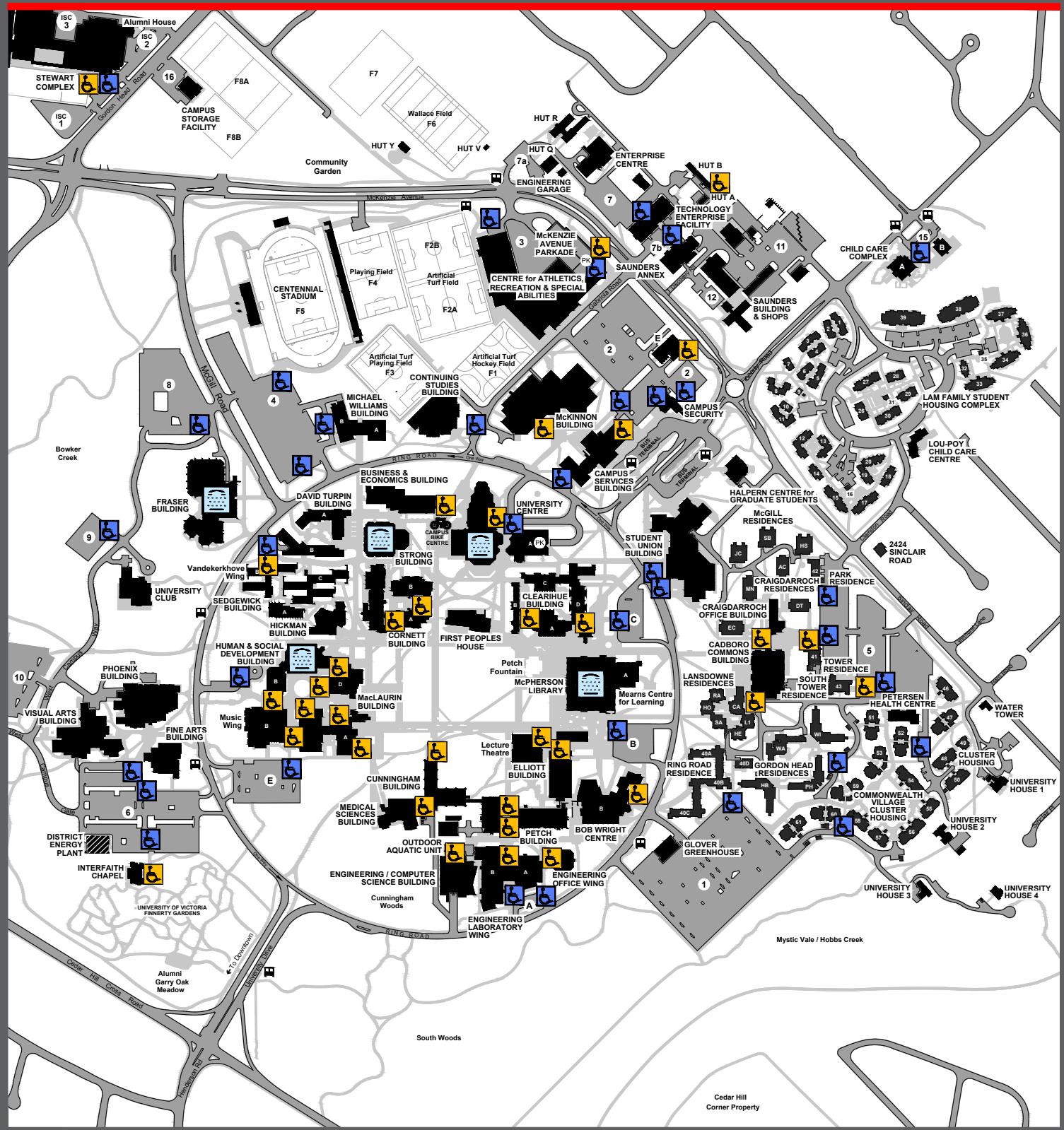
- Bus Stop
- Parkade
- Food Service Outlet
- Welcome Centre
- Electric Vehicle Charging Station

100 Metres 0 Feet



# Regional Map of Greater Victoria





- Buildings
- Residences
- Buildings Under Construction

- ④ General Pay Parking
- ⑤ Reserved Parking
- PK Parkade

- ⑥ Accessible Parking
- Ramp
- Text Telephone (TTY)

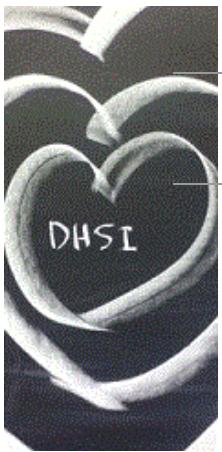
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DHSI Wi-Fi

Network name: DHSI  
Passkey: dhsi2019





# Digital Humanities Summer Institute

A Place for Open Digital Scholarship

June 2019: 3-7 + 10-14 (+ADHO SIG Pedagogy Conference 7-8, +Workshops 9)



University  
of Victoria

British Columbia  
Canada

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*The 2019 schedule is just taking shape nicely! A very few things to confirm, add, etc, still but this is the place to be to find out what is happening when / where ...*

## Sunday, 2 June 2019 [DHSI Registration + Suggested Outings]

If you're here a day or two before we begin, or staying a day or two afterwards, here are a few ideas of things you might consider doing ....

Suggested Outing 1, Botanical Beach (self-organised; car needed)

A self-guided visit to the wet, wild west coast tidal shelf (and historically-significant former research site) at [Botanical Beach](#); we recommend departing early (around 8.00 am) to catch low tide for a better view of the wonderful undersea life! Consider bringing a packed lunch to nibble-on while looking at the crashing waves when there, and then have an afternoon drink enjoying the view from the deck of the [Port Renfrew Hotel](#).

Suggested Outing 2, Butchart Gardens (self-organised)

A shorter journey to the resplendently beautiful [Butchart Gardens](#) and, if you like, followed by (ahem) a few minutes at the nearby [Church and State Winery](#), in the Saanich Peninsula. About an hour there by public bus from UVic, or 30 minutes by car.

Psst: Some  
Suggested  
Outings

Suggested Outing 3, Saltspring Island (self-organised; a full day, car/bus + ferry combo)

Why not take a day to explore and celebrate the funky, laid back, Canadian gulf island lifestyle on [Saltspring Island](#). Ferry departs regularly from the [Schwartz Bay ferry terminal](#), which is about one hour by bus / 30 minutes by car from UVic. You may decide to stay on forever ....

Suggested Outing 4, Paddling Victoria's Inner Harbour (self-organised)

A shorter time, seeing Victoria's beautiful city centre from the waterways that initially inspired its foundation. A great choice if the day is sunny and warm. Canoes, kayaks, and paddle boards are readily rented from [Ocean River Adventures](#) and conveniently launched from right behind the store. Very chill.

And more!

Self-organised High Tea at the Empress Hotel, scooter rentals, visit to the Royal BC Museum, darts at Christies Carriage House, a hangry breakfast at a local diner, whale watching, kayaking, brew pub sampling (at Spinnaker's, Swans, Moon Under Water, and beyond!), paddle-boarding, a tour of used bookstores, and more have also been suggested!

Early Class Meeting: 4. [Foundations] DH For Department Chairs and Deans ([David Strong Building C124](#), Classroom)

9:00 to 4:00

Further details are available from instructors in mid May to those registered in the class. Registration materials will be available in the classroom.

[DHSI Registration](#) ([MacLaurin Building, Room A100](#))

3:00 to 5:00

After registration, many will wander to [Cadboro Bay](#) and the pub at [Smuggler's Cove](#) OR the other direction to Shelbourne Plaza and [Maude Hunter's Pub](#) OR even into the city for a nice meal.

## Monday, 3 June 2019

Your hosts for the week are Alyssa Arbuckle, Ray Siemens, and Jannaya Frigstad Jensen.

7:45 to 8:15

Last-minute Registration ([MacLaurin Building, Room A100](#))

	Welcome, Orientation, and Instructor Overview ( <a href="#">MacLaurin A144</a> )
<b>8:30 to 10:00</b>	<ul style="list-style-type: none"> <li>• Welcome to the Territory</li> <li>• Welcome to DHSI: Ray Siemens, Alyssa Arbuckle</li> <li>• Welcome from UVic: Jonathan Bengtson (University Librarian), Alexandra D'Arcy (Associate Dean Research, Humanities)</li> </ul> <p>Classes in Session (click for details and locations)</p> <ul style="list-style-type: none"> <li>• 1. [Foundations] Digitisation Fundamentals and their Application (<a href="#">Clearihue A103, Lab</a>)</li> <li>• 2. [Foundations] Introduction to Computation for Literary Criticism (<a href="#">Clearihue A102, Lab</a>)</li> <li>• 3. [Foundations] Making Choices About Your Data (<a href="#">Digital Scholarship Commons, McPherson Library A308, Classroom</a>)</li> <li>• 4. [Foundations] DH For Department Chairs and Deans (<a href="#">David Strong Building C124, Classroom</a>)</li> <li>• 5. [Foundations] Developing a Digital Project (With Omeka) (<a href="#">Clearihue A031, Lab</a>)</li> <li>• 6. [Foundations] Race, Social Justice, and DH: Applied Theories and Methods (<a href="#">Cornett A229, Classroom</a>)</li> <li>• 7. [Foundations] Intersectional Feminist Digital Humanities: Theoretical, Social, and Material Engagements (<a href="#">David Strong Building C108, Classroom</a>)</li> <li>• 8. [Foundations] Fundamentals of Programming/Coding for Human(s)lists) (<a href="#">Clearihue A108, Lab</a>)</li> <li>• 9. Out-of-the-Box Text Analysis for the Digital Humanities (<a href="#">Human and Social Development A160, Lab</a>)</li> <li>• 10. Sound and Digital Humanities (<a href="#">Cornett A120, Classroom</a>)</li> <li>• 11. Critical Pedagogy and Digital Praxis in the Humanities (<a href="#">Clearihue D132, Classroom</a>)</li> <li>• 12. Digital Humanities for Japanese Culture: Resources and Methods (<a href="#">McPherson Library A003, Classroom</a>)</li> <li>• 13. Conceptualising and Creating a Digital Edition (<a href="#">McPherson Library 210, Classroom</a>)</li> <li>• 15. Retro Machines &amp; Media (<a href="#">McPherson Library 129, Classroom</a>)</li> <li>• 16. Geographical Information Systems in the Digital Humanities (<a href="#">Clearihue A105, Lab</a>)</li> <li>• 17. Introduction to IIIF: Sharing, Consuming, and Annotating the World's Images (<a href="#">Cornett A121, Classroom</a>)</li> <li>• 18. Web APIs with Python (<a href="#">Human and Social Development A170, Lab</a>)</li> <li>• 19. Ethical Data Visualization: Taming Treacherous Data (<a href="#">Cornett A128, Classroom</a>)</li> <li>• 20. Linked Open Data and the Semantic Web (<a href="#">Cornett A132, Classroom</a>)</li> <li>• 21. Palpability and Wearable Computing (<a href="#">McPherson Library A025, Classroom</a>)</li> <li>• 22. The Frontend: Modern JavaScript &amp; CSS Development (<a href="#">Clearihue A030, Lab</a>)</li> <li>• 23. Modelling. Virtual. Realities. A Practical Introduction to Virtual (and Augmented) Reality (<a href="#">Human and Social Development A150, Lab</a>)</li> <li>• 25. Information Security for Digital Researchers (<a href="#">David Strong Building C114, Classroom</a>)</li> </ul>
<b>10:15 to Noon</b>	Lunch break / Unconference Coordination Session ( <a href="#">MacLaurin A144</a> ) (Grab a sandwich and come on down!)
<b>12:15 to 1:15</b>	Discussion topics, scheduling, and room assignments from among all DHSI rooms will be handled at this meeting.
<b>1:30 to 4:00</b>	Classes in Session
	<p>Institute Lecture: Jacqueline Wernimont (Dartmouth C): "Sex and Numbers: Pleasure, Reproduction, and Digital Biopower"  Chair: Anne Cong-Huyen (U Michigan)  (<a href="#">MacLaurin A144</a>)</p>
<b>4:10 to 5:00</b>	Abstract: Drawing from Numbered Lives (MIT 2018), this talk will consider a long history of sex-number entanglement in Anglo-American Cultures. Drawing on historical and contemporary objects and practices, Wernimont will ask "in what ways do theories of biopower, critical gender and critical race studies, and media studies" suggest that we can understand this set of entanglements and their impacts. NB: While relevant, this talk will not include discussions of sexual trauma or violence. It will include frank discussion of sex acts and various ways of translating sexual behavior into numbers.
<b>5:00 to 6:00</b>	Opening Reception ( <a href="#">University Club</a> )
<b>Tuesday, 4 June 2019</b>	
<b>9:00 to Noon</b>	Classes in Session
<b>12:15 to 1:15</b>	Lunch break / Unconference "Mystery" Lunches
<b>1:30 to 4:00</b>	Classes in Session
DHSI Conference and Colloquium Lightning Talk Session 1 ( <a href="#">MacLaurin A144</a> )	

Chair: Kim O'Donnell (Simon Fraser U)

- 4:15 to 5:15
- Marion Grant (Ryerson U), "Visualizing Networks: Yellow Nineties Print and Performance"
  - Megan Perram (U Alberta), "Configuring the Postdigital Body Through the Digital Illness Narratives of Women with Polycystic Ovarian Syndrome"
  - Giulia Taurino (U Bologna / U Montreal), "An Introduction to Network Analysis for Television Studies: Visual Models and Practical Applications"
  - Kristen Starkowski (Princeton U), "Mapping Minor Characters: Quantifying and Visualizing Character Space in Dickens's Novels and in their Adaptations"
  - Leah Henrickson (Loughborough U), "Who is the author of the computer-generated text?"

6:00 to 8:00

DHSI Newcomer's Gathering ([Grad House Restaurant, Graduate Student Centre](#))  
Come down, buy meal and a beverage, and make some new friends!

## Wednesday, 5 June 2019

9:00 to Noon	Classes in Session
	Lunch break / Unconference
	"Mystery" Lunches
12:15 to 1:15	<p>Presentation: An Introduction to Scholarly Publishing with Manifold (<a href="#">MacLaurin A144</a>) Lunch included for those who <a href="#">[register here]</a></p> <p>This presentation introduces Manifold Scholarship, a Mellon-funded digital publishing platform developed by the CUNY Graduate Center, The University of Minnesota Press, and Cast Iron Coding. Manifold allows you to create beautiful, dynamic open access projects that can include text, images, video, embedded resources, and social annotation. We will provide an overview of Manifold and demonstrate how faculty, students and staff in the digital humanities can use Manifold to publish open access scholarly works, conduct and participate in peer review, and create custom edited versions of public domain course texts and OER.</p>
1:30 to 4:00	Classes in Session
	<p>DHSI Conference and Colloquium Lightning Talk Session 2 (<a href="#">MacLaurin A144</a>) Chair: Kim O'Donnell (Simon Fraser U)</p> <ul style="list-style-type: none"><li>• Catherine Ryu (Michigan State U), "Tone Perfect: Developing a Multimodal Audio Database for Mandarin Chinese as an Open Source"</li><li>• Kenzie Burchell (U Toronto Scarborough), "Making Responsible Reporting Practices Visible: Comparing newswire coverage of humanitarian crises in Syria"</li><li>• Jessica Linzel (Brock U), "'The Shopkeeper Aristocracy': Mapping Trade Networks in Colonial Niagara"</li><li>• Kirsten Painter (U Washington), "From Bogatyrs to Bread: Digitization &amp; Online Exhibition of Rare Russian Children's Books at the U Washington"</li><li>• John Barber (Washington State U), "A Mighty Span"</li></ul>
4:15 to 5:15	
6:00 to 7:00	<p>"Half Way There!" [An Informal, Self-Organized Birds of a Feather Get-Together] (<a href="#">Felicitas, Student Union Building</a>) Bring your DHSI nametag and enjoy your first tipple on us! [A great opportunity for an interest group meet-up ....]</p>

## Thursday, 6 June 2019

9:00 to Noon	Classes in Session
	Lunch break / Unconference
12:15 to 1:15	"Mystery" Lunches  [Instructor lunch meeting]
1:30 to 4:00	Classes in Session
	<p>DHSI Conference and Colloquium Lightning Talk Session 3 (<a href="#">MacLaurin A144</a>) Chair: Kim O'Donnell (Simon Fraser U)</p> <ul style="list-style-type: none"><li>• Colleen Kolba (U South Florida), "What Comics can Teach our Students about Multimodal Literacy"</li><li>• Trish Baer (ETCL; U Victoria), "Preserving Digital Legacies: Archived Websites and Digital Discoverability"</li><li>• Suchismita Dutta (U Miami), "The Importance of Archival Transcription for Genre Building"</li><li>• Jeffrey Lawler (California State U, Long Beach), "Twining our way through the Past: Video Game Authoring as History Pedagogy"</li></ul>
4:15 to 5:15	

- Sean Smith (California State U, Long Beach), "Gaming the History Curriculum, Games Writing as History Pedagogy in College Classroom"

## Friday, 7 June 2019 [DHSI; ADHO Pedagogy SIG Conference Opening]

<b>9:00 to Noon</b>	Classes in Session
<b>12:15 to 1:15</b>	Lunch Reception / Course E-Exhibits ( <a href="#">MacLaurin A100</a> )
<b>1:30 to 1:50</b>	Remarks, A Week in Review ( <a href="#">MacLaurin A144</a> )
<b>2:00 to 3:00</b>	<p>Joint Institute Lecture (DHSI and ADHO Pedagogy SIG Conference):          Matt Gold (CUNY Graduate Center and Association for Computers and the Humanities): "Thinking Through DH: Proposals for Digital Humanities Pedagogy"          Chair: Diane Jakacki (Bucknell U)  <a href="#">(MacLaurin A144)</a></p> <p>Abstract: How do we teach digital humanities, and how should DH be taught? What, indeed, should we teach when we teach DH? This talk will present a proposal for grounding digital humanities pedagogical practice in the research interests of our students and the epistemological foundations of our methods rather than through an approach grounded more central in data and methods.</p>
<b>3:30 to 5:00</b>	<p>Joint Reception: DHSI and ADHO Pedagogy SIG Conference (<a href="#">University Club</a>)          E-Poetry Event (Chris Tanasescu)          Watch this space for details, including how to participate!</p> <p>DHSI Conference and Colloquium Poster/Demo Session</p> <ul style="list-style-type: none"> <li>• Pia Russel (U Victoria); Emily Stremel (U Victoria), "British Columbia's Historical Textbooks Digital Library"</li> <li>• Cody Hennesy (U Minnesota); Rachael Samberg (U California, Berkeley); Stacy Reardon (U California, Berkeley), "Finding the Haystack: Literacies for Accessing and Using Text as Data"</li> <li>• Paula Johanson (ETCL; Independent Scholar), "Proving Seahorses and Juan de Fuca's Travels in The Curve of Time"</li> <li>• Tara Baillargeon (Marquette U); Elizabeth Wawrzyniak (Marquette U), "FellowsHub: J. R. R. Tolkien Fanzine Portal"</li> <li>• Graham Jensen (U Victoria), "Canadian Modernist Magazines Project"</li> <li>• Caterina Agostini (Rutgers U), "Art at the Time of Syphilis: A First-Person Medical Narrative in Benvenuto Cellini's Vita"</li> <li>• Lauren Elle DeGaine (ETCL; U Victoria), "Women at the Front: A Digital Exhibit of Victorian Frontispiece Illustrations"</li> <li>• Adam Griggs (Mercer U); Kathryn Wright (Mercer U); Christian Pham (Mercer U); Gail Morton (Mercer U); Stephanie Miranda (Mercer U), "Digitizing Middle Georgia's History of Slavery"</li> </ul>

## Saturday, 8 June 2019 [Conference, Colloquium, and Workshop Sessions]

<a href="#">Conference / Workshop Registration</a> ( <a href="#">MacLaurin A100</a> )	
<b>8:00 to 9:00</b>	The day's events are included with your DHSI registration. If you're not registered in DHSI, you're very welcome to join us by <a href="#">registering here as a Conference / Colloquium / Workshop participant</a> . We'll have a nametag waiting for you!
<b>Coffee, Tea, &amp;c?</b>	Looking for some morning coffee or tea, or a small nibble? Options and hours of operation for weekend campus catering are <a href="#">available here</a> . <a href="#">Mystic Market</a> usually opens around 10.00.
<b>9:00 to 4:00</b>	<p>DHSI Conference and Colloquium Sessions          ADHO Pedagogy SIG Conference Sessions          Right2Left Workshop Sessions</p>
<b>9:00 to 4:00</b>	<p>All Day DHSI Workshop Session (<a href="#">click for workshop details and free registration for DHSI participants</a>)</p> <ul style="list-style-type: none"> <li>• 55. Introduction to Machine Learning in the Digital Humanities [8-9 June; All day, each day] (<a href="#">David Strong Building C124, Classroom</a>)</li> </ul>
<b>9:00 to 9:10</b>	Informal Greetings, Room Set-up ( <a href="#">Lobby</a> , outside Hickman 105)
<b>Session 1</b>	
DHSI Colloquium and Conference ( <a href="#">Hickman 105</a> )	
Digital Humanities & Literature, Chair: Kim O'Donnell (Simon Fraser U)	
<ul style="list-style-type: none"> <li>- Youngmin Kim (Dongguk U), "Transdiscursivity in the Convergence of Digital Humanities and World Literature"</li> <li>- Caroline Winter (U Victoria), "Digitizing Adam Smith's Literary Library"</li> <li>- Kaitlyn Fralick (U Victoria); Kailey Fukushima (U Victoria); Sarah Karlson (U Victoria), "Victorian Poetry</li> </ul>	

	<p>and Progress: Encoding Echo Figures with the TEI"        - Ashleigh McIntyre (U Newcastle), "The Language of Criticism in the Anthropocene"</p>
<b>9:10 to 10:30</b>	<p>ADHO Pedagogy SIG Conference (<a href="#">Hickman 110</a>)        Chair: Katherine Faull (Bucknell U)</p> <ul style="list-style-type: none"> <li>- Aaron Tucker and Nada Savicevic (Ryerson U), "Write Here, Right Now: An Open Source eTextbook for the Flipped Classroom"</li> <li>- Heather McAlpine (U Fraser Valley), "Digital Meters: Using Text Encoding to Teach Literature in the Undergraduate Classroom"</li> <li>- Tiina H. Airaksinen (U Helsinki), "Digital Humanities in Cultural Studies: Creating a MOOC course for University Students and A-Level Students"</li> </ul> <p>Right2Left Workshop (<a href="#">Hickman 116</a>)        Keynote - Nathan P. Gibson (Ludwig Maximilians U, München): "Thinking in ЈТЯ: Reorienting the Directional Assumptions of Global Digital Scholarship"</p>
<b>10:30 to 10:40</b>	Break
	<b>Session 2</b>
	<p>DHSI Colloquium and Conference (<a href="#">Hickman 105</a>)        Digital Humanities &amp; Society, Chair: Eleanor Reed (Hastings C)</p> <ul style="list-style-type: none"> <li>- Joel Zapata (Southern Methodist U), "Uncovering the Southern Plains' Mexican American Civil Rights Movement"</li> <li>- Ayo Osisanwo (U Ibadan), "Online Newspaper Construction of Agitation for the Sovereign State of Biafra in Nigeria"</li> <li>- Joseph Jones (U British Columbia), "Testbed for an Approach to Distant Reading: Fictions That Represent Vietnam War Resisters in Canada"</li> <li>- Brendan Mackie (U California, Berkeley), "Visualizing Long-Term Cultural Change: An Example From The Birth of Civil Society"</li> </ul>
<b>10:40 to Noon</b>	<p>ADHO Pedagogy SIG Conference (<a href="#">Hickman 110</a>)        Chair: Laura Estill (St Francis Xavier U)</p> <ul style="list-style-type: none"> <li>- Jane Jackson (Chinese U of Hong Kong), "Interrogating digital spaces for intercultural meaning-making"</li> <li>- Ryan Ikeda (UC Berkeley), "Disrupting Digital Literacy: Situating Electronic Literature Among Public Education Initiatives"</li> <li>- Christopher Church, Katherine Hepworth (U Nevada, Reno), "We're STEAMed! A call for balancing technical instruction and disciplinary content in the digital humanities"</li> <li>- Chelsea Milbourne (Cal Poly, San Luis Obispo), "Finding the Right Fit between Technology and Class Content: Reflections on Including Web Development in a Digital Storytelling Course"</li> </ul> <p>Right2Left Workshop (<a href="#">Hickman 116</a>)        - Edward "Eddie" Surman (Claremont Graduate U), "Qualitative Digital Text Analysis and #Right2Left Languages: A Demonstration of Atlas.ti using the Hebrew Bible"</p>
<b>Noon to 1:10</b>	Lunch (We recommend <a href="#">Mystic Market</a> on weekends!)
	<b>Session 3</b>
	<p>DHSI Colloquium and Conference (<a href="#">Hickman 105</a>)        Digital Humanities &amp; Community, Chair: Claire Carlin (U Victoria)</p> <ul style="list-style-type: none"> <li>- Pia Russel (U Victoria); Emily Stremel (U Victoria), "Mentorship and disability: Supporting disabled employees in digital humanities"</li> <li>- Amy Lueck (Santa Clara U), "Virtually Emplacing Indigenous Memory"</li> <li>- Md. Shehabul Alam (National U Bangladesh), "Integrating Library Service with Union Information and Service Center: A Joint Initiative towards Digital Bangladesh"</li> <li>- Veronica Gomez (Instituto de Humanidades y Ciencias Sociales (IHuCS) - UNL-CONICET), "Latin American E-literature and Location: The Nation Revisited in Electronic Literature Organization (ELO)"</li> </ul>
<b>1:10 to 2:30</b>	<p>ADHO Pedagogy SIG Conference (<a href="#">Hickman 110</a>)        Chair: Chris Tănăescu (UC Louvain)</p> <ul style="list-style-type: none"> <li>- Laura Estill (St Francis Xavier U), "One Assignment, Three Ways: Assessing DH Projects in a Literature Course"</li> <li>- Felix Bayode Oke, Stella N. Kpolugbo (Anchor U Lagos), "The Multimodal Technique as a Pedagogical Tool in Pelu Awofeso's White Lagos: A Definitive and Visual Guide to the Eyo Festival"</li> <li>- Shu Wan (U Iowa), "A digital "historical gaze" of Chinese students in Iowa, 1911-1930"</li> <li>- Francesca Giannetti (Rutgers U, New Brunswick), "So near while apart: Correspondence Editions as Critical Library Pedagogy and Digital Humanities Methodology"</li> </ul> <p>Right2Left Workshop (<a href="#">Hickman 116</a>)        - Najla Jarkas (American U Beirut) and David Joseph Wrisley (NYU Abu Dhabi), "RTL Software Localization and Digital Humanities: the Case Study of Translating Voyant Tools into Arabic"</p>

**2:30 to 2:40**

Break

#### Session 4

##### DHSI Colloquium and Conference ([Hickman 105](#))

Digital Humanities & Media, Chair: Caroline Winter (U Victoria)

- Olivia Wikle (U Idaho), "Listening with Our Eyes: Using Topic Modeling, Text Analysis, and Sound Studies Methodologies to Explore Literary Soundscapes"
- Olin Bjork (U Houston-Downton), "Dramatic Redundancy: Interactive Transcripts and Multimodal Performance Editions"
- Ashleigh Cassemere-Stanfield (U Chicago), "Sonifying Hamlet and Reading the Room"

##### ADHO Pedagogy SIG Conference ([Hickman 110](#))

Chair: Aaron Tucker (Ryerson U)

**2:40 to 4:00**

Youngmin Kim (Dongguk U), "Teaching Digital Humanities and World Literature in Class"

Alice Fleerackers, Juan Pablo Alperin, Esteban Morales, Remi Kalir (Simon Fraser U, U Colorado Denver), "Online annotations in the classroom: How, why, and what do students learn from annotating course material?"

Andie Silva (York C and Graduate Center, CUNY), "Keeping it Local: Undergraduate DH as Feminist Practice"

##### Right2Left Workshop ([Hickman 116](#))

- Joanna Byszuk (Institute of Polish Language, Polish Academy of Sciences, Warsaw/Computational Stylistics Group) and Alexey Khismatulin (Institute of Oriental Manuscripts, Russian Academy of Sciences, Saint Petersburg), "Attribution of Authorship for Medieval Persian Quasidas with Stylometry"
- Ilan Benattar (New York U), "#Right2Left Biblical Translations in Jewish Textual History: Case Studies in Judeo-Arabic and Judeo-Spanish"

## Sunday, 9 June 2019 [Workshop Sessions]

#### [DHSI Registration](#) (MacLaurin Building, Room A100)

**8:00 to 5:00**

The day's events are included with your DHSI registration. If you're not registered in DHSI, you're very welcome to join us by [registering here as a Conference / Colloquium / Workshop participant](#). We'll have a nametag waiting for you!

**Coffee, Tea, &c?**

Looking for some morning coffee or tea, or a small nibble? Options and hours of operation for weekend campus catering are [available here](#). [Mystic Market](#) usually opens around 10:00.

#### All Day Workshop Sessions ([click for workshop details and free registration for DHSI participants](#))

**9:00 to 4:00**

- 55. Introduction to Machine Learning in the Digital Humanities [8-9 June; All day, each day] ([David Strong Building C124](#), Classroom)
- 56. Pedagogy of the Digitally Oppressed: Anti-Colonial DH Methods and Praxis [9 June; All Day] ([Hickman 116](#), Classroom)
- 57. Natural Language Processing and Network Coding Apps for Text & Textual Corpus Analysis in the Humanities [9 June; All Day] ([David Strong Building C114](#), Classroom)

#### AM Workshop Sessions ([click for workshop details and free registration for DHSI participants](#))

**9:00 to Noon**

- 59. 3D Visualization for the Humanities [9 June; AM] ([Cornett A229](#), Classroom)
- 60. It's All Relational: AbTeC's Indigenous Video Game Workshops as Storytelling Praxis [9 June; AM] ([Cornett A121](#), Classroom)
- 61. Spatial DH: De-Colonizing Cultural Territories Online [9 June; AM] ([Clearihue D130](#), Classroom)
- 62. DIY Digital Editions: Workflow + Philosophy [9 June; AM] ([Clearihue D132](#), Classroom)
- 63. Creating a CV for Digital Humanities Makers [9 June; AM] ([David Strong Building C108](#), Classroom)

**Noon to 1:00**

Lunch (We recommend [Mystic Market](#) on weekends!)

#### PM Workshop Sessions ([click for workshop details and free registration for DHSI participants](#))

**1:00 to 4:00**

- 65. Indigenous Futurities in the Classroom and Beyond [9 June; PM] ([Cornett A121](#), Classroom)
- 66. DHSI Knits: History of Textiles and Technology [9 June; PM] ([Fine Arts 109](#), Classroom)
- 67. Book History Pedagogy Using Scalar [9 June; PM] ([Cornett A229](#), Classroom)
- 68. Linked Open Datafication for Humanities Scholars [9 June; PM] ([McPherson Library A003](#), Classroom)
- 69. Stylo - WYSIWYM Text Editor for Humanities Scholars [9 June; PM] ([McPherson Library A025](#), Classroom)

After the day, many will wander to Cadboro Bay and the pub at [Smuggler's Cove](#) OR the other direction to Shelbourne Plaza and [Maude Hunter's Pub](#) OR even into the city for a [bite to eat](#).

## Monday, 10 June 2019

Your hosts for the week are Ray Siemens and Jannaya Friggstad Jensen.

7:45 to 8:15	DHSI Last-minute Registration ( <a href="#">MacLaurin A100</a> )
8:30 to 10:00	Welcome, Orientation, and Instructor Overview ( <a href="#">MacLaurin A144</a> )
	Classes in Session (click for details and locations) <ul style="list-style-type: none"><li>• 28. [Foundations] Text Encoding Fundamentals and their Application (<a href="#">Digital Scholarship Commons, McPherson Library A308</a>, Classroom)</li><li>• 29. [Foundations] Understanding The Predigital Book: Technologies of Incription (<a href="#">McPherson Library A003</a>, Classroom)</li><li>• 30. [Foundations] Databases for Digital Humanists (<a href="#">McPherson Library 210</a>, Classroom)</li><li>• 32. [Foundations] Music Encoding Fundamentals and their Applications (<a href="#">Clearihue A030</a>, Lab)</li><li>• 33. Digital Storytelling (<a href="#">Cornett A120</a>, Classroom)</li><li>• 34. Text Mapping as Modelling (<a href="#">Clearihue D131</a>, Classroom)</li><li>• 35. Stylometry with R: Computer-Assisted Analysis of Literary Texts (<a href="#">Clearihue A102</a>, Lab)</li><li>• 36. Open Access and Open Social Scholarship (<a href="#">Clearihue D130</a>, Classroom)</li><li>• 37. Digital Games as Tools for Scholarly Research, Communication and Pedagogy (<a href="#">Cornett A229</a>, Classroom)</li><li>• 38. Queer Digital Humanities (<a href="#">David Strong Building C114</a>, Classroom)</li><li>• 39. Parsing and Writing XML with Python (<a href="#">Clearihue A108</a>, Lab)</li><li>• 40. Introduction to Electronic Literature in DH: Research and Practice (<a href="#">Cornett A128</a>, Classroom)</li><li>• 41. Surveillance and the Critical Digital Humanities (<a href="#">David Strong Building C108</a>, Classroom)</li><li>• 42. Text Analysis with Python and the Natural Language ToolKit (<a href="#">Clearihue A103</a>, Lab)</li><li>• 43. Creating LAMP Infrastructure for Digital Humanities Projects (<a href="#">Human and Social Development A170</a>, Lab)</li><li>• 44. Processing Humanities Multimedia (<a href="#">Human and Social Development A150</a>, Lab)</li><li>• 46. Digital Humanities Pedagogy: Integration in the Curriculum (<a href="#">Cornett A121</a>, Classroom)</li><li>• 47. Accessibility &amp; Digital Environments (<a href="#">Priestly Law Library 265</a>, Classroom)</li><li>• 48. Agile Project Management (<a href="#">Cornett A132</a>, Classroom/Lab)</li><li>• 49. XPath for Processing XML and Managing Projects (<a href="#">Clearihue A105</a>, Lab)</li><li>• 50. Endings: How to End (and Archive) your Digital Project (<a href="#">Priestly Law Library 192</a>, Classroom)</li><li>• 51. Text Processing - Techniques &amp; Traditions (<a href="#">McPherson Library A025</a>, Classroom)</li><li>• 52. Introduction to Humanities Data Analysis &amp; Visualization in R (HDA) (<a href="#">Human and Social Development A160</a>, Lab)</li><li>• 53. Introduction to Network Analysis in the Digital Humanities (<a href="#">Clearihue D132</a>, Classroom)</li></ul>
10:15 to Noon	Lunch break / Unconference Coordination Session ( <a href="#">MacLaurin A144</a> ) (Grab a sandwich and come on down!)
12:15 to 1:15	"Mystery" Lunches
1:30 to 4:00	Classes in Session
4:10 to 5:00	Institute Lecture: Angel David Nieves (San Diego State U): "3D Mapping and Forensic Traces of Testimony: Documenting Apartheid-Era Crimes Through the Digital Humanities" Chair: Constante Crompton (U Ottawa) ( <a href="#">MacLaurin A144</a> )  Abstract: In 1989 the killing of a queer, 14-year-old youth in Winnie Mandela's house named Stompie Seipei (an event that few in South Africa are willing to recall, let alone discuss, in any detail) -- is perhaps one of the most glaring examples where the queer and activist community was suppressed or erased from anti-apartheid/liberation histories. Digital humanities may actually help both reconstruct and recover a history that is still very early in the telling, despite what is commonly believed about the liberation struggle and the contributions of queer activists in the dismantling of apartheid. Perhaps it could explain why a youth such as Seipei was killed -- or at the very least, provide a more complex and messy narrative that permits one to know more how the history of queer anti-apartheid activists was suppressed. This talk outlines a methodology for "messy thinking and writing" in the digital humanities that -- through a queer and feminist intersectional framework -- permits a more complex layering of oral histories and 3D historical reconstructions.
5:00 to 6:00	Reception ( <a href="#">University Club</a> )
<b>Tuesday, 11 June 2019</b>	
9:00 to Noon	Classes in Session
12:15 to 1:15	Lunch break / Unconference "Mystery" Lunches

<b>1:30 to 4:00</b>	Classes in Session
<b>4:15 to 5:15</b>	<p>DHSI Conference and Colloquium Lightning Talk Session 4 (<a href="#">MacLaurin A144</a>)  Chair: Lindsey Seatter (U Victoria)</p> <ul style="list-style-type: none"> <li>Ashley Caranto Morford (U Toronto); Kush Patel (U Michigan); Arun Jacob (McMaster U), "#OurDHIs anti-colonial: Questions and challenges in dismantling colonial influences in digital humanities pedagogy"</li> <li>Julia King (U Bergen), "Developing Network Visualizations of Syon Abbey's Books, 1415-1539"</li> <li>Luis Meneses (ETCL; U Victoria), "Identifying Changes in the Political Environment in Ecuador"</li> <li>Alicia Brown (Texas Christian U), "Digital Cartography of the Ancient World"</li> <li>Laura Horak (Carleton U), "Building the Transgender Media Portal"</li> <li>Andrew Boyles Peterson (Michigan State U), "Last Mile Tracking: Implications of Rental Scooter Surveillance"</li> </ul>
<b>6:00 to 8:00</b>	<p>DHSI Newcomer's Gathering (<a href="#">Grad House Restaurant, Graduate Student Centre</a>)  Come down, buy meal and a beverage, and make some new friends!</p>

## Wednesday, 12 June 2019

<b>9:00 to Noon</b>	Classes in Session
<b>12:15 to 1:15</b>	<p>Lunch break / Unconference  "Miracle" Lunches  Presentation: An Introduction Jupyter Notebooks for Researchers (<a href="#">MacLaurin A144</a>)</p> <p>This presentation introduces Jupyter Notebooks for researchers, via a partnership between Compute Canada and the Pacific Institute for the Mathematical Sciences (PIMS) including a large number of Canadian institutions. Read more <a href="#">here</a>. Presenting is James Colliander, PIMS Director and team.</p>
<b>1:30 to 4:00</b>	Classes in Session
<b>4:15 to 5:15</b>	<p>DHSI Conference and Colloquium Lightning Talk Session 5 (<a href="#">MacLaurin A144</a>)  Chair: Lindsey Seatter (U Victoria)</p> <ul style="list-style-type: none"> <li>Ashleigh Cassemere-Stanfield (U Chicago), "Critical Editions for Digital Analysis and Research Project (CEDAR): Shakespeare Digital Variorum"</li> <li>Calin Murgu (New College of Florida), "Putting local metadata to strategic use: A Dashboard for visualizing 60 years of theses metadata"</li> <li>Jason Lajoie (U Waterloo), "Queer Critical Making and the Logic of Control"</li> <li>John Barber (Washington State U), "Zambezi River Bridge"</li> <li>Kent Emerson (U Wisconsin-Madison), "Digital Mappa and the George Moses Horton Project"</li> </ul>
<b>6:00 to 7:00</b>	<p>"Half Way There (yet again)!" [An Informal, Self-Organized Birds of a Feather Get-Together] (<a href="#">Felicitas, Student Union Building</a>)  Bring your DHSI nametag and enjoy your first tipple on us! [A great opportunity for an interest group meet-up ...]</p>

## Thursday, 13 June 2019

<b>9:00 to Noon</b>	Classes in Session
<b>12:15 to 1:15</b>	<p>Lunch break / Unconference  "Miracle" Lunches  [Instructor lunch meeting]</p>
<b>1:30 to 4:00</b>	Classes in Session
<b>4:10 to 5:00</b>	<p>Institute Lecture: Karina van Dalen-Oskam (Huygens Institute and U Amsterdam; Alliance of Digital Humanities Organizations): "The Riddle of Literary Quality: Some Answers"  Chair: Aaron Mauro (Penn State, Behrend C) (<a href="#">MacLaurin A144</a>)</p> <p>Abstract: What is literature, and can you measure it? That is the key question of the project The Riddle of Literary Quality. "The Riddle" is a research project of the Huygens Institute for the History of the Netherlands (Amsterdam) in collaboration with the Fryske Akademy (Leeuwarden) and the Institute for Logic, Language and Computation (University of Amsterdam). The Riddle combines computational analysis of writing style with the results of a large online survey of readers, completed by almost 14,000 participants. In my talk, I will go into</p>

some of the main results of the project.

## Friday, 14 June 2019

**9:00 to Noon** Classes in Session

**12:15 to 1:15** Lunch Reception / Course E-Exhibits ([MacLaurin A100](#))

**1:30 to 2:00** Closing, DHSI in Review ([MacLaurin A144](#))

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sciences humaines du Canada

Social Sciences and Humanities  
Research Council of Canada



# Draft Course Schedule

This represents the intended schedule for the DHSI workshop: Introduction to IIIF: sharing, consuming, and annotating the world's images. This schedule is subject to change based on course direction and attendee interest.

- Monday
  - Morning - Introductions and an introduction to IIIF
  - Afternoon - Image API and getting started with hands on IIIF tools
- Tuesday
  - Morning - Publishing materials using the IIIF Presentation API
  - Afternoon - Hands on IIIF Presentation API work
- Wednesday
  - Morning - Annotations
  - Afternoon - Hands on Annotations and IIIF Search
- Thursday
  - Morning - IIIF and AI
  - Afternoon - Integration IIIF into other platforms and frameworks.
- Friday
  - Morning - Project work and open consulting
  - Afternoon - Wrap-up

# Introduction to IIIF: sharing, consuming, and annotating the world's images

## Supplementary Coursepack

This coursepack provides supplementary readings and reference appendices for the 5 day ***Introduction to IIIF*** workshop. It begins with a series of blog posts introducing the basic concepts of IIIF, includes some institutional announcements making large swathes of image and metadata content available followed by a section with example tutorials of simple uses of the APIs. We look forward to working with you more closely during our classroom time together.

## Resources

### Introductory Articles

This series of introductory articles provides an overview of the specifications and how they relate to content sources. The diagrams and explanations can be more accessible and supplemental to reading the specifications.

1. “An Introduction to IIIF” an overview article with helpful diagrams, from the Digerati Blog, by Tom Crane
2. “But Where’s My Model?” a deeper article describing how IIIF relates to library catalogues and structural metadata
3. “Looking Up and Looking Down” another expanded article of the same series, discussing how the different levels of IIIF objects are related to one another
4. “IIIF Search and Discovery” an overview of how objects in the IIIF universe are discovered and how related text content can be searched

## Institutional Announcements

These provide some examples of how institutions make the availability of their collections available through IIIF. The level of support, and guidance on usage, can vary from institution to institution.

5. "Zoom in to 9.3 Million Internet Archive Books and Images—through IIIF" the Internet Archive's announcement of its IIIF support, with links to usage documentation
6. "Thousands of cultural heritage materials now instantly shareable in new online platform" The UT Ransom Center's description of their IIIF service launch
7. "IIIF Adoption by Europeana Future Prospects for the Network" a description of Europeana IIIF support

## Example Tutorials

8. "Fellow Travelers: The Canterbury Tales and IIIF" A tutorial showing how to bring content from multiple sources together for comparison
9. "Create and Share IIIF Items Quickly and Easily with Drag and Drop over Email" A tutorial showing how to construct drag and drop links and how they relate to remote manifest resources
10. "Use Internet Archive's IIIF Endpoint to Unlock Your Images' Potential" A tutorial showing how to retrieve and work with content from the IIIF APIs provided by the Internet Archive

# An Introduction to IIIF

Tom Crane, [Digirati](#), March 2017

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## Abstract

*The International Image Interoperability Framework (IIIF, pronounced “triple-eye-eff”) is a set of application programming interfaces (APIs) based on open web standards and defined in specifications derived from shared real world use cases. It is also a community that implements those specifications in software, both server and client. This article provides a non-technical overview of the standards, and the benefits they bring to the sharing of content.*

## Descriptive semantics

A library or museum catalogue uses a metadata scheme for information such as *creator* or *subject*. But we don't need this information to enjoy a library, gallery or museum. We don't need to consult the catalogue. We can go and look at things, and curators can arrange things so as to encourage us to look at them.

The records in the catalogue describe the things in the collection. Browsing or searching the records can be easier than hunting through books on the shelves. We can find the descriptions of books by a particular author, or descriptions of paintings of seascapes. The records comprise the *descriptive metadata* available for each object. The descriptive metadata records are small and easy to share. Machines understand them. When we understand the metadata scheme in use, we understand what the things are, just from looking at the records.

*Image credit: Dr. Marcus Gossler (Own work) [CC-BY-SA-3.0](#), via [Wikimedia Commons](#)*

## Presentation semantics

The descriptive scheme provided by metadata is also used in the library to present the real objects to us. Books might be shelved by subject, and then by author. A decision has been made about collecting things together to make it easy for us to find them in a physical space. Conventionally, that decision is driven by a metadata scheme. There is usually some relationship between the arrangement of items on view (and in storage), and the model that the metadata scheme uses to describe the world.

In an exhibition space, that arrangement may be partly or entirely unconnected to a formal metadata scheme, but there has still been a decision made about how objects relate to each other and how they are aggregated in collections for people to look at or interact with.

The metadata scheme helped decide how objects are collected together and made available to humans, but at that point, something else takes over.

*Photograph; the Wellcome Institute Library, 1983 Wellcome L0015799 [CC BY 4.0](#), via [Wikimedia Commons](#)*

## The Human Presentation API

The arrangement of books on shelves, and the design and conventions of book covers, are part of our human API for interacting with the world.

When we find a particular book in a library or look at a painting in a gallery, we don't need to consult a metadata standard to understand what the text and images on the book cover or on a gallery label mean. It's part of our shared cultural understanding of the world. We know the publisher, title and author of this book by looking at the "metadata" on the cover; we can pick it up and read it. If we're looking at a painting or a sculpture, the descriptive metadata might help us understand it better, but we never confuse the description with the object itself.

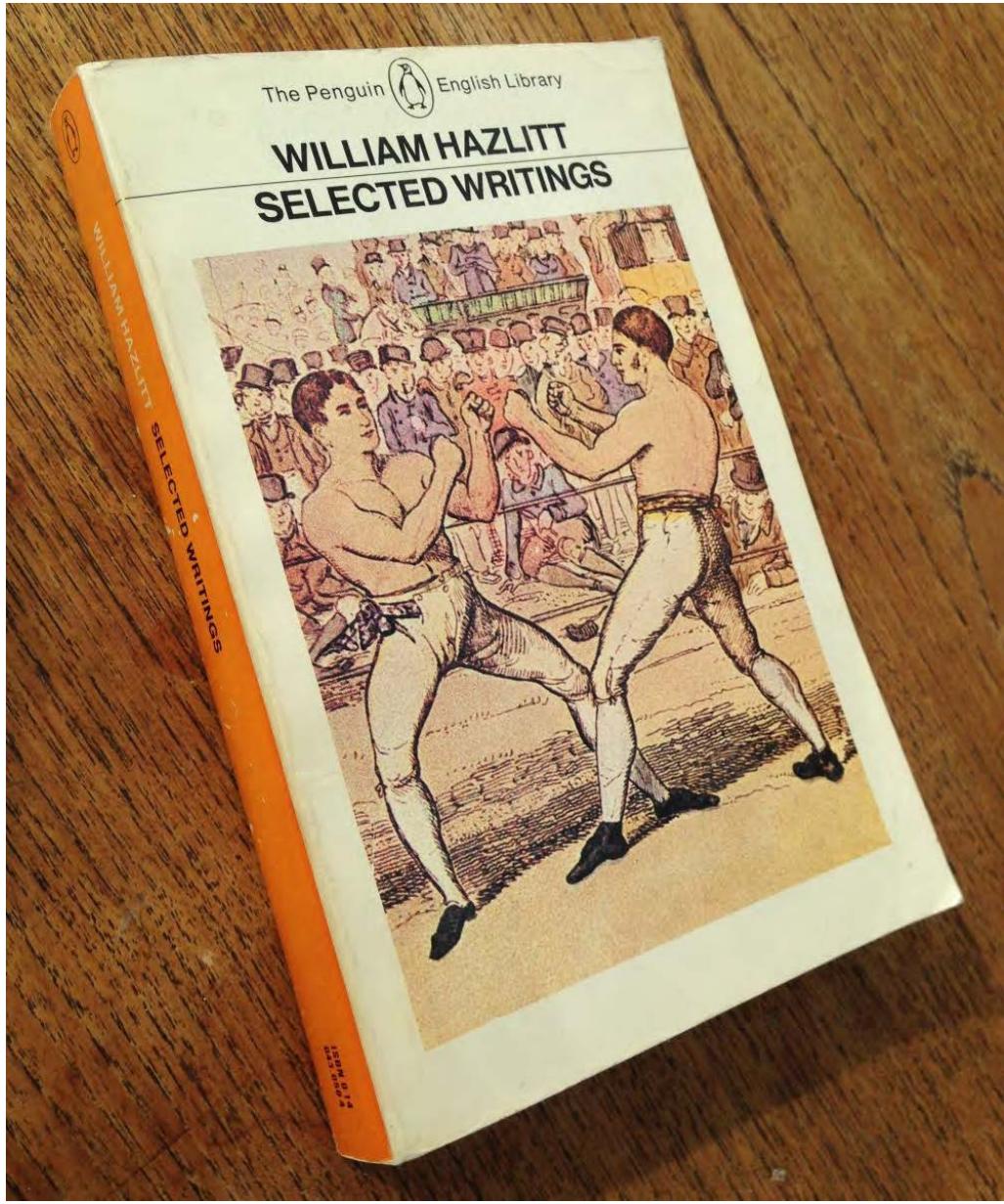
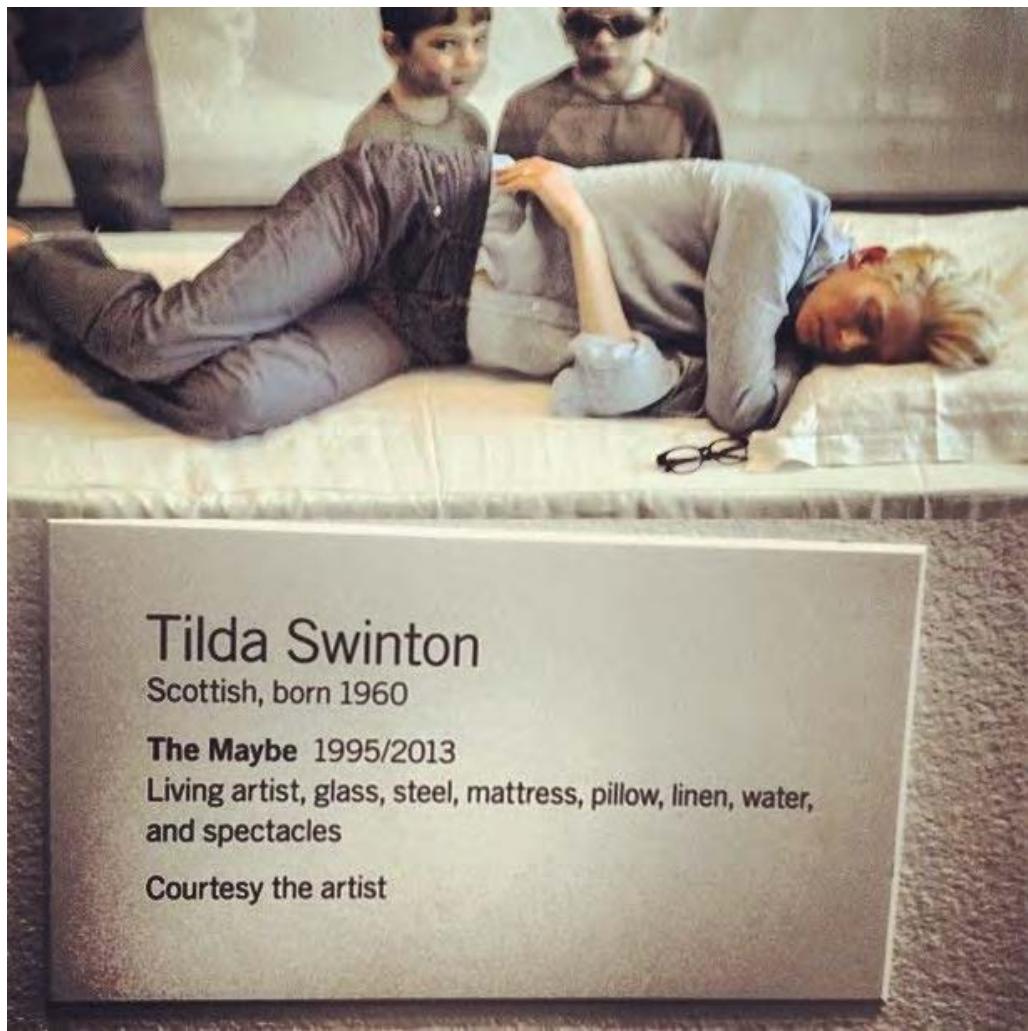


Image: author photo



From <https://uk.pinterest.com/livingpractice/tilda-swinton/>

We know how the strings of text presented to us on the gallery label relate to what we can see in front of us. We don't need a guide or a key to interpret the label.

Just as the descriptive semantics in the records influence the presentation of the material in a physical space, we can use the metadata to drive navigation online. On the web, we have the ability to shelve a book in many different places at once, so a descriptive metadata scheme gives us powerful tools for exploration. Descriptive semantics inform the collection of books on shelves, the ink-on-paper of a book cover, the labelling of an exhibit or the information architecture of a web site.

These are all perhaps statements of the obvious. We don't have to consult catalogue metadata to browse, read or view a physical book or painting, or write an essay about it. The Human Presentation API is our cultural awareness of what book covers and gallery labels mean. Which way up to hold a book, whether to start at the back or the front, how to turn the pages, how to interpret a table of contents and navigate to a chapter, how to use an index. We don't need a guide for this part.

## Digital surrogate

We still have our cultural awareness when looking at a digital surrogate on screen. But the computer needs assistance in presenting that digital surrogate and allowing us to interact with it. The process needs to be assisted by metadata to get the right pixels on the screen in the right place, so that our human cultural awareness can take over again. When viewing things over the web, the machines and software involved need help to let us interact with the object.

For years, institutions have been building and buying image servers, image viewers, page turners, discovery applications, learning environments and annotation tools to make their content accessible to the world, and to let the world interact with it. Many wonderful software tools have been made, and many beautiful websites enjoyed by scholars and the interested public.

A digitisation project gets some funding. Some of that pays for the development of a web site to show that collection. Maybe some work is done to make a nice viewer - a page-turner or other client application to read books, present multiple views of a statue or artwork, or similar. Some projects have made use of deep zoom technologies and formats like Zoomify and Seadragon DZI, and invested in Image Server technology. When the funding for a project finishes, the best that can

be hoped for it that it remains online, albeit in its own silo of probably non-interoperable content. Formats and technologies ossify and become obsolete. And even when the technologies are still current, there may have been little consideration of how others might later re-use or consume that content. There may be no interoperability other than that afforded by the web itself, at the level of web pages and images. We need something more formal and specific to convey the complex structure of a digitised book or sequence of images, and the description of a digital object for consumption in a viewer is a problem that has been addressed again and again for project after project. The same use cases reappear with different, incompatible solutions.

For anyone trying to use the accumulated wealth of digitised resources from around the world, whether for research or personal interest, the lack of standardisation has meant that each digitised collection needs to be worked with on its own terms. One institution's image delivery is not compatible with another's. The same problems are solved over and over again in different silos of non-interoperable content.

While a multitude of different standards and practices are expected and even desirable for descriptive metadata, they do nothing for the content itself. There has been no standardised way of referring to a page of a book, or a sentence in a handwritten letter, from one digitised collection to the next. Descriptive metadata standards don't help us. It is not their job to enable us to refer to parts of the work, down to the tiniest detail - interesting marginalia, a single word on a page - and make statements about those parts in the web of linked data. It is not their job to *present content*, or share it, or refer to it.

## We need a standard!

Obviously, a standardised way of describing a digital surrogate would be beneficial. It would mean that content has a better chance of a longer life, it would mean that we could benefit from the software development efforts of others by adopting shared formats. Server software to generate the representations and client software to view it need not be reinvented for every project. It would be good if my digitised books worked in your viewer, and yours worked in my viewer, and we could both have the option of picking off-the-shelf viewers as well as building our own. And much more than that - making our digital surrogates interoperable allows others to reuse them in ways we haven't thought of. It's one thing to make descriptions of objects available for reuse through APIs and catalogue records, but we need a model for describing digital representations of objects and a format for software - viewing tools, annotation clients, web sites - to consume and render the objects and the statements made about them, by us and others. The model needs to be rich enough to accomodate composition of all kinds of web resources to enhance, describe and annotate the objects.

A hypothetical effort at standardisation might go along these lines:

- "So many standards to choose from"
- "And we can always make more!!!"
- "OK, we need to have the pages in the right order"
- "And structure to drive navigation within the book"
- "And metadata to describe the pagination, reading direction"
- "And we want deep zoom images"
- "And we need metadata to show all the things that the user needs to see"
- "Like the title and the author and what it's about"
- "And which of our collections it's in"
- "And the material, the curator wants the binding material in the model"
- "Does a painting have an author?"
- "Hang on, this problem has been solved already"
- "Let's have a look at mappings to cool things like CIDOC-CRM..."

This process seemed to start out really well, and progress was made on the requirements for an interoperable standard. But it started geting complex quite quickly, as all the different ways of describing objects began to bear down on the emerging model. Questions like "*does a painting have an author*" don't concern us when we are looking at a painting. We don't need to accomodate that kind of question in our human Presentation API. They only get raised when we're talking about what to put in the catalogue records, when we implement a descriptive scheme. In the above discussion, the participants are sometimes talking about the actual objects, and sometimes talking about descriptive metadata about the objects.

# The IIIF Presentation API



The IIIF Presentation API avoids this problem by being very clear about what it is for. It's not concerned with descriptive metadata. It has no opinion about whether a painting has an author. Its job is to convey an object for presentation. This means getting pixels on screen to drive a viewer, or offering a surface for annotation. The model is about **presentation semantics** rather than descriptive semantics. The descriptive metadata won't help us paint the pixels on the screen so that we can read the pages, look at the brush strokes or see the film grain. Instead we need information about the images, audio, video, text and other content so we can display it, search it, reuse it; we need information about the structure of the object to navigate it; and we need information about pagination, orientation, reading direction and other hints at how to present the content. We also need links off to other sources of data that can help humans and machines make sense of the object if they choose to follow them, such as web pages or catalogue records.

The IIIF Presentation API provides:

- A model for describing digital representations of objects: "*Just enough metadata to drive a remote viewing experience*"
- A format for software - viewing tools, annotation clients, web sites - to consume and render the objects and any other associated content in the form of annotations

## Just enough for presentation

This doesn't mean that the descriptive metadata has no place in a digital object delivered by the Presentation API. It's important that the object is accompanied by useful information, and links to other descriptions of the object. The Presentation API takes great care to ensure that you can accompany your digital objects with rich human-readable descriptions, with support for multiple languages, so that viewers can display that important contextual information to users. It also provides an explicit mechanism for linking to one or more semantic descriptions of the object depicted, as well as related human-readable resources. There's quite a bit of descriptive metadata being presented here:

**A tour in Wales**

**CHIRK CASTLE.**

Thomas earl of Arundel. On the disgrace and exile of Mowbray, in 1397, it probably was returned by the crown; and granted again to William Beauchamp lord of Abergavenny, who married the other sister; and by the marriage of his grand-daughter, sole heiress of Richard Beauchamp earl of Worcester, with Edward Nevil (afterwards lord Abergavenny) was conveyed into that family, in the reign of Henry VI\*.

The next possessor which occurs to me, is the unfortunate Sir William Stanley, who, as Leland says,<sup>4</sup> repaid it well.<sup>5</sup> After his ungrateful execution, it became forfeited to his rapacious master; and, as I conjecture, was bestowed, in 1534, along with Holt Castle (another of Sir Williams castles) by Henry VIII. on his natural son Henry Fitz-roy duke of Richmond and Somerset<sup>6</sup>. By his early death, it reverted again to the crown.

Elizabeth granted it, with the same lordships, to her worthless favorite Dudley earl of Leicester. On his death, Clark Castle became the property of lord St. John of Bletso's whole son, in 1553, sold it to Sir Thomas Middledon knight, mayor of London in 1614.

In the year 1642, Charles I by an order from Oxford, directed

\* Paul 213.  
† King's Tale-royal 195.  
‡ Dugdale colonel

**ATTRIBUTION**

Llyfrgell Genedlaethol Cymru – The National Library of Wales

**Share**

**MORE INFORMATION**

**TITLE**  
A tour in Wales

**ALTERNATE TITLE**  
The journey to Snowdon

**AUTHOR**  
Pennant, Thomas 1726-1798

**AUTHOR**  
Roberts, T. F (Thomas Francis) 1860-1919 former owner.

**DATE**  
MDCCCLXXXIV [1784]

**PHYSICAL DESCRIPTION**  
2 v. : ill., maps, plans, ports. ; 25 cm.  
(4°)

**PERMALINK**  
<http://hdl.handle.net/10107/4692237>

**REPOSITORY**  
This content has been digitised by  
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**Full Screen**

Llyfrgell Genedlaethol Cymru – The National Library of Wales [View on site](#)

For the Presentation API, the meaning of any accompanying descriptive metadata for display in a viewer is irrelevant. The API's job is to get the content of the work - the pages of the book, the painting - to a point where a human can interact with it in a logical way. To view it, read it, annotate it, mix it up with other things if they want. A IIIF client can also display any accompanying metadata included as multilingual pairs of labels and values. But that's as far as it goes, it needs no definition or scheme for what that metadata means. It is *outside of the scope* of the Presentation API. In the screen shot above, the user can view important semantic metadata - but the Presentation API is just a conduit for that text. In the Presentation API, those strings have no semantic significance. They are not defined in the specification. A client of the API should just render them. If you want to know what they mean, look at the link to descriptive metadata that a publisher of IIIF resources provides.

This means that the Presentation API is *not* a new metadata standard to describe your objects. It is not an alternative to or replacement for any existing descriptive metadata standards, because it has a different function. The many rich and various ways in which different communities describe objects are diverse for good reason. The models a community or an individual institution adopt to describe the meaning of its objects in the world, from cataloguing schemes to APIs, benefit from shared vocabularies and common practice within large communities, but attempts at complete standardisation fail and are not even desirable. The models, standards and APIs an institution adopts for description are an expression of its

view of the world. However, while it is not reasonable or desirable that everyone describes their objects the same way semantically, it is desirable that an institution *presents* its objects via a common standard. Many descriptive standards, one Presentation standard - for the same reason that it is sensible to make your web pages compatible with most web browsers.

This does not mean that the user experience driven by the Presentation API has to be standard as well; far from it. IIIF is not about standardising the user experience. An object described by the Presentation API could be rendered by a conventional bookreader style viewer, loaded into a scholarly workbench application for annotation, displayed as an explosion of thumbnails, projected into a virtual space, rendered as minimalist web pages, remixed into multimedia presentations, worked into online exhibitions, reused in physical gallery space or turned into games and interactive experiences. The Presentation API model encourages creative re-use of the content, and to this end ensures it stays separate from the descriptive metadata. A Presentation API resource is portable, reusable and interoperable. If you have a digitised resource, you provide a Presentation API resource and a semantic description of the object, and the two link to each other.

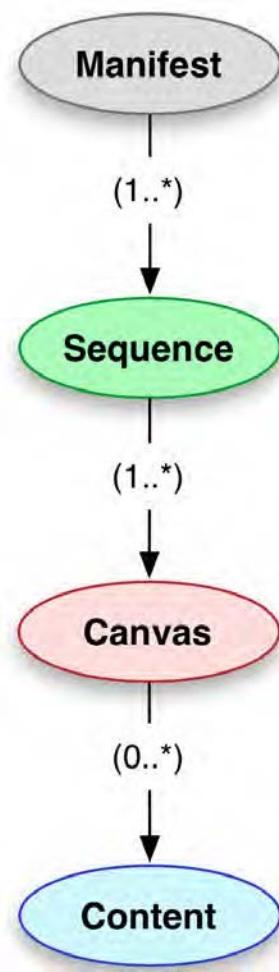
## Manifests and Canvases

How does the Presentation API work?

### MANIFESTS FOR THINGS

The Presentation API describes “just enough metadata to drive a remote viewing experience”. This metadata is a **IIIF Manifest**. The Manifest represents the thing. A book. A painting. A film. A sculpture. An opera. A long-playing record. A manuscript. A map. An aural history field recording. A videocassette of a public information film. A laboratory notebook. A diary. All of these things would be represented by a IIIF Manifest. You publish IIIF manifests for each of your objects.

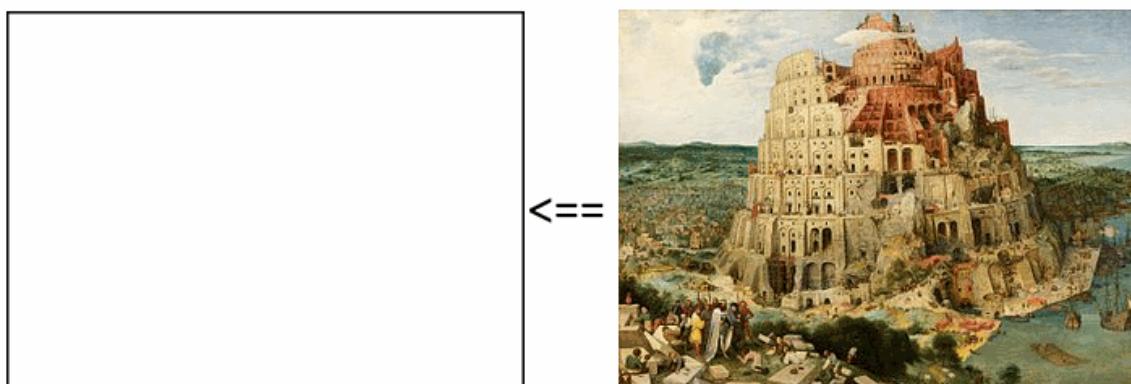
A manifest is what a IIIF viewer loads to display the object. A manifest could be used to generate a web page for the object. A manifest could be loaded into an annotation tool, or a IIIF editing environment to be used as source material in the creation of a new manifest.



If the object the manifest represents is a photograph, there might only be one conceptually distinct view of it that we wish to convey via the Presentation API, to end up on a user's screen. For many objects there is more than one view. Even for a painting, it might be important to include the back of the canvas frame. And for books, manuscripts and much archive material, each page, leaf, folio or sheet is one or two separate views - in its normal state we can't look at all of them at once, the model conveys them as a sequence of distinct views. Depending on how the book has been captured and how we want to model it, we might have one view per page, or one view per double page spread, and extra views for inserts or supplementary material.

#### CANVASES FOR VIEWS

These views are represented by **Canvases**. A Manifest contains one or more **Sequences** of **Canvases**. A canvas is not the same as an image. The canvas is an abstraction, a virtual container for content. It's analogous to a PowerPoint slide; an initially empty container, onto which we "paint" content. If we want to provide a sequence of images to a book reading application, or for viewing paintings, the concept of a canvas may seem like an extra layer of complexity. It's not much more complicated to do it this way, but it is much more flexible and powerful.



*The canvas is the abstract space; we provide an image to paint the canvas*

The Canvas keeps the content separate from the conceptual model of the page of the book, or the painting, or the movie. The content can be images, blocks of text, video, links to other resources, and the content can be positioned precisely on the canvas. By including a Canvas in a Manifest, you provide a space on which you and others can **annotate** content. For image-based content the PowerPoint analogy is clear: the Canvas is a 2D rectangular space with an aspect ratio. The height and width properties of a canvas define the aspect ratio and

provide a simple coordinate space. This coordinate space allows the creator of the manifest to associate whole or parts of content with whole or parts of canvases, and for anyone else to make their own annotations in that space.

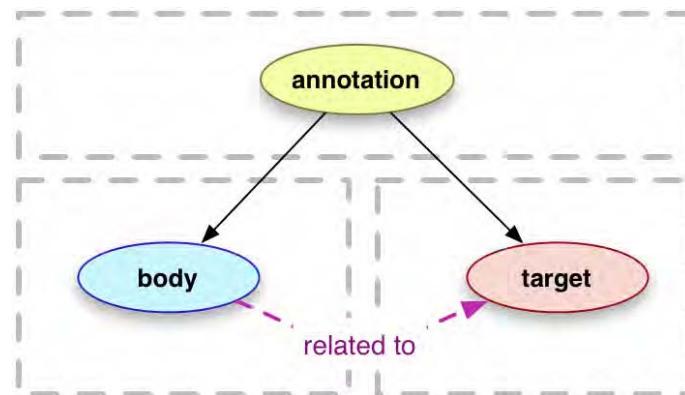
This means that you can provide more than one representation of a view. You might have a painting photographed in natural light and in X-ray. You might have a manuscript that was captured to microfilm, and your initial presentation of the material uses images derived from the microfilm. Later, you go back and photograph some of the folios at high resolution, maybe those with illuminations. You can update the content associated with a Canvas without having to retract the canvas and the other content you might already have associated with it.

You may have a manuscript represented as a sequence of Canvases, but for some of those Canvases you have no image at all - the page was known to exist, but is now lost. You may still have text content associated with the Canvas - transcriptions from a copy, commentary, or other notes. The fact that for this particular folio you have no photographic representation doesn't stop you modelling it in the Manifest and associating content with it - just not an image in this case.

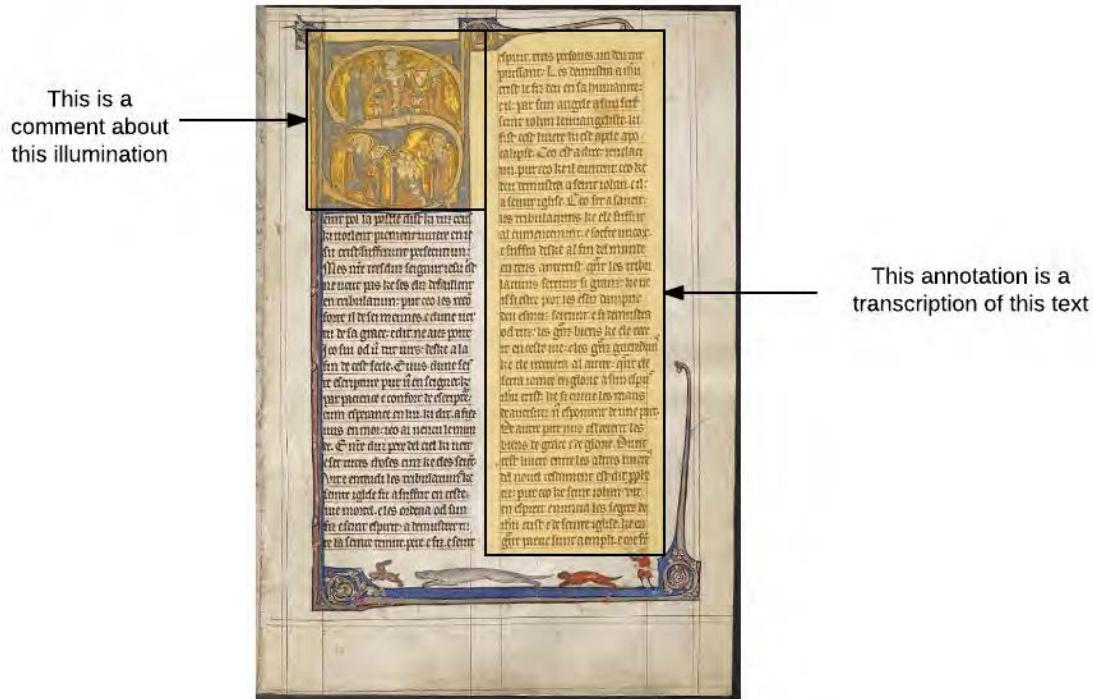
## ANNOTATIONS FOR CONTENT

All association of content with a canvas is done by **annotation**. The IIIF Presentation API is built on the Open Annotation standard, which has now become the W3C Web Annotation Data Model. At its simplest, the Web Annotation Data Model is a formalised way of linking resources together:

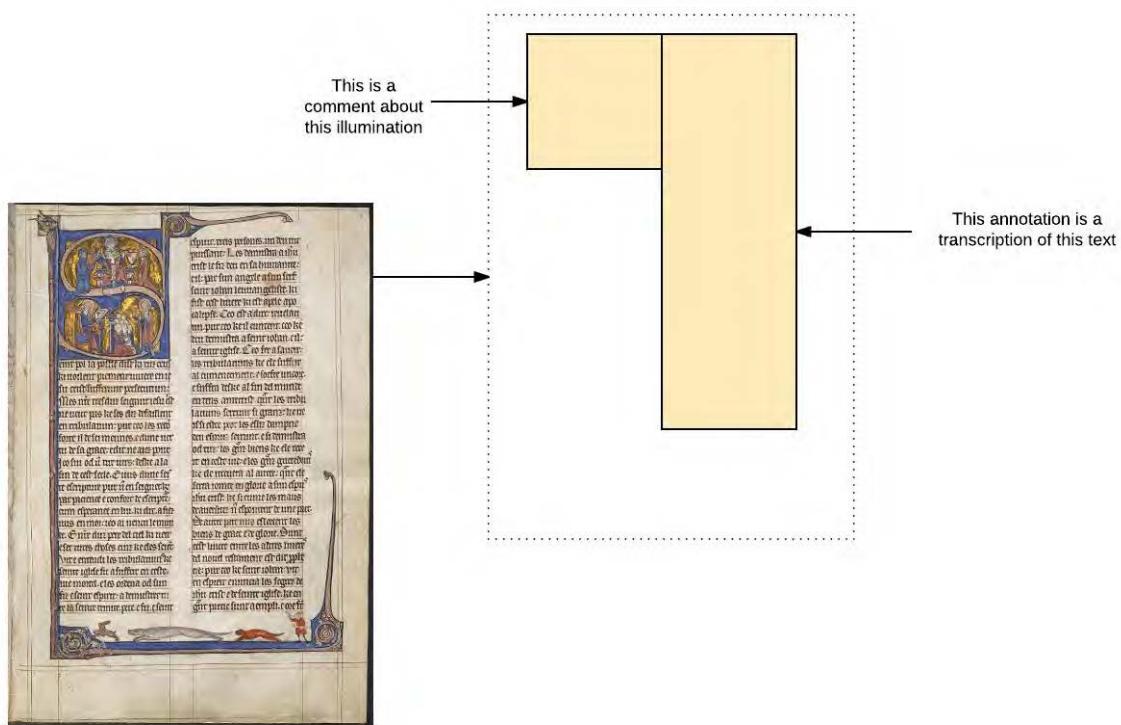
*An annotation is considered to be a set of connected resources, typically including a body and target, and conveys that the body is related to the target. The exact nature of this relationship changes according to the intention of the annotation, but the body is most frequently somehow "about" the target. This perspective results in a basic model with three parts, depicted below. The full model supports additional functionality, enabling content to be embedded within the annotation, selecting arbitrary segments of resources, choosing the appropriate representation of a resource and providing styling hints to help clients render the annotation appropriately.*



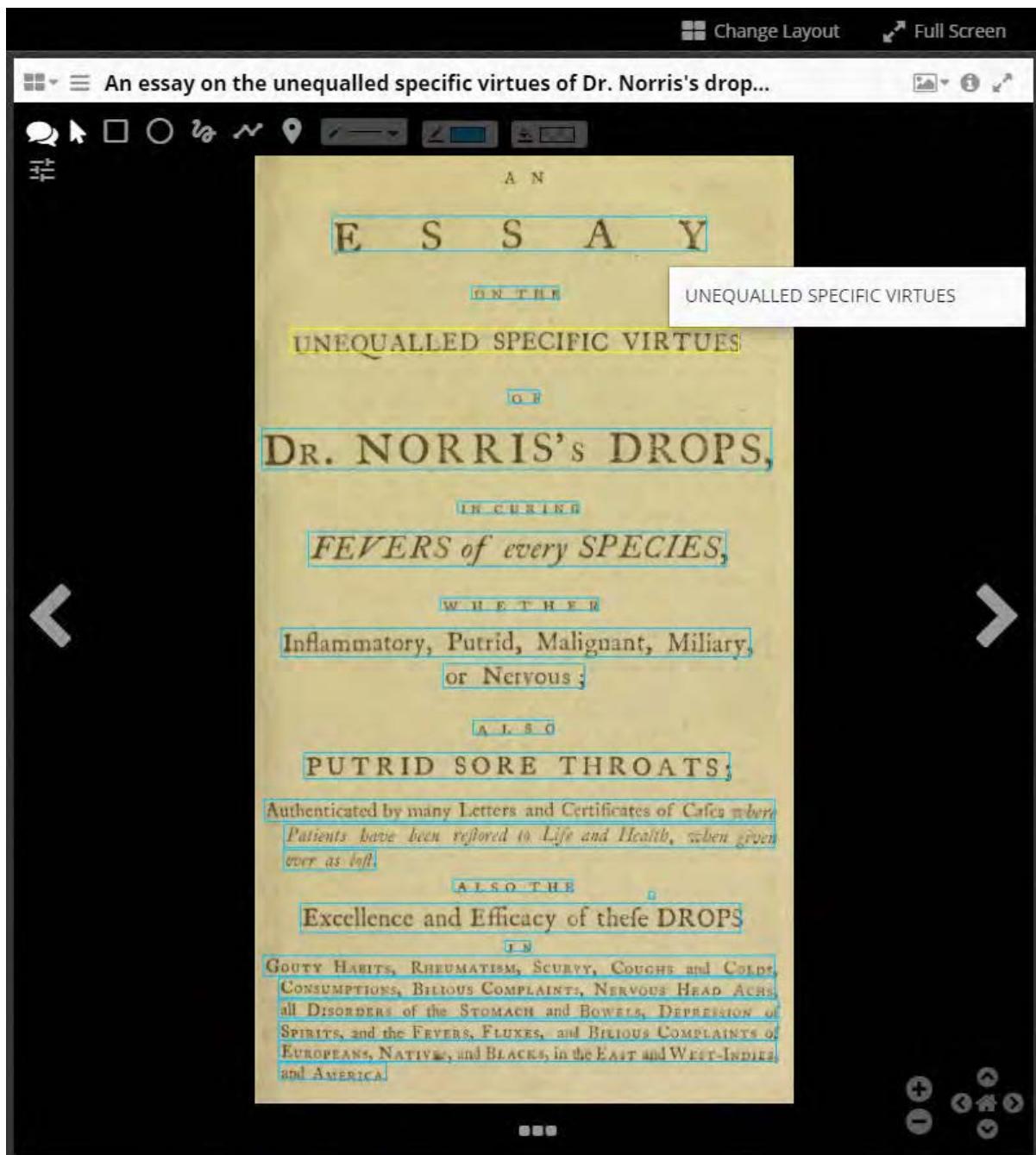
A simple annotation might be an association between a page of a manuscript and an article about that page elsewhere on the web. Or, in the context of a bookreader or viewer, it might be a comment on or transcription of a particular part of the page, or the whole page. This notion of annotations as commentary or transcriptions is familiar:



But in IIIF, the image itself is one just of the pieces of content annotating the abstract canvas. There may be multiple images, there may be no images at all. This diagram shows that all the content a user ever sees rendered by a viewer - images, text and other content - is associated with the virtual space of the canvas via the mechanism of annotation.

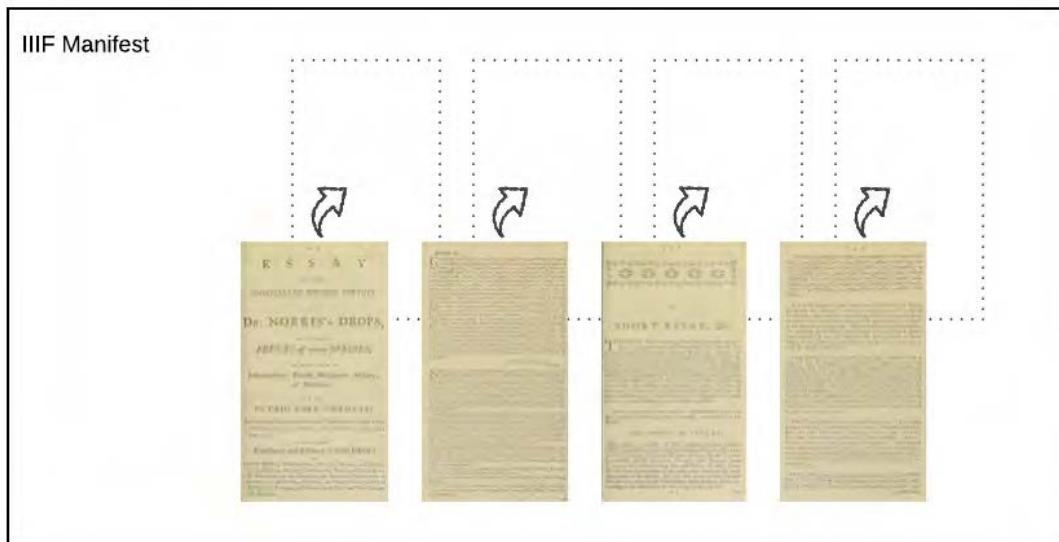


IIIF distinguishes between annotations that are for **painting** on to the canvas - images, transcriptions - and other annotations, that don't necessarily make sense rendered directly onto the virtual space. For example, commentary might be rendered alongside the image in a viewer, not superimposed on top of it, but transcription could be superimposed directly in a layer that can be toggled on and off:



Wellcome Library. [Public domain](#)

When you publish a manifest, you publish a sequence of one or more canvases that are almost always accompanied by one or more image annotations - usually just one. For a digitised book, the manifest that represents it comprises a sequence of canvases, with image annotations:



Although in this initial state each canvas is accompanied in the manifest by just one image annotation, the stage is set for you and others to add more annotations in future. When you add annotations, you might publish them in your manifest alongside the image annotations. When other people annotate your content, they can't do this directly because they can't edit your manifest. But they can still create annotations using the identity and coordinate system you have established for your canvas by your act of publishing it in a manifest. This allows me to make annotations on your content for my own private use, or for me to publish them independently and combine them with your Manifest and its canvases in my own presentation of your material, or even for you to accept my annotations back and incorporate them into your published content.

The canvas establishes a stage in which the simplest case - one image per canvas - is straightforward, but more complex cases, more complex and interesting associations of content, follow naturally. Suppose a manuscript folio that once looked like this:

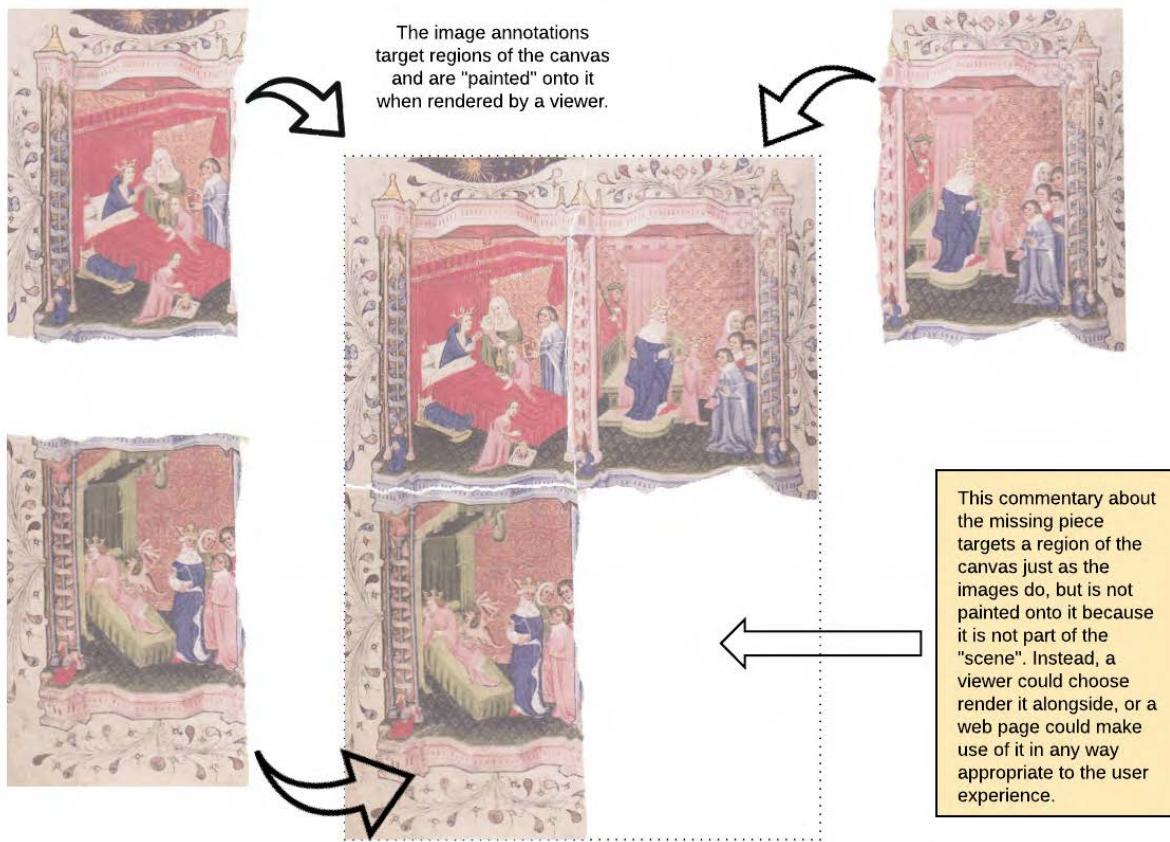


Bodleian Libraries

...was torn up and its various parts scattered. Today, we have images of three surviving parts:



We can include a canvas for this missing leaf, and annotate the three parts we do have onto it, as well as providing some commentary about this missing piece:



Again, the similarity between this and a PowerPoint slide is noticeable. But unlike a Powerpoint slide, the Manifest, the Canvas and all the annotations of content onto it, are interoperable, and part of the web of linked data. We and anyone else can make statements about them, and add to the statements about them, in the web of linked data. And we publish all this information in easy to consume, interopeable API for ourselves and others to view, interact with, and build new interesting things from.

## Canvases and 2D space

The IIIF Presentation API isn't just for images. So far we have looked at 2D canvases. The current IIIF Presentation API has supported 2D canvases right from the start. While we can annotate time-based media (audio and video) onto a 2D Canvas in space, in exactly the same way we position images and text onto the canvas using the coordinate system, the current published specification doesn't allow us to annotate images, text, video, audio and other content onto the canvas at a particular point in time, because a Canvas has no duration, no concept of a time dimension to accompany the width and height. If we add a time dimension, it allows us to annotate in both space and time:



Demonstration of time on a canvas; click to open in new window

And also, we can have a Canvas that has only a duration, no width or height - onto which we could annotate audio tracks. The same model accommodates this. In the future, the model may also accommodate 3D or 3D time-based media - but the focus for this year is to make the model work well for AV, just as it does for image and text content.

## The Image API

So far, we have looked at annotating images onto canvases. A manifest contains a sequence of one or more canvases, each of which might have an image and possibly additional content - more images, text annotations, commentary, transcriptions and so on. While single static images are enough to drive a viewing experience, for many objects of cultural heritage having just one image representation available is not very flexible. Typically manuscripts, artworks, maps and to some extent books and archive material are digitised at a very high resolution. We need access to that high resolution to view the detail in an image, but requiring our clients to load multi-mega- or even giga-pixel images just to look at book pages is unreasonable. We need to have a variety of sizes available for different purposes. And ideally, we can choose the regions and sizes we want to use from the image dynamically.

The Image API specifies a syntax for web requests that lets us ask for images at different sizes and in different formats and qualities. Each image endpoint is a web service that returns new derivative images. We can ask for the full image, or regions of the image. We can rotate, scale, distort, crop and mirror the whole image, or parts of the image.

- The whole painting confined to a box 800 pixels wide
- A particular rectangular region of the image at a particular size
- The same region, distorted to 600 x 600
- The same region, confined to 600 x 600
- ...and then rotated
- ...or mirrored
- The whole painting in grayscale

<code>https://(image-identifier) / region</code>	<code>/ size</code>	<code>/ rotation</code>	<code>/ quality</code>
<code>/ .jpg</code>			

[https://\(image-identifier\) / full](https://(image-identifier) / full) / 800, / 0 / default  
/ .jpg go..



Wellcome Library, [Wellcome Library no. 47369i](#)

If you provide a IIIF Image API endpoint, you are providing a service that viewers can call to get images. This might be a single static image - you could use the image service to link to an image that's just the right size for your blog post, using appropriate values in the URL as in the examples above and avoid having to make any new derivatives yourself. This use of the Image API works with any browser that supports images.

Or it might be more complex - a deep zoom viewer works by making many requests for small regions of the image, known as tiles. In the following images, we see an exploded view of the tiles the client is requesting from the Image API. It is asking for small square regions at a particular size and zoom level. Just as you don't need to load the whole world into Google Maps to view your neighbourhood at street level detail, a deep zoom client doesn't need to load an enormous image for you to view a particular part of it at the highest resolution. IIIF enables images of Gigapixel size to be viewed in great detail while keeping bandwidth use to the minimum, because the server is able to return small, fast tiles from which the viewer can compose the scene.

total tiles: 2079

Scale factor: 64

[/uri/174/0/default.jpg](#)

Scale factor: 32

[/0,8192,8192/256/0/default.jpg](#)[/8192,0,2937,8192/92/0/default.jpg](#)[/0,8192,8192,680/256/0/default.jpg](#)

Scale factor: 16

[/0,0,4096,4096/256/0/default.jpg](#)[/4096,0,4096,4096/256/0/default.jpg](#)[/8192,0,2937,4096/184/0/default.jpg](#)[/0,4096,4096,4096/256/0/default.jpg](#)[/4096,4096,4096,4096/256/0/default.jpg](#)[/8192,4096,2937,4096/184/0/default.jpg](#)[/0,8192,4096,680/256/0/default.jpg](#)[/4096,8192,4096,680/256/0/default.jpg](#)[/8192,8192,2937,680/184/0/default.jpg](#)

Scale factor: 8

[/0,0,2048,2048/256/0/default.jpg](#)[/2048,0,2048,2048/256/0/default.jpg](#)[/4096,0,2048,2048/256/0/default.jpg](#)[/0144,0,2048,2048/256/0/default.jpg](#)[/8192,0,2048,2048/256/0/default.jpg](#)[/10240,0,889,2048/112/0/c](#)

You can experiment with tiles using [this tool](#), which shows the tiles a deep zoom viewer would request.

if you have a IIIF Image API endpoint available for each of your images, you have flexibility for how you and others use your image resources. You could, for example, have a static image that turns into a deep zoom image when clicked. Although the image below is a regular image tag that works in all browsers, there is some JavaScript enhancement that turns it into a deep zoom image when clicked. In this case it uses the OpenSeadragon library which is used for deep zoom by viewers such as the Universal Viewer and Mirador:



*Click to zoom*

*Wellcome Library, Wellcome Library no. 18946i*

This technique can be extended to build the simplest of manifest viewers:



*Wellcome Library, Public domain*

Another use of an image server is for generating responsive images without having to create multiple derivatives in an image editing application. The following is a contrived example:

```
<picture>
  <!-- see https://tomcrane.github.io/iiif-img-tag/ -->
  <source media="(min-width: 1600px)" srcset="https://dlcs.io/.../1!>
  <source media="(min-width: 700px)" srcset="https://dlcs.io/.../2!>
```

```
<source media="(min-width: 400px)" srcset="https://dlcs.io/.../2!
120-122<br>3 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/> <input type="button" value="View in the Universal Viewer"/> | roll M-1011 127 canvases<br>134-136<br>3 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/> <input type="button" value="View in the Universal Viewer"/> | roll M-1011 127 canvases<br>265-267<br>3 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/> <input type="button" value="View in the Universal Viewer"/> |
| roll M-1011 127 canvases<br>378-380<br>3 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/>                                                             | roll M-1011 127 canvases<br>386-388<br>3 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/>                                                             | Letter from A Abbott to B Bishop<br>9 images<br><br><input type="button" value="Publish to Omeka"/> <input checked="" type="button" value="Delete this item"/>                                                                |

Now it exists as a IIIF manifest

Letter from A Abbott to B Bishop

|                                                                                                            |                                            |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Cherokee School (N.C.)                                                                                     | 1910-34                                    |
| Cheyenne and Arapahoe<br>(Okla.)                                                                           | 1907, 1910-35                              |
| Former Seger Agency<br>closed Mar. 31, 1927,<br>and attached to Cheyenne<br>and Arapahoe, Oct. 20,<br>1927 |                                            |
| Cheyenne River (S. Dak.)                                                                                   | 1910-35<br>(missing 1924-27<br>1933, 1934) |
| Chilocco School<br>(Okla.)                                                                                 | 1907, 1910-37                              |
| Chippewa, Lake Superior<br>(see Mackinac)                                                                  | None                                       |

...and can be seen and shared in a viewer

## Summary

- Wherever you need to present an object or collection of objects, use the Presentation API
- All IIIF resources can link to semantic descriptions of themselves via the `seeAlso` property
- This is where the IIIF resources (interoperable, things used to put pixels in front of eyes) connect to your semantic model of the things
- If you are modelling abstract concepts or processes, you don't need IIIF. There's nothing to look at (or hear).
- If you have things that can be looked at (and most GLAMs do...), then looking at them via HTTP is what IIIF is for
- Interoperability goes without saying for the actual objects. It's part of being human in culture.
- Interoperability for their digital surrogates is enabled by IIIF Manifests and Collections

- Making an object visible on the web might be the first thing you do, rather than the last

## Other articles in this series

1. [An Introduction to IIIF](#)
2. But where's my model? IIIF and your metadata
3. [Annotations: How IIIF resources get their content](#)
4. [IIIF Search and Discovery](#)
5. [Looking up and looking down](#)
6. [AV and beyond](#) coming soon

More [Digirati updates](#)



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# Looking up and looking down

Tom Crane, [Digirati](#), December 2017

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The [examples](#) used in the text can be found on Github.

# Looking up and looking down: IIIF Resources, Intellectual Objects, and Units of Distribution

The IIIF Presentation API tells us that the Manifest is the unit of distribution of IIIF. If you want to share an object in IIIF space, describe it in a Manifest. Does that mean that a Manifest corresponds to an *Intellectual Object* - the thing we want to focus on right now? Well, sometimes, if the intellectual object we are thinking about corresponds to a convenient and human-friendly unit of distribution. It depends on the context, on our focus of attention. We can use the Presentation API to look up and look down from the level of the Manifest, to focus on whatever intellectual object is appropriate.

The object of our attention might be a chapter of a book, a scene in a film, a poem's original manuscript, a song from an album, a table of data in a report, a short story in an anthology, an article in a journal, a single postcard. We can think about the book itself, the whole film, the whole album, the anthology, collection or volume or bound set of journals. We could be considering things at a higher level, an overview of a collection of paintings not examined individually in detail.

A Manifest is *just enough information to drive a viewing experience* on the web, in the form of sequence of one or more shared spaces that carry the content required for that

experience; spaces available for us and others can hang content on. Manifests have addresses on the web. We load Manifests into viewers, if we want to bring our own user experience or tools to the content. Publishers of Manifests should take care to make Manifests that are comfortable for humans to deal with; that yield human-sized user experiences. For this reason, for IIIF representations of real world objects, the IIIF unit of distribution usually corresponds to the real world unit of distribution; a Manifest represents a book, a single issue of a journal, a single painting, a film, a recording of an opera. A 10,000 page single bound book is not a human-friendly unit of distribution in the real world, neither is a 10,000 canvas Manifest a human-friendly way of presenting content on the web.

The intellectual object may be larger or smaller than the Manifest. As in the real world, our attention may be above or below the level of the unit of distribution, depending on what we are thinking about and what we want to look at, and what we want to show others. We don't have a problem thinking about a published article as a discrete intellectual object, even if it is inseparable from its neighbour articles in its physical carrier. It starts half way down page 18, continues for 7 pages and finishes one third of the way down page 26. If we had the physical article in front of us, it would be part of the fabric of its unit of distribution, the issue of the journal (which itself might be part of a bound volume of many issues). The human-friendly unit is the journal; that's the sensible thing to turn into a Manifest.

Focus ranges up and down in other media too. We wish to make some detailed annotations on a recording of Sibelius' seventh symphony. Our intellectual object today is just the first 92 bars of this single-movement work: its opening section, marked *Adagio*. The unit of distribution is a Manifest that represents a digitised CD that also has the three movements of Sibelius' fifth symphony on it. This CD has been modelled as one Manifest with a Sequence of four Canvases - one for the single movement of the seventh, and three for the movements of the fifth. For now we're only interested in nine minutes of music from the first canvas. That's our focus of attention for today.

How do we talk about intellectual objects above and below the level of the Manifest? How do we look up and look down? How do we share what we are looking at? That is, how can we build user experience from a IIIF description at levels above and below the Manifest or share that description to allow someone else to construct another experience? How do I talk about your stuff at the right level of detail, and use it?

At any one time, your unit of distribution might be different from my focus of attention. And you might wish to present content from the same source in different ways, depending on the interpretative context or intended user experience. Your Manifest represents a 103-page digitised notebook, but I want to build a user experience around just the nine pages of drafts and reworkings of a single poem.

IIIF provides more than one mechanism for looking up and looking down. **Annotations** and **Ranges** allow us to focus

attention on arbitrarily small units below the level of a Manifest, and **Collections** allow us to look across multiple Manifests. These mechanisms preserve the integrity of the unit of distribution; in fact, they will most likely make use of the unit of distribution in order to reconstruct the viewing experience. If you want to read an article that spans columns and pages in the physical carrier, you're going to get the whole edition of the newspaper delivered up from the stacks. We can describe that same article across the Canvases of the Manifest by creating a Range that points to its constituent parts - the Canvases that carry the content directly, and the **Layer** constructions that allow us to identify which external annotations on that canvas belong to our Range, so we can digitally snip the images of text, and gather the text itself without mixing in text that belongs to other intellectual objects that happen to share parts of the same Canvases. Our software client needs access to the full Manifest to reconstruct the reading experience, even if today we don't want to show anything of the rest of the edition.

The IIIF Image API lets us crop and size image resources; we can use the Presentation API for much more complex operations, reaching in and pulling out what we need, what we want to present today. We can describe exactly what we want to focus on as a chunk of JSON. Descriptions of Intellectual Objects can reference parts of IIIF resources, or aggregations of IIIF resources, or even span multiple unrelated IIIF resources.

We also have the option, should we need it, of constructing new units of IIIF distribution, new Manifests, new Canvases with rearrangements of content, and especially new

Collections, to group other units together. This digital rebinding and recomposition is one of IIIF's special powers, but it isn't necessary to invoke that power just to describe something of interest. And it might be counterproductive or misleading to snip the intellectual object from its context and present it as if it had made its way into the world like that. The context provided by the carrier might be important, just as for the physical object.

## Examples from the bottom up

*Rather than clutter the text with long chunks of JSON, links are provided to the Presentation API description, and a demo of that JSON being used to construct a rudimentary user experience. The [full set of examples](#) can be explored independently.*

### 1. A bug in a manuscript

[Demo](#) | [JSON Source](#)

Our focus of attention here is an unfortunate early reader, whose enthusiasm for text at least earned it a form of long term preservation. We can describe this region of this Canvas within the Manifest with an annotation that identifies a region, and simply highlights it with a label. The code reads the JSON, obtains its source, and snips out the image:

*There's a bug in this manuscript*



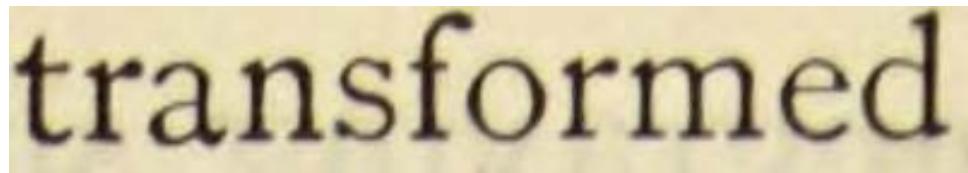
From [Collection of medical, scientific and theological works \(Miscellanea XI\)](#) (Wellcome Library)

The JSON for this 'object' is an annotation, that includes enough information for consuming software to find the manifest the bug belongs to. The reason this is different from simply constructing an Image API request for the region directly is that we never leave the realms of the Presentation API in our description. We don't know anything about the image service(s) available, and they aren't mentioned in our JSON description of this bug.

## 2. A resource with image and text content

[Demo](#) | [JSON Source](#)

We can go as small we like here, even annotating vast datasets of information onto a single point of the canvas. But for now, we'll go in the other direction and start by snipping a single word from a book. Our annotation provides the text of the word.



transformed

From [The transformations \(or metamorphoses\) of insects : \(Insecta, Myriapoda, Arachnida, and Crustacea.\)](#) (Wellcome Library)

Unlike the previous example, which just drew attention to the bug, this annotation has textual content.

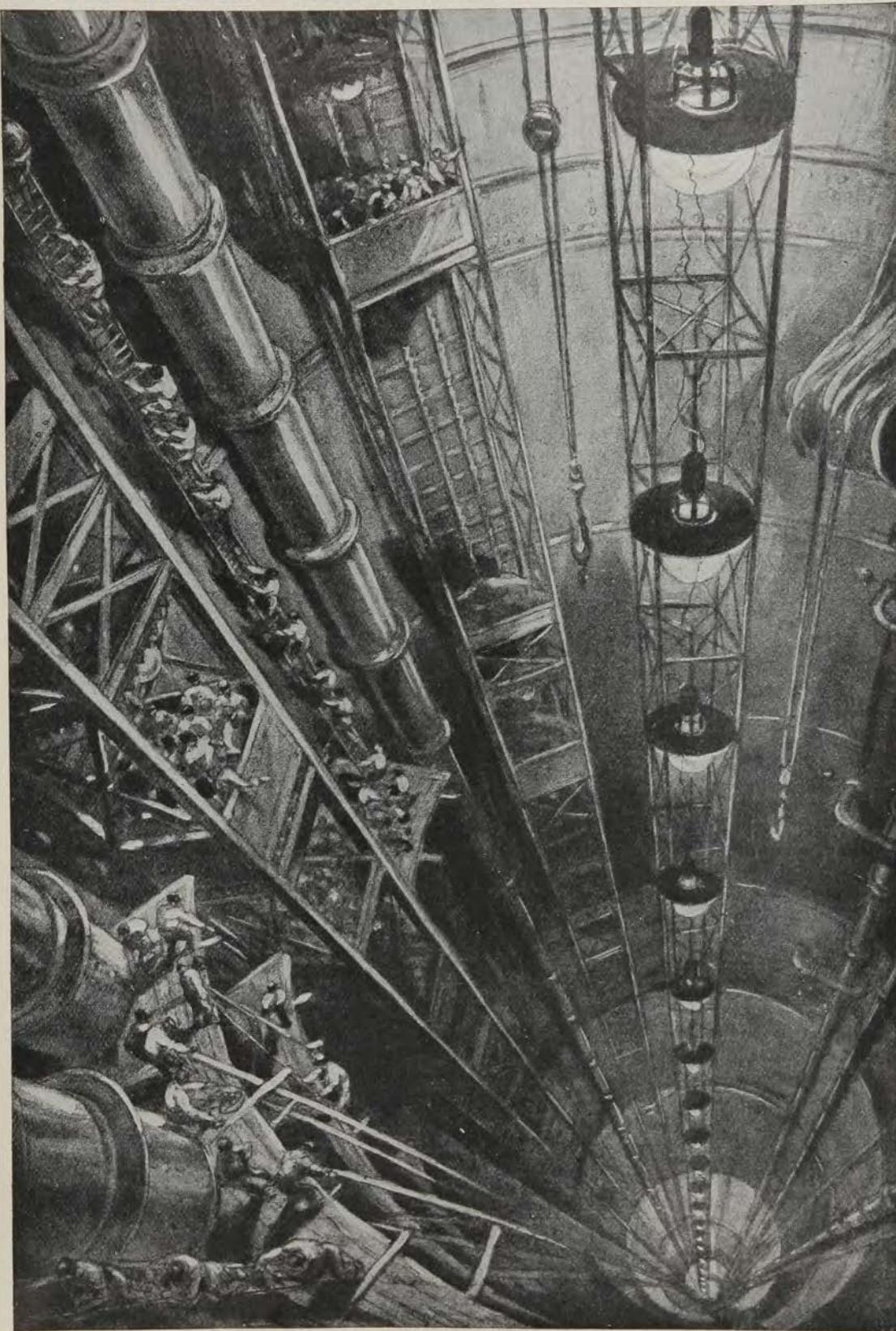
### 3. A plate in a book

[Demo](#) | [JSON Source](#)

Let's look at something more interesting, but using the same technique. A small piece of JSON gives us the information we need to extract a plate from a book and present it, with a suitable label and a pointer back to where it came from:

*A SCIENTIST'S PLAN TO PIERCE THE EARTH  
An imaginary picture of the boring of the five-mile depth  
suggested by M. Flammarion, the famous astronomer, for  
studying the inside of the Earth.*

## A SCIENTIST'S PLAN TO PIERCE THE EARTH



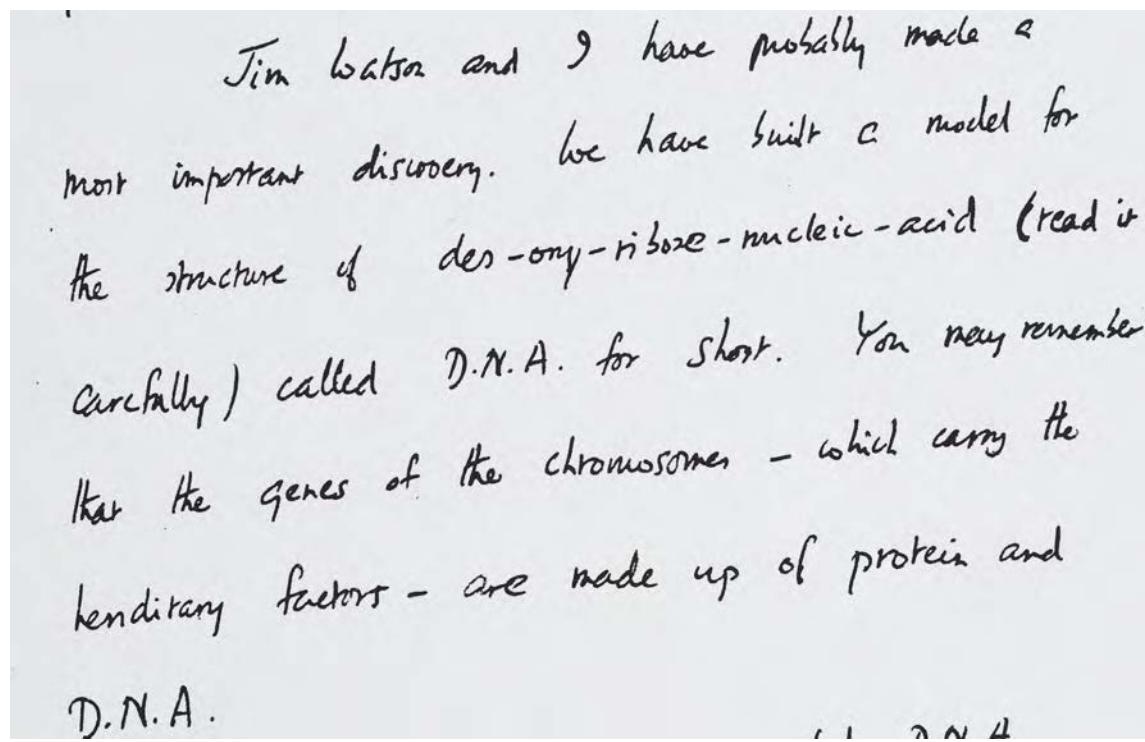
AN IMAGINARY PICTURE OF THE BORING OF THE FIVE-MILE DEPTH SUGGESTED BY M. FLAMMARION,  
THE FAMOUS ASTRONOMER, FOR STUDYING THE INSIDE OF THE EARTH.

From [Popular science](#), Volume 1 (Wellcome Library)

We could of course add as much extra information as we like to our standalone example, or we could write code to obtain it from the source Manifest and Canvas, and display whatever metadata the publisher has attached to these resources at source. The point is that we are able to talk about this plate and describe it with a standalone piece of JSON.

## 4. A paragraph of transcribed text

[Demo](#) | [JSON Source](#)



Jim Watson and I have probably made a most important discovery. We have built a model for the structure of des-oxy-ribose-nucleic-acid (read it carefully) called D.N.A. for short. You may remember that the genes of the chromosomes - which carry the hereditary factors - are made up of protein and D.N.A.

From [Copied letter from Francis Crick to Michael Crick](#)  
(Wellcome Library)

A more useful example that includes the text of the paragraph. We're starting to get to the point where it wouldn't make sense to include all the content in our starting JSON - for text in bulk, the description can point to external annotation lists, as in example 6.

## 5. A dataset

[Demo](#) | [JSON Source](#)

In this example the annotation identifies a region of the Canvas that represents a table of data, where that data has been extracted and is available for download. The body of the annotation has the type **dctypes:Dataset** from Dublin Core, which is one of the out of the box types for web resources defined by Open Annotation.

Rather than attempt to render the dataset, this demo just provides the link for downloading. A more sophisticated client could do something more interesting with it.

*Large quantities of food of all varieties were inspected and as a result the following food was surrendered as unfit for human consumption and unsound Certificates were issued.*

[Download dataset \(text/xml\)](#)

Large quantities of food of all varieties were inspected and as a result the following food was surrendered as unfit for human consumption and unsound Certificates were issued.

| Canned            | Tons | Cwts. | Qtrs. | Lbs.             |
|-------------------|------|-------|-------|------------------|
| Meat              | 3    | 17    | 1     | 26 $\frac{3}{4}$ |
| Vegetables        |      | 15    | -     | 21 $\frac{1}{4}$ |
| Fruit             | 1    | -     | 2     | 4                |
| Fish              |      | 2     | 1     | 15 $\frac{3}{4}$ |
| Milk              |      | 4     | 3     | 14 $\frac{1}{2}$ |
| Cream             |      | 1     | -     | 26 $\frac{1}{4}$ |
| Soup              |      | 5     | 2     | 14 $\frac{1}{4}$ |
| Fruit juice       | 1    |       | 3     | 17 $\frac{1}{4}$ |
| Creamed rice      |      | -     | 3     | 14               |
| Baby food         |      | -     | 1     | 26 $\frac{1}{2}$ |
| Spaghetti         |      | -     | 1     | 23 $\frac{1}{2}$ |
| Tomato juice      |      | -     | 1     | 7                |
| Cheese flaps      |      | -     | -     | 4 $\frac{3}{4}$  |
| Pease pudding     |      | -     | -     | 24               |
| Ravioli           |      | -     | -     | 25               |
| Macaroni          |      | -     | -     | 4                |
| Marmalade         |      | -     | -     | 2                |
| Jam               |      | -     | -     | 5                |
| Rice              |      | -     | 1     | 1                |
| Meat pudding      |      | -     | -     | $\frac{1}{2}$    |
| Sausages in brine | 1    |       | 2     | 15               |
| Frankfurters      |      | -     | -     | 16               |
| Chocolate pudding |      | -     | -     | 1                |
| Prawns            |      | -     | -     | $\frac{1}{4}$    |
| Ginger Beer       |      | -     | -     | 1                |
| Sago pudding      |      | -     | -     | 5                |
| Apple dumplings   |      | -     | -     | 6                |
| Tapioca pudding   |      | -     | -     | 1                |
| Bolognais         |      | -     | -     | 1                |
| Mixed grill       |      | -     | -     | $\frac{1}{2}$    |
| Custard powder    |      | -     | -     | $\frac{3}{4}$    |
|                   | 6    | 14    | -     | 16 $\frac{3}{4}$ |

From [[Report of the Medical Officer of Health for Lambeth Borough](#)]. (Wellcome Library)

## 6. A short article from a periodical

[Demo](#) | [JSON Source](#)

So far we have been looking at annotations, which is IIIF's atomic unit of linking to content. While you could use an annotation with multiple targets to pick out regions spanned by an article, IIIF has a more specific and simpler way to do this, using a **Range**. We want to describe an article than spans two columns, highlighted in yellow starting at the bottom of column 4 and finishing at the top of column 5:

## CHEMEX CORNER

# Chemex 97 - bigger and better

With over two months to go to Chemex '97, exhibitors have already snapped up more than 90 per cent of the stand space, making the event even bigger than last year.

Andy Gibi (right), event director, says: "We are delighted with the response from the industry. Chemex is already established as the leading exhibition in this marketplace and it will be even bigger and better this September. Around 3,500 independent retail pharmacists and multiples are expected to attend the event."



He is confident that Chemex will be the largest gathering of manufacturers and pharmacists in any one place this year. "It is an essential industry forum which is a 'must' for manufacturers and visitors alike."

The event's organisers are spending over \$100,000 on a targeted

visitor promotional campaign - the largest in the exhibition's history.

Visitors will have the chance to attend retail seminars, win a dream holiday and receive a voucher book worth thousands of pounds. There is also a chance to take advantage of a discount 'Showstopper' travel package.

A key feature of the show will be a model shop which will illustrate the most effective ways of presenting and placing products in pharmacies. It will focus on areas including merchandising, layout, lighting and shelving.

Procter & Gamble, Unichem and Moss Advisory Services will be among the companies participating in this innovative feature. Design and construction will be undertaken by pharmacy shopfitter Crescent Installations.

For free tickets call the ticket hotline on 01203 426482. Pre-registered visitors will be entered into the holiday prize draw.

Anyone who is interested in exhibiting should contact Simon Proctor or Jessica Lounkaas at: **Chemex**. Tel: 0181 742 2828.

## Bear necessities for the kids

A new children's multi-vitamin and mineral supplement will be launched by Ultimate Health Products on stand C4.

Yummi Bears are designed to help give kids the daily nutrition they need from vegetables and fruits.

Each bear contains 100mg of natural organic wholefood concentrates, including broccoli, Brussels sprouts, cabbage, carrots, parsley, tomatoes, cauliflower, spinach, alfalfa, papayas and apples. These are blended into a base of organic unrefined cane juice, citric acid, vegetable gelatine, natural vegetable colours and natural fruit flavours.

Health and sports-related prizes can be won in a free prize draw competition which will be running on stand C4 throughout the exhibition.

**Ultimate Health Products**. Tel: 0181 952 4321.

## Pharmacy plans for sensitive eye cosmetics

Eye Care Laboratories will be introducing its range of eye cosmetics

for contact lens wearers on stand N4.

Distribution for the Eye Care Cosmetics range is focused on the optical market.

Designed for sensitive skin, the products are formulated to stimulate the immune defence mechanisms of the epidermis, resulting in a slowing down of one of the major causes of cutaneous ageing.

Ingredients include linoleic extract, peach-leaf extract, vitamin E microemulsion and a moisturising complex of plant extracts.

The range includes cream eyeshadow, fluid eye liner, pencil eye liner, mascara, eyeshadow, wrinkle cream and eye make-up remover in a milk-based emulsion or a water-based lotion. Retail prices range from £3.99 to £14.99.

**Eye Care Laboratories**. Tel: 01884 256456.

## Bioconcepts works on Nightshift

Bioconcepts will be launching a night mask for problem skin on stand N24.

Called Nightshift, the product will be part of the La Formule anti-ageing skin care brand for spot-prone skin.



**CHEMEX '97**  
21-22 SEPTEMBER 1997  
OLYMPIA 2, LONDON

The product is designed to 'correct' imperfections and help balance the skin's pH without the drying effect often associated with topical medical treatments.

Like the other La Formule products, it is not chemically-based. Its formulation includes green clay, sweet almond oil and essential oil of geranium.

The product will retail at £4.90 for a 15ml tube which will last around seven weeks if used each night.

**Bioconcepts Ltd**. Tel: 01705 499133.

## The all-natural fat absorber

A1 Pharmaceuticals will be launching Liposorb fat absorber on stand RS.

The product is made from an all-natural marine fibre which binds

dietary fat and facilitates its passage through the body undigested.

Its main active ingredient is chitosan, which is extracted from the shells of selected crustaceans harvested for the New Zealand food industry.

The manufacturer claims that Liposorb is capable of absorbing 12 times its weight in fat. It is designed to allow a normal to high-fat diet to be eaten, while reducing the dietary fat being absorbed by the body.

Adults should take three to four capsules with each meal containing dietary fat. It is recommended to drink a glass of water with the capsules.

**A1 Pharmaceuticals**. Tel: 0171 738 1737.

## Hair-raiser

Top hairdresser Trevor Sorbie (below), four times winner of 'British Hairdresser of the Year', will be on stand P1 to discuss his Professional



Haircare range - available through Blend Managers. • New on the same stand will be a French Art Deco bath line, called L'Aromatique. It will incorporate crushed bath leaves as well as more traditional bath and shower products. **Blend Managers Ltd**. Tel: 0181 285 6688.

## Pumping up the action

Mayala will be introducing a new pump-action liquid foundation on stand D7.

Specially developed to resist climatic variations, Mayala contains vitamin E, vitamin A palmitate, ceramides of natural origin and a UV filter.

It is formulated with a light texture to provide a uniform tint, helping to make irregularities and blemishes more inconspicuous.

Presented in a glass bottle (30ml) with measuring pump, it will retail at £13.95.

**Mayala UK Ltd**.

Tel: 01732 459412.

## NPA savers

There will be a chance to save on numerous items at the National Pharmaceutical Association's business services display on stand K24. Pharmacy planning department consultants will also be on hand to discuss any ideas you may have for improving your pharmacy. **NPA**. Tel: 01727 842161.

## PRS hot news

Practice Resource Systems has a major announcement planned for Chemex. It will also be running a special exhibition offer on stand G1.

**Practice Resource Systems**. Tel: 01793 526777.

## Read all about it

New titles from Sheldon Press on stand T2 will include 'Living with a Stoma', 'Coping with Fibroids', and 'Coping with Coeliac Disease'. **Sheldon Press**. Tel: 0171 387 5282.

CHEMIST & DRUGIST 5 JULY 1997

We construct a **Range** that describes these two regions of the canvas, and defines a **Layer** construction to group the annotations that provide the textual and image content of the

article. In the demo, just this article has been extracted and displayed along with its text.

# Hair-raiser

Top hairdresser Trevor Sorbie (below), four times winner of 'British Hairdresser of the Year', will be on stand P1 to discuss his Professional



Haircare range – available through Brand Managers.

● New on the same stand will be a French Art Deco bath line, called L'Aromarine. It will incorporate confetti bath leaves as well as more traditional bath and shower products.

**Brand Managers Ltd.**  
**Tel: 0181 286 6688.**

Hair-raiser

Top hairdresser Trevor

Sorbie (below), four times winner of 'British Hairdresser of the Year', will be on stand PI to discuss his Professional



Haircare range - available through Brand Managers.

- New on the same stand will be a French Art Deco bath line, called L'Aromarine. It will incorporate confetti bath leaves as well as more traditional bath and shower products.

Brand Managers Ltd.

Tel: 0181 286 6688.

From [The chemist and druggist, issue 6093 - 5. July 1997](#)

(Wellcome Library)

In this example, the annotations that provide each line of text are referenced externally.

## 7. A longer article, spread across two pages

[Demo](#) | [JSON Source](#)

In this example, the article starts on the cover of the newspaper and continues on page 3. This represents a coherent item of interest (a published article), described by a fairly small piece of JSON. Client software can use the JSON to construct a viewing experience appropriate to the content. The IIIF Canvases that carry the content for this article haven't been reproduced or transformed from their source in the Manifest that represents the whole newspaper edition. A client can make as much or little use of that carrier context as required.

See [the demo](#) for the text of the article

# A Profound Warrior For Us All

by Rochelle Carlton

Staff Writer

Dr. Augustus M. Witherspoon began his affiliation with NCSU as a graduate student. As he progressed from student, to professor, to Associate Dean, and finally Associate Provost and Coordinator of Afrikan-American Affairs, he left behind a legacy that will continue to impact the Afrikan-American students at N.C. State University for years to come.

Provost William Grant, who has accepted the challenge of following in the footsteps of Dr. Witherspoon, spoke at great length on the profound changes Dr. Witherspoon has brought about on the campus of NCSU.

Dr. Witherspoon began, and con-

tinued throughout his career, the long and complex process of transforming what was once a segregated institution into a place that embodies the needs of its Afrikan-American population.

One of Dr. Witherspoon's first major undertakings was the creation of a task force, the Afrikan-American Advisory Council, during the early 1970's to determine why Afrikan-American enrollment at NCSU was so low. In examining this issue, the Council asked Afrikan-American faculty, staff, employees, and former students to describe their experiences at the university.

They also interviewed area high-school students and asked them about their impressions of the school. As anyone who has ever tried to bring about change may

know, often the first step in finding solutions to a problem is proving to "the powers that be" that the problem does indeed exist.

To convey the severity of the situation, a videotape was presented to the administration so that they could hear firsthand the students' and staff members' description of a campus environment that was hostile to Afrikan-American high school students had of this university.

The Afrikan-American Advisory Council then drew up a list of recommendations outlining how to resolve the problem, some of which led to the establishment of Afrikan-American Coordinators in each college, and the enlargement of the almost nonexistent Afrikan-American faculty.

Dr. Witherspoon was committed in ensuring that NCSU offered an

environment in which Afrikan-American students could excel. In order to provide Afrikan-American students with the opportunity to network, interact with one another, and become acquainted with Afrikan-American faculty and staff, he supplemented the regular orientation process to include an Afrikan-American Symposium.

When it became apparent that there was an alarmingly large discrepancy between the number of Afrikan-American students enrolling in freshman, and those actually earning a degree, even for those students whose performance was above average in high school, Dr. Witherspoon introduced the idea of adding a new course in the curriculum that would help rectify this discrepancy.

**see Grant, page 3**

## Grant con't from page 1

This course, which has expanded into what is known today as the Freshman Advancement Seminar MDS 101, emphasizes among other things, positive self-image, knowledge of history and culture, time management, and study skills.

The contributions Dr. Witherspoon has made to this university are so numerous one cannot even attempt to speak in depth on all of them. According to Provost Grant, "For almost any program that exists on this campus that has had a positive effect on Afrikan-Americans... Dr. Witherspoon was either the originator, an advisor, or played some other instrumental role in its development."

This statement is by no means an exaggeration. It was Dr.



DR. WILLIAM B. GRANT,  
Associate Provost

Witherspoon who first envisioned the creation of the Afrikan-American Cultural Center (which will soon officially bear his name)

to "promote an awareness and appreciation for the richness of the Afrikan-American experience." He was also very instrumental in bringing Afrikan-American fraternities and sororities to this campus. The existence of Black Students Board (BSB), The Society of Afrikan-American Culture (SAAC), and Minority Presence Grants on the campus of this university are all results of the efforts of Dr. Witherspoon.

The impact Dr. Augustus Witherspoon has had on Afrikan-Americans at NCSU is virtually astounding, and his example has served as proof that a single individual can make a difference.

From [Nubian Message, April 1, 1995](#) (The Nubian Message (LH1 .H6 N83), Special Collections Research Center at NCSU Libraries)

The [JSON description](#) defines a Layer (indicated by the `contentLayer` property) that groups the annotation lists that provide the content for the article. If you encounter [one of](#)

[these lists independently](#), it can describe what it belongs to, by asserting that it is part of the article's content layer, which in turn is part of the Manifest representing the issue.

## 8. A longer extract from a larger work

[Demo](#) | [JSON Source](#)

This could be anything - a short story in an anthology, a paper in an academic journal or a single letter from a Manifest representing a year's worth of correspondence. Here, a book chapter is used to illustrate the point. As the example involves a lot of text and images, it's easier to [view it](#) on the demo site.



## THE SKELETON.

**E**xoskeleton and Endoskeleton. The skeleton of an animal includes all its hard protecting or supporting parts, and is met with in two main forms in the animal kingdom. First as an exoskeleton developed in connection with either the superficial or deeper layer of the skin, and represented by the shell of a clam, the scales of fishes, the horny plates of a turtle, the bony plates of an armadillo, and the feathers of birds. In man the exoskeleton is but slightly developed, but it is represented by the hairs, nails, and teeth; for although the latter lie within the mouth, the study of development shows that they are developed from an offshoot of the skin which grows in and lines the mouth long before birth. Hard parts formed from structures deeper than the skin constitute the endoskeleton, which in man is highly developed and consists of a great many bones and cartilages or gristles, the bones forming the mass of the hard framework of the body, while the cartilages finish it off at various parts. This framework is what is commonly meant by the skeleton, and it primarily supports the softer parts and is also arranged so as to surround cavities in which delicate organs, as the brain, heart, or spinal cord, may lie with safety. The skeleton thus formed, however, is completed and supplemented by another made of the connective tissue, which not only, in the shape of tough bands or ligaments, ties the bones and cartilages together, but also in various forms pervades the whole body as a sort of subsidiary skeleton running through all the soft organs, forming networks of fibres around their other constituents; so that it bulks, as it were, a microscopic skeleton for the individual modified cells of which the body is so largely composed, and also forms partitions between the muscles, cases for such organs as the liver and kidneys, and sheaths around the blood-vessels. The bony and cartilaginous framework with its ligaments might be called the skeleton of the organs of the body, and this finer supporting network the skeleton of the tissues. Besides forming a support in the substance of various organs, the connective tissue is also often laid down as a sort of packing material in the cavities between them; and so widely is it distributed everywhere from the skin outside to the lining of the alimentary canal inside, that if some solvent could be employed which would corrode away all the rest and leave only this tissue, a very perfect model of the whole body would be left; something like a "skeleton leaf," but far more minute in its intricacy.

The Bony Skeleton [Fig. 13]. If the hard framework

of the body were joined together like the joints and beams of a house, the whole mass would be rigid; its parts could not move with relation to one another, and we would be unable to raise a hand to the mouth or put one foot before another. To allow of mobility the bony skeleton is made

of many separate pieces which are joined together, the points of union being called articulations, and at many places the bones entering into an articulation are movably hinged together, forming what are known as joints. The

total number of bones in the body is more than two

hundred in the adult; and the number in children is still

greater, for various bones which are distinct in the child

(and remain distinct throughout life in many lower animals)

grow together so as to form one bone in the full-grown man. The adult bony skeleton may be described as con-

sisting of an axial skeleton found in the head, neck, and trunk; and an appendicular skeleton, consisting of the

bones in the limbs and in the arches (*u* and *v*, Fig. 13) by

which these are carried and attached to the trunk.

Axial Skeleton. The axial skeleton consists primarily

of the vertebral column or spine, a side view of which is

represented in Fig. 16. The upper part of this column is

composed of twenty-four movable bones, each of which is a

vertebra. At the posterior part of the trunk, beneath the

“*ig*”

Fig. 13.—The bony and cartilaginous

skeleton.

Fig. 14.—Side view of the

spinal column.



movable vertebrae, comes the sacrum (*u* & *v*), made up of five vertebrae, which in the adult grow together to form

## Chapter from [The human body: an account of its structure and activities and the conditions of its healthy working](#)

This example is artificial; the Content Layer defined for the chapter in the Range definition links to existing annotation lists

for each page, but those annotation lists don't assert their membership of that Layer as those in the previous example do.

More work could be done on reconstructing the images and text together, with the images in exactly the right place in relation to the text (enough information is present in these particular annotations).

## 9. A book; 10. A painting

[Demo 9](#) | [JSON Source 9](#) | [Demo 10](#) | [JSON Source 10](#)

In these two examples, our intellectual object is at last equivalent to a IIIF Manifest. We already have off-the-shelf renderers of content at that level, and there's no need to construct a new JSON object to represent it. We just point to the Manifest, and use (in this case) the Universal Viewer (UV) to render it in place. If a different user experience is required, a different viewer could be used, or a bespoke user experience developed.

The screenshot shows a web browser window with the title "Looking up and looking down". The address bar indicates a secure connection to <https://tomcrane.github.io/iiif-collector/#https://manifests.britishart.yale.edu/m/5018/>. The main content area displays a JSON manifest for a painting by Joseph Mallord William Turner. The manifest includes fields for type (sc:Manifest), context, id, label, description, attribution, and metadata. The metadata section contains entries for Creator(s), Titles, and Date. Below the JSON is a detailed image of the painting "Fingal's Cave, Staffa" by Joseph Mallord William Turner, showing a dramatic, misty landscape.

## 11. A multi-volume work

[Demo](#) | [JSON Source](#)

This example is very straightforward, because here the intellectual object is the catalogued multi-volume work. This is represented as a Collection of Manifests, but the UV can handle a Collection directly, so as far as reuse is concerned, it's exactly the same as the previous two examples if we use the UV for display.

## 12. Other uses for Collections

The intellectual object could be a collection of other objects, generated dynamically, or by user action, such as bookmarks. The UV's rendering of collections is appropriate for a multi volume work, but other Collections may have completely different purposes. Here, the renderer of dynamically created IIIF Collections is a virtual gallery wall:



<http://digidati-co-uk.github.io/iiif-gallery/src/>

## Everything has to live somewhere

You can make new IIIF Manifests to model different focuses of attention, or you can be more practical and leave things where they are. You can build user experiences that deal with things above or below the level of the Manifest; you can describe intellectual objects with the Presentation API without requiring that those objects always be Manifests. One person's intellectual object could be a thumbnail overview of a collection of manuscripts, looking for patterns in the layout of text.

Another person's intellectual object could be a detail of the fibre of the paper.

Everything has to live somewhere, and the modelling decision about what goes in a Manifest can usually be made by equating manifests to sensible real world objects. This doesn't stop the construction of user experiences above and below this level, with JSON descriptions, as hinted at in rough form in the above examples.

## A word about Ranges

Often a published manifest will contain its own Ranges, if effort has been made to capture internal structure. These existing Ranges might identify stories in a newspaper or chapters in a book. If this work has already been done then our modelling job is even easier. Our standalone description of the Range merely needs to assert its identifier and the identifier of the Manifest it can be found in. Consuming software follows these links to find all the content it needs.

Sometimes a Range may be richly described after the published Manifest was created, and not necessarily by the publisher. A Range could be created for editorial or research purposes, or to provide a detailed structural description of an object because it is being featured on the web site this month. A researcher could create some detailed range information to aid their study of a work - the creation of structural information could be user-generated and the Manifest publisher might not even be aware of it. How publishers are notified of new knowledge about their objects is a different subject!

# Conclusion

User Experiences generated from IIIF resources don't have to be about the object represented by a Manifest. They can range above and below that, we can go as close in or as far back as we like.

## Other articles in this series

1. [An Introduction to IIIF](#)
2. [But where's my model? IIIF and your metadata](#)
3. [Annotations: How IIIF resources get their content](#)
4. [IIIF Search and Discovery](#)
5. Looking up and looking down
6. [AV and beyond](#) coming soon

More [Digirati updates](#)



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# IIIF Search and Discovery (DRAFT)

Tom Crane, [Digirati](#), May 2017

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# IIIF Search and Discovery

What do we mean when we talk about search?

Leaving aside IIIF for a moment, here are some scenarios that fall under the general description *search*. You are the institution providing search capability, I'm the user:

1. *I don't know precisely what I'm looking for, but I suspect that you have items that will interest me. When I search on your site, I discover that an item exists. I didn't know that there was a newspaper called the Banbury Cake, but my search results are giving me articles from it. I'm getting books and archival items related to my search terms and facets. I didn't know about these things before, searching your site has made me aware of them.*
2. *I know about an item and I suspect you have it, and I want to find it. I'm pretty sure I know what the item is called, or the name of someone associated with it, or values of other fields that you have probably used to describe the item. I can narrow down my search and find it quickly.*
3. *I know about an item and I suspect you have it, and I want to find it. Maybe I know or can guess at a phrase or terms from the **content** of the item (the text of a book, the transcription of a letter), and/or the text content of editorial copy that might be associated with it (a web page about the item in the context of an exhibition, an article about a painting).*
4. *I don't know what you have, but I can still find items by searching for terms and phrases that interest me and*

*finding hits from item **content**.*

5. *I just want to explore and don't want to think about search boxes at all. I don't know what you have yet, let me take a look around.*
6. *I don't need to discover anything. I know what it is of yours that interests me, one of your collections or items is the subject of my research. I know exactly what the items are, where they are, I look at them regularly. The content of the resources is what interests me, I'm interested in the services you offer that let me interrogate and process the items' **content** (rather than their descriptions). The content could be text, images, data, tags, links and other resources.*
7. *I'm reading a digitised book and I want to quickly find a particular string - if I were looking at a web page I'd just hit ctrl+F, but I'm in a viewer where the text is spread across hundreds of digitised page images. I could download the full text and search within that, but that won't give me the results in context in the digitised object.*
8. *I'm looking at a digitised archival item and I want to find a particular piece of text in the transcriptions or commentary. It might not be text from the item itself (it's not in digitised images) but it is strongly associated with particular parts of the item, or regions of images.*
9. *I want to query with text and get back images.*
10. *I want to query with images and get back text.*
11. *I want to query with images and get back images.*
12. *I want to query with text and get back text.*
13. *I want to craft one or more queries that generate a large number of item hits - mostly printed books relating to my field of study. For each match I want to view the text and*

*digitised image(s) of the tables of content of each book, so that I can assess its usefulness.*

14. *I want to find illustrations in printed books by searching for text that appears near them, in captions or surrounding text.*

These are different search scenarios with very different user experiences. What makes a search result in these different scenarios?

Firstly, how does the result get to be a result? What contributed to its inclusion in the returned hits?

- A search term or facet matched a field or part of a field from an object's descriptive metadata, which is indexed by the search server. Most catalogue searches are like this. Some fields are surfaced as facets to narrow down a search.
- A search term or phrase matched part of the text content of the object (the full text of a book, transcripts of letters), which is indexed by the search server. Many catalogue searches are enhanced by including the full text in the search criteria, and showing extracts that match the terms alongside the descriptive-metadata-derived summary.
- A search matched other content associated with an object that you have indexed so that it can contribute towards a hit. The search service knows about comments, transcriptions, articles about the content and other editorial or curated content outside the catalogue description.

- Various combinations of the above - for example, the search parameters included a free text term as well as facets:
  - Printed books published in England between 1850 and 1900 whose text content contains the string ‘a tangled bank’
  - Correspondence in an archive where the sender is Isaac Newton and either the transcript or the commentary for the letter (or both) contain the phrase ‘Whether Whiteness be a mixture of all Colours’

Secondly, what do the search results look like?

- They might be a list of matching items (i.e., catalogue records) with a summary, in the way that a web search engine’s results are web pages with summaries or results in context.
- Your results may point to web pages too, but there is usually a conceptual difference when searching an institution’s objects via its own search tools: we are in some way searching for and/or within the objects themselves (or their digital surrogates), not just searching all the web pages *about* the objects (although we are interested in those too).
- The results might include pixels - not just thumbnails of the first image that are the same for everyone’s results within that object, but particular regions of particular images, that for whatever reason led that part of image to be a hit for your search criteria.

When I find an object, I might be able to look at some metadata about it, that uses your view of the world to describe it to me. This might be the end of the road for a search - I get to a catalogue record page, but I can't see any more of the thing itself. But maybe you have some content of the thing available. If it's a book there might be a transcript of its full text. If I'm lucky, you have digitised the object, made it available as IIIF and I can look at it in a viewer. If I included a free text term in my search query, you might be able to give me contextual hits for those terms, and maybe even an image of the part of the page that generated the hit. If what you and others have said about the object (apart from in its descriptive metadata) is indexed and contributes to the hit, you could include extracts from additional text sources in the results too.

You can only give me one object back for my descriptive facets, but you could give me many results for the same object for free text matches, and you might group them as child hits before ranking the objects. If I'm the user in scenarios 7 and 8, who has already found the object and is interacting with it, the results can only be about the content of this one object, and they need to help me navigate around the object and display its associated transcription, commentary and other content.

The screenshot shows a digital library interface for a historical text. On the left, there's a 'CONTENTS' sidebar with 'Index' and 'Images' tabs, showing thumbnail images of pages 12 and 13. The main area displays a page from a book with the following text:

The wonderful alterations which the earths undergo when by heat, they run into fusion, become fluid, or rise into vapour, are very similar to the processes of digestion and chylification in the body. Every thing in nature by one process or another, is capable of being converted into aeriform fluids, which in rising from the surface meet, intimately mix, and form new compound. the same may be affirmed of composts - intermixture of various matters produced.

Below the text, a small image of a page is visible. At the bottom of the main panel, there's a progress bar indicating 'page 13 of 34'. Below the main panel, a search bar shows the query '1 result found for "chylificat..."' with a 'Clear' button. At the very bottom, there are buttons for 'Previous result', 'Next result', 'Download options', 'Add to bookmarks', 'Embed', and 'Full screen'.

What about users who match scenario 6? They are searching within a single item or a particular constrained set of already-chosen items (a single journal, a single subject heading, a single author's works, some other collection defined by means unspecified). Those users' API interactions are all about the **content** - the text, images and other resources - rather than the item-level description.

Scenarios 1 and 2 are different from scenarios 6, 7 and 8.

1 and 2 are closely aligned to the institution or domain specific metadata scheme the content is organised by; this model is the source of facets or constraints on the results. The user is searching through the lens of an institution's cataloguing and classification practices.

6, 7 and 8 are not about the model. The model may have helped the user assemble the resources or find them in the first place, but at this stage the classification of the object is not playing a part in search results.

# IIIF Content Search API

The first part of this series explored the IIIF Presentation API's independence of any particular descriptive metadata scheme, and how that enables interoperability by confining the IIIF model to presentation metadata. The IIIF Content Search API does the same for searching the *content* of those interoperable IIIF resources. It is not about finding the resources in the first place, which requires an organising scheme or interpretation of descriptive semantics, and/or full text at scale. That's not to say the IIIF community isn't interested in that problem - there is more on Discovery later - but it's a *different* problem, with different solutions in terms of APIs and search interactions. There is a IIIF published specification that describes the query syntax and response format for *content* search, but not one that specifies query parameters for *discovering* objects. Not yet, anyway.

The Presentation API provides a framework (via collections, manifests and canvases) on which to hang content. Content is associated with IIIF Resources through the mechanism of *annotation* - Open Annotation in the current IIIF specification, and the W3C Web Annotation Data Model in the next version (the two are very similar, the W3C model is the successor of Open Annotation and is now a W3C Technical Recommendation, the same kind of standard as HTML or CSS). All content is associated with the IIIF scaffolding in this way - the images, video and audio that you look at or listen to, but also all the text content - transcriptions, translations, commentary, descriptions, datasets - and other types of

annotation like tags, bookmarks or anything else that can possibly be associated with the digitised object.

If you want to search the *content* of one or more digitised resources, you need to search for *annotations*, because that's how the content is associated with the representation of the physical object. You can't do that without IIIF (or something that does the same job) because without IIIF there's no association of content with physical space.

Annotations are a standardised mechanism for linking web resources, and we can standardise a way to search them (the query syntax) and return the results in a IIIF context (the response format). The IIIF Content Search API doesn't return descriptions of objects - certainly not any semantic description, but not IIIF Manifests or Collections either. It returns content, therefore it returns annotations.

In some circumstances, a IIIF Content Search API service might generate those annotations on the fly. They don't have to exist as annotations before the moment of delivery. This approach has been used in several implementations to return full text search results that target the exact word or phrase in the text and allow the client application to highlight it.

For other content, the results might already exist natively as annotations in an annotation server (transcripts, commentary, editorial content). Or the results could be converted to annotation format for the response, so that the content becomes interoperable. The content might live natively in a content management system or some other database. If a

client can consume and display annotation content according to the standards, it can also consume and display IIIF Content Search results, because those results are lists of annotations.

However, that's not the end of the story. The Content Search specification adds some extra information to the returned annotation list, to turn a plain annotation list into *hits* - search results. Machine consumers that just expect annotations can consume the response as a plain annotation list, but clients that understand it as IIIF Content Search results can use the extra information given by hits. In the following example, two annotations are returned (to draw the two boxes) but the results coalesce them into a single hit:

The physiology of taste, or, Transcendental gastronomy : illustrated by...

Take a very fat bird by the bill and sprinkle it with salt, take out the entrailles, I mean gizzard, liver, etc., and put it whole in your mouth. Chew it quickly, and the result will be a juice abundant enough to permeate the whole organ. You will then enjoy a pleasure unknown to the vulgar.

“ Odi profanum vulgus et areo,”  
HorACE.

The quail, of all game properly so-called, is the nicest and the most pleasant. A very fat quail is pleasant both to eat, see, and smell. Whenever it is either roasted, or served *en papillote*, a great folly is committed, because its perfume is very volatile, and when ever in contact with a liquid, its flavor is dissolved.

page 117 of 347

2 results found for 'a great...!' Clear

Previous result Next result

Download options Add to bookmarks Embed Full screen

*View the [API response](#) that generates this hit*

Scenario 6 (where the researcher is very familiar with the small set of content they are searching) is typical of someone working with a known set of content over an extended period of

time. They are interested in the text content and images of a set of digitised objects, and perform multiple complex queries over them, searching for occurrences of text in images, runs of text with common phrases, or other features. Often the immediate annotation search results are not the end of the story, and further analysis will happen outside of any interaction with the institution's APIs.

Many institutions providing IIIF materials have users with requirements like scenario 6. In the past, the best users could hope for would be that the institution offers full text for download, with text metadata to provide greater layout detail, in formats like METS-ALTO, hOCR or TEI depending on the nature of the material. This would allow offline analysis, but no consistency of interaction experience or reuse of common tools. The researcher's toolset would need to be adapted to each institution and new analysis code written each time. It's impossible to anticipate every research use case and almost certainly a waste of effort to try to meet everyone's needs in your own APIs - people are always going to want to do their own analysis. But a huge amount of effort can be avoided by meeting these needs part of the way, via the IIIF Content Search API, which standardises the format of search responses from *content*. Common search use cases across multiple institutions led to the IIIF Content Search API in the first place, and continue to generate new requirements for the specification. The IIIF community currently has a *Text Granularity Technical Specification Group* whose remit is to finesse the Search API around these kinds of queries to meet commonly identified API use cases, for example allowing the query to specify whether the results should be at the word, line,

sentence, paragraph or page level. Widespread adoption of IIIF in this context will avoid the need to process the text formats mentioned above.

Scenarios 9-12 are what IIIF with Content Search could help bring standardised, interoperable approaches to. Many projects or research activities are about text from images, or text and images together, or image similarity, or text similarity, in various combinations. If the source material is available via the Presentation API, the pixels available via the Image API, and text available as annotations or transformable to annotations, then shared tools and techniques can be brought to bear on the content and structure in combination.

The transformations (or metamorphoses) of insects : being an adaptation for English readers of M. Émile Blanchard's "Metamorphoses, mœurs et instincts des insects" and a compilation from the works of Newport, Charles Darwin...

[Manifest](#) | [Thumbs](#) | [Item page](#)

[scolopendra](#)

 ...lled into the wound inflicted by this formidable weapon. The texture of the segments of the body of Julis is hard and brittle, but the rings of the *Scolopendra*, however, the legs are long, strong, and very active ; they have five joints, and terminate in a claw. Those attached to the segments near the head ar...

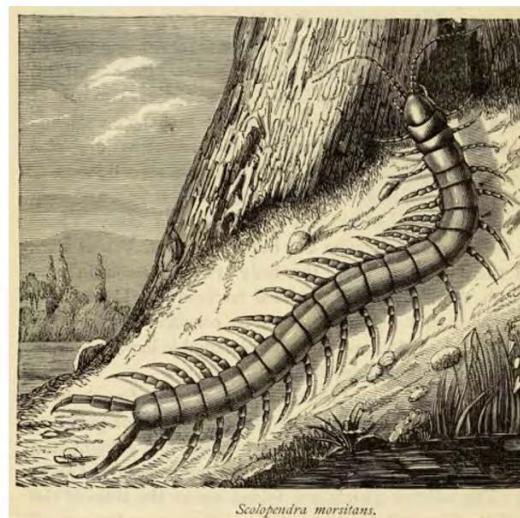
447

 .... The ganglia above the oesophagus in the Myriapods is situated within the head, and corresponds with the structure as seen in the larvae of insects. *Scolopendra* does not present the complicated compound eye which characterises the perfect butterfly or beetle. Wings are never met with amongst the class now und...

448

 ... 294, 297, 298, 30B 303\* 306, 308, 313, 342 Scarf Skin, or Epidermis, 9 Schenck. Professor, 224 Scheuten, 480 Scolia, 231, 232 Scolia Jlavifrons, 231 *Scolopendra*, 446, 447, 448 Scolopendrid[Z, 447 Scolytus, 341 Scolytus destructor, 340 Scopelosoma, 143 Scorpions, Water, or Nepidcc. 410 Scutelleridce, or Land, o...

529



## Query syntax

The Content Search API offers a simple set of query parameters (from the [specification](#)):

### Parameter

### Definition

| Parameter  | Definition                                                                                                                                                                                                                                                           |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| q          | A space separated list of search terms. The search terms may be either words (to search for within textual bodies) or URIs (to search identities of annotation body resources). The semantics of multiple, space separated terms is server implementation dependent. |
| motivation | A space separated list of motivation terms. If multiple motivations are supplied, an annotation matches the search if any of the motivations are present.                                                                                                            |
| date       | A space separated list of date ranges. An annotation matches if the date on which it was created falls within any of the supplied date ranges.                                                                                                                       |
| user       | A space separated list of URIs that are the identities of users. If multiple users are supplied, an annotation matches the search if any of the users created the annotation.                                                                                        |

Common values for the motivation parameter are ***painting*** (indicating that they can be rendered on the canvas, such as transcriptions), ***commenting, linking, identifying, describing, and tagging***.

None of the parameters are mandatory. They allow for searches such as:

- Find all comments made by a particular person
- Find all tags within a particular collection

- Find all comments made:
  - with the “identifying” motivation;
  - between two dates;
- Find all the highlights that contain the term “cholera” in my personal annotations on a collection of public health records

Implementers are free to add additional parameters to the search, and new parameters may get added to later versions of the specification (e.g., the recommendations of the Text Granularity Working Group).

How do client applications find out about search services? A IIIF resource can provide a search service that when queried using the above syntax, will return annotation results. Typical use cases are for searching within a single object, but a IIIF Collection can also provide a search service for its content, and there is no limit to what a IIIF Collection could include. This means you could provide a search service for any collection, even dynamically created ones, or collections that users have assembled themselves.

## Bringing search services together

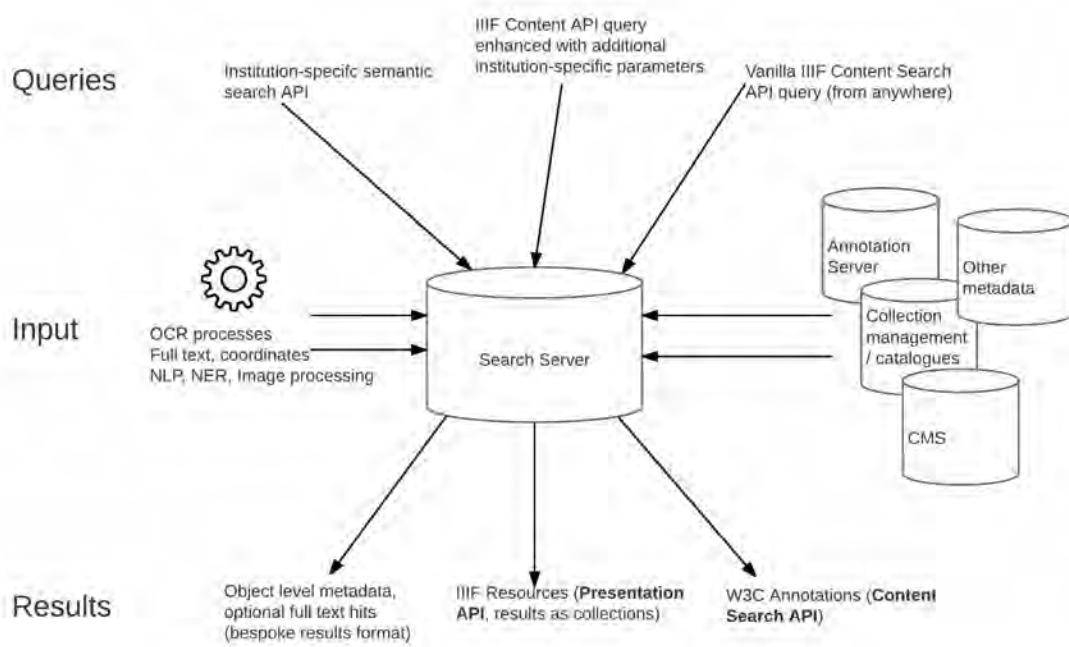
So far this seems to point to a complete separation of concerns between IIIF Content Search, and institutional semantic search via descriptive metadata and specific models of the objects. To meet all these use cases, you need two different kinds of search API, because there are two quite different kinds of service being offered. But this separation doesn’t have to be absolute, and there is great potential in combining them for

some scenarios. You could provide IIIF content search for interoperable operations on content, alongside a semantic search, as different APIs served from the same data store. And then you can start to mix them together.

A search based on descriptive metadata, on your model (and therefore nothing to do with IIIF Content Search query syntax), could optionally return IIIF resources as well as your model's domain objects for your items, depending on what people want to do with the results. If I have constrained a descriptive metadata search to return only digitised items, I could choose to get those results as a IIIF collection, which is portable and reusable elsewhere. Additional full text hits could be returned as annotations. This is not IIIF Content Search - it's just offering IIIF Presentation API resources as results.

Similarly, the IIIF Content Search API is open for extension. You can add additional query parameters that mix in your model and its facets to the search. You could offer a content search service that can be constrained by model-specific terms, and use those extensions in your own applications.

Search becomes a different thing altogether when it's about the text content of objects with knowledge of the images of that text. The same single search implementation and results format won't meet all these needs. But that doesn't mean the two mechanisms of search couldn't be delivered by the same infrastructure, as they both make use of the same content in different ways.



# Discovery

The Universe of IIIF resources has billions of Image API services and millions of Presentation API manifests. How do people find them? How do I find all the digitised versions of Euclid's *Elements* available as IIIF, or as many early texts of *King Lear* as I can?

The IIIF Content Search API is not the answer, although it could help if implemented at scale as a "search within" service on a large collection. But that approach is unlikely to be very useful for typical resource discovery activities, which are more like scenarios 1 and 2 but at a level above that of individual institutions. A user narrowing in on objects of interest needs facets from descriptive metadata. Search engines don't know about manifests either. There is no filter in Google to restrict results to objects that you can view in IIIF clients.

In order to find all the IIIF versions of the *Elements*, we need to visit a IIIF search engine or aggregator. This might be a large general purpose aggregator like Europeana, or it might be a portal or registry tended by a particular community of interest. The [IIIF Discovery Technical Specification Group](#) aims to create specifications that allow aggregators to harvest and index existing resources, and people to search them, in an interoperable way. This must require descriptive metadata to some extent, which IIIF does not provide.

Can we agree on just enough *linked* descriptive metadata to make this work?

IIIF provides a mechanism for linking to external machine-readable descriptions of the object:

### **seeAlso**

*A link to a machine readable document that semantically describes the resource with the seeAlso property, such as an XML or RDF description. This document could be used for search and discovery or inferencing purposes, or just to provide a longer description of the resource. The profile and format properties of the document should be given to help the client to make appropriate use of the document.*

If everyone provides rich descriptive metadata at the other end of one or more seeAlso links from their IIIF resources, it doesn't necessarily help an aggregator index the content, because that aggregator needs to understand the semantics of the linked description. The linked description could be anything. It could be a MARC record, or a schema.org description, or some

bespoke model. A search engine or aggregator looking to index the description of the object to provide facets for searching can only do this if it understands the terms, so it can offer them as facets for searching on.

This suggests that everyone has to agree on how their objects are described, in at least one of the linked `seeAlso` resources. You can have more than one linked `seeAlso`, and a client can determine from service profiles what each of them is. This allows you to publish a rich description of the object conforming to your model of the world, alongside a reduced description suitable for aggregators. If you can provide a schema.org description of the object on a web page for search engines, you can link to a schema.org description for IIIF aggregators. Both are simple representations for interoperable discovery.

Perhaps what will emerge is a small number of profiles, that each use a simple schema.org or Dublin Core set of terms to describe the objects specifically for IIIF aggregators. One profile for printed books, one profile for manuscripts, one profile for Newspapers and periodicals, one profile for artworks and so on. The work of schema.org community groups such as [bib.schema.org](#) indicates a possible approach that communities of interest could adopt to produce a simple descriptive schema in their domains.

# Other articles in this series

1. [An Introduction to IIIF](#)
2. [But where's my model? IIIF and your metadata](#)
3. [Annotations: How IIIF resources get their content](#)
4. IIIF Search and Discovery
5. [Looking up and looking down](#)
6. [\*AV and beyond\* coming soon](#)

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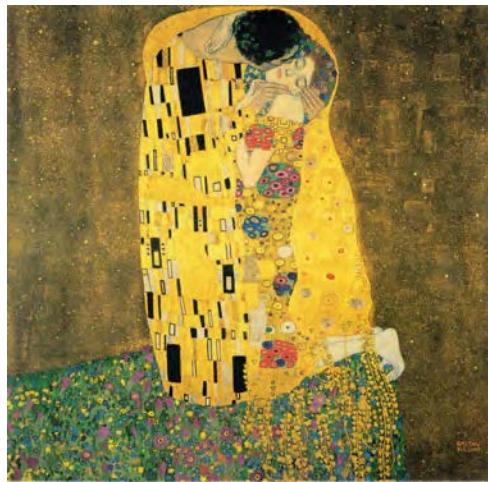
## GLASGOW

70 Pacific Quay  
Glasgow G51 1DZ  
[Map](#)

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**Internet Archive Blogs***A blog from the team at archive.org*

## Zoom in to 9.3 Million Internet Archive Books and Images—through IIIF

Posted on October 23, 2015 by Wendy Hanamura

Imagine you could zoom seamlessly into to this rare Klimt painting to inspect the finest brush strokes? Or arrange the pages of a medieval manuscript on a virtual desktop to analyze and annotate them? Now you can right [here](#).

Cultural institutions around the globe, including the Internet Archive, are making images more dynamic through the [\*\*International Image Interoperability Framework\*\*](#). This common technical framework is an open standard enabling university libraries such as Stanford's, museums such as the Getty, and national institutions such as the Bibliothèque nationale de France to share content in a seamless and dynamic way. The key is IIIF's interoperability. Now for the first time, scholars can assemble the pages of a centuries old [manuscript](#) held in dozens of libraries around the world, right on their computers.

Thanks to the efforts of a volunteer engineer, [Mek Karpeles](#) and Stanford University Library's [Drew Winger](#), the Internet Archive is proud to release 9.3 million items into the IIIF ecosystem through our new product incubator and laboratory, Archivelab. By visiting the service at <http://iiif.archivelab.org>, you will find a full list of the unique ID codes for more than nine million Internet Archive texts and images accessible by our IIIF proxy server. The technical community can contribute to Mek's code at <https://github.com/mekarpeles/iiif.archive.org> and explore documentation for the Archive's IIIF implementation at <http://iiif.archivelab.org/documentation>.

### Here are a few reasons we think this is significant for our partners around the world:

- Any book or text you upload into archive.org will automatically become available in IIIF format.
- You can search for items on Archive.org and the ID's are identical—so you know any book in our archive will be accessible at <http://iiif.archivelab.org>.

Take for instance this digital copy of [Plato's works in archive.org](#).

Next, explore how you can zoom in when this [same book is accessed through our IIIF](#) server.

- IIIF is interoperable with other university systems, so you can compare items side by side, or assemble them into a custom “manifest” or grouping with pieces from different institutions.

- You don't have to create your own "manifests" for the presentation of pages into books—it's done for you automatically by our derive process

You could drag this [manifest of Plato's Works](#) into a presentation platform such as [Project Mirador](#) and compare the Internet Archive's copy with Yale's or Oxford's.

- Those without the technical resources to set up their own IIIF server can now just draw items from ours
- We're one of the first institutions to provide a [comprehensive catalogue](#) of all our IIIF items—a crucial step making this truly useful to scholars and patrons. Right now it's indecipherable to anyone but a software engineer, but in the future we believe this type of transparency will ignite better discovery of IIIF assets everywhere.

Our efforts with IIIF are in an early pilot phase. It's one of the first experiments in the new Archive Lab incubator and there will be many opportunities to make IIIF images useful to the public. Hats off to the dedicated engineering of Mek Karpeles, Drew Winget and the Internet Archive's Hank Bromley. Digitization Partners: tell us how your institutions are moving forward with this new framework and how we can help. We hope this may be another foundation upon which we build the libraries of the future together.

This entry was posted in [News](#). Bookmark the [permalink](#).

## **9 Responses to *Zoom in to 9.3 Million Internet Archive Books and Images—through IIIF***



[\*\*mohan\*\*](#) says:

October 24, 2015 at 12:00 pm

thanks world



[\*\*Phelonious Punk\*\*](#) says:

October 24, 2015 at 6:47 pm

Your project is fascinating to say the least. Unfortunately it's not working too good. Many of the links are dead and some lead to pages of code. I did get the Plato book working on the first example but the second only worked for a couple of pages and then I found myself staring at a blank screen waiting for something to happen. Good luck. I will visit later and see if it works then.

Thanks

PP



[\*\*Wendy Hanamura\*\*](#) says:

October 25, 2015 at 5:15 am

Hi PP,

I tried all the links and found they work. When you click the "assemble pages" link you do get a black page, but wait a few seconds and you get a big + sign. Hit that and you can see lots of options of IIIF books.

The catalogue is sadly, still just 9.3 M lines of code. But put into a presentation layer that could be quite a catalogue don't you think?

The Plato book works well for me all the way through. I've sent your comments to Drew and MEK though who may have some ideas for making your first dip into IIIF more enjoyable.

best,  
Wendy

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Pingback: [Zoom in to 9.3 Million Internet Archive Books and Images– through IIIF | Library Stuff](#)

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Pingback: [A New and Cool Pilot! Internet Archive Introduces 9.3 Million Items Into the IIIF \(International Image Interoperability Framework\) Ecosystem | INFOdocket](#)



[Mary](#) says:

October 27, 2015 at 7:38 pm

Please keep the good work going. Bookmarking your site.

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Pingback: [Latest Library Links 30th October 2015 | Latest Library Links](#)

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Pingback: [controlaccess: Relevant Subjects in Archives and Related Fields for 2015-11-01 | SNAP roundtable](#)

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Pingback: [It's Aaron Swartz Day – Here's an Open Library status report « The Open Library Blog](#)

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## Internet Archive Blogs

Proudly powered by WordPress.

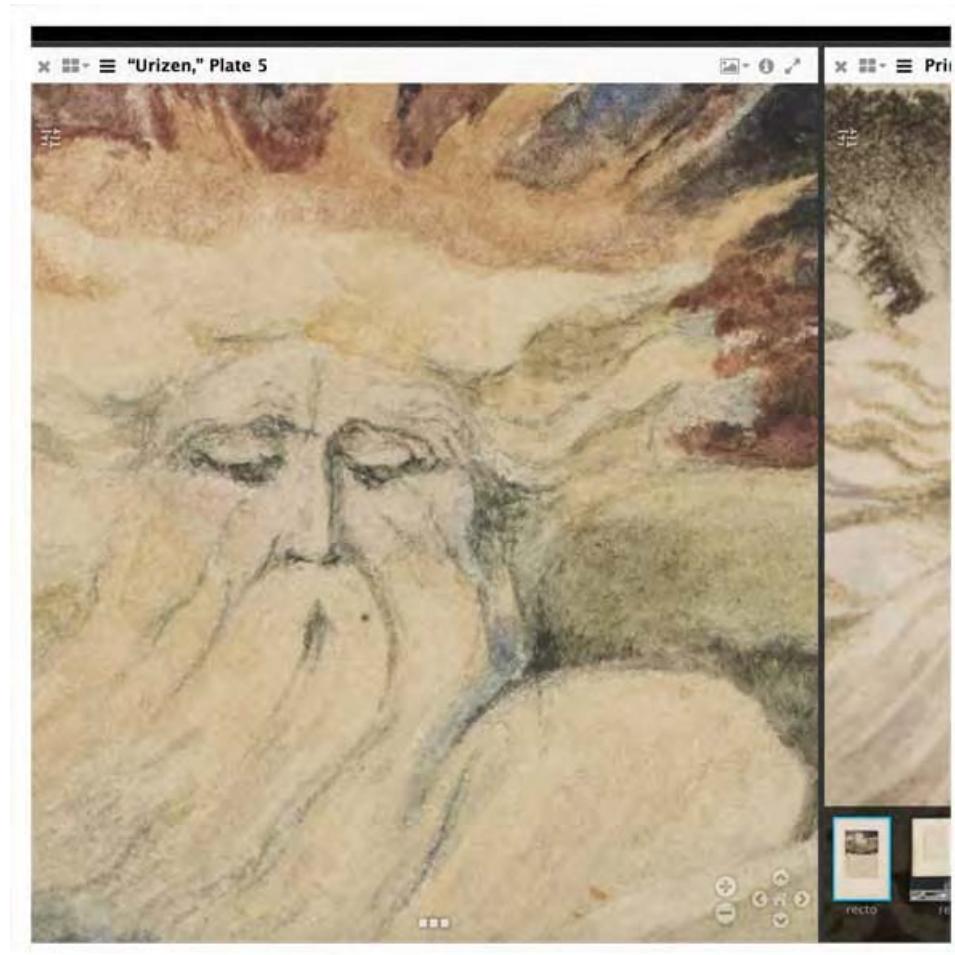
(<http://utexas.edu>)

# Ransom Center Magazine

## Thousands of cultural heritage materials now instantly shareable in new online platform

DECEMBER 5, 2017 By LIZ GUSHEE

(<HTTP://SITES.UTEXAS.EDU/RANSOMCENTERMAGAZINE/AUTHOR/EMG2332/>)



[\(/#facebook\)](#) [\(/#twitter\)](#) [\(/#email\)](#)  
<https://www.addtoany.com/share#url=http%3A%2F%2Fcultural-heritage-materials-now-instantly-shareable-in-new->

# platform%2F&title=Thousands%20of%20cultural%20heritag

## Ransom Center adopts IIIF and Mirador viewer

More than 50,000 images in the Ransom Center's [digital collections portal](#) (<https://hrc.contentdm.oclc.org/digital/>) are now available via the International Image Interoperability Framework ([IIIF \(http://iiif.io/about/\)](http://iiif.io/about/)). IIIF offers new ways to view, compare and engage with images.

### About IIIF

IIIF (pronounced "triple eye eff") is an international collaborative effort across archives, libraries, museums, and other cultural heritage institutions to define standards for describing and delivering images across the web.

The Center's adoption of IIIF means that its images and descriptive metadata are now instantly sharable with other IIIF-enabled digital image collections such as the British Library, the Getty Museum, and the Yale Center for British Art, to name just a few.

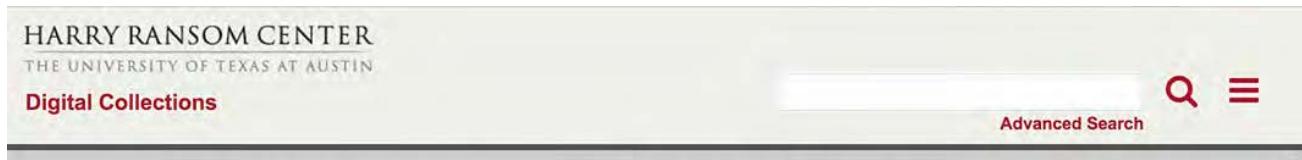
The interoperability inherent to IIIF allows for digital image repositories to share image content across (formerly) incompatible or proprietary systems. This facilitates the viewing and study of hundreds of thousands of books, manuscripts, works of art, and other cultural heritage materials from around the world within a single, familiar interface.

In other words, researchers can bring together and examine materials virtually that are held by institutions that are often geographically remote from one another.

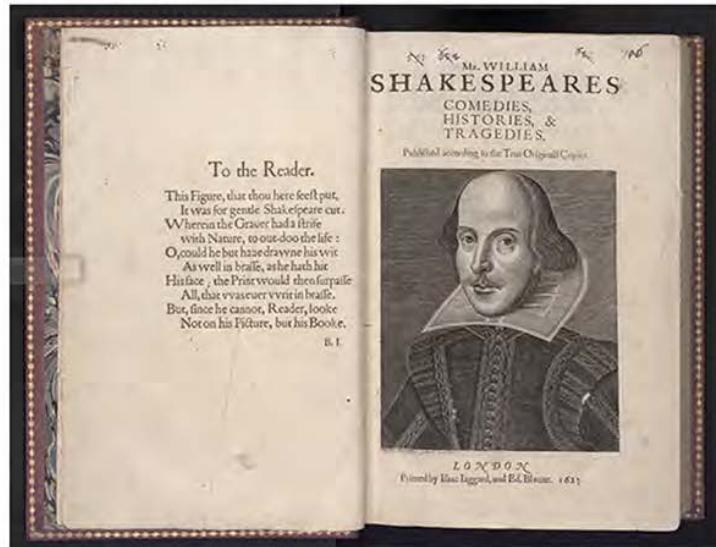
### Enhanced image viewing

Along with IIIF, the Center has implemented the [Mirador](http://projectmirador.org/) (<http://projectmirador.org/>) image viewer for the display of IIIF image resources. You can use Mirador to study a single image or compare multiple images side-by-side, including those from other IIIF-enabled institutions, within a single browser window. You can also view metadata, zoom deeply into an image, rotate images, or change contrast and brightness.

You have two options to view Ransom Center collection materials in Mirador. The IIIF icon appears on every digital collection landing page and the IIIF icon appears alongside every digitized image.



## **Mr. William Shakespeare's Comedies, Histories, & Tragedies [The First Folio]**



### **About this collection**

*Mr. William Shakespeare's Comedies, Histories, & Tragedies [The First Folio]* was published in London in 1623 by William Jaggard and Edward Blount. The volume included 36 plays—18 of which appeared in print for the first time, thus preserving half of Shakespeare's output as a playwright, including such plays as *Measure for Measure*, *The Tempest*, and *Macbeth*. The famous title page engraving by Martin Droeshout preserves one of only two authentic portraits of Shakespeare (the other being his memorial bust in Stratford).

The First Folio is the product of a group of actors and associates, led by John Heminges and Henry Condell, who set out to collect printed quarto and manuscript copies of Shakespeare's plays for publication in a collected edition. The exact number of copies printed is not known, but most scholars agree that approximately 750 copies were produced at a retail cost of roughly 15 shillings, just less than one pound sterling. For comparison, a skilled craftsman earned about 5 shillings a week. At the time of its publication, the First Folio would have been sold in stationers' shops as a group of unbound sheets. Purchasers would then have these sheets bound, further adding to the cost.

Today there are 233 surviving copies of the First Folio, three of which are held by the Ransom Center.

[Browse](#)



The Digital Collections landing page for William Shakespeare's Comedies, Histories, and Tragedies (London: W. Jaggard, E. Blount, et al., 1623). The image includes sigs. <sup>π</sup>A1v and <sup>π</sup>1r of Ransom Center shelfmark Pforz 905.

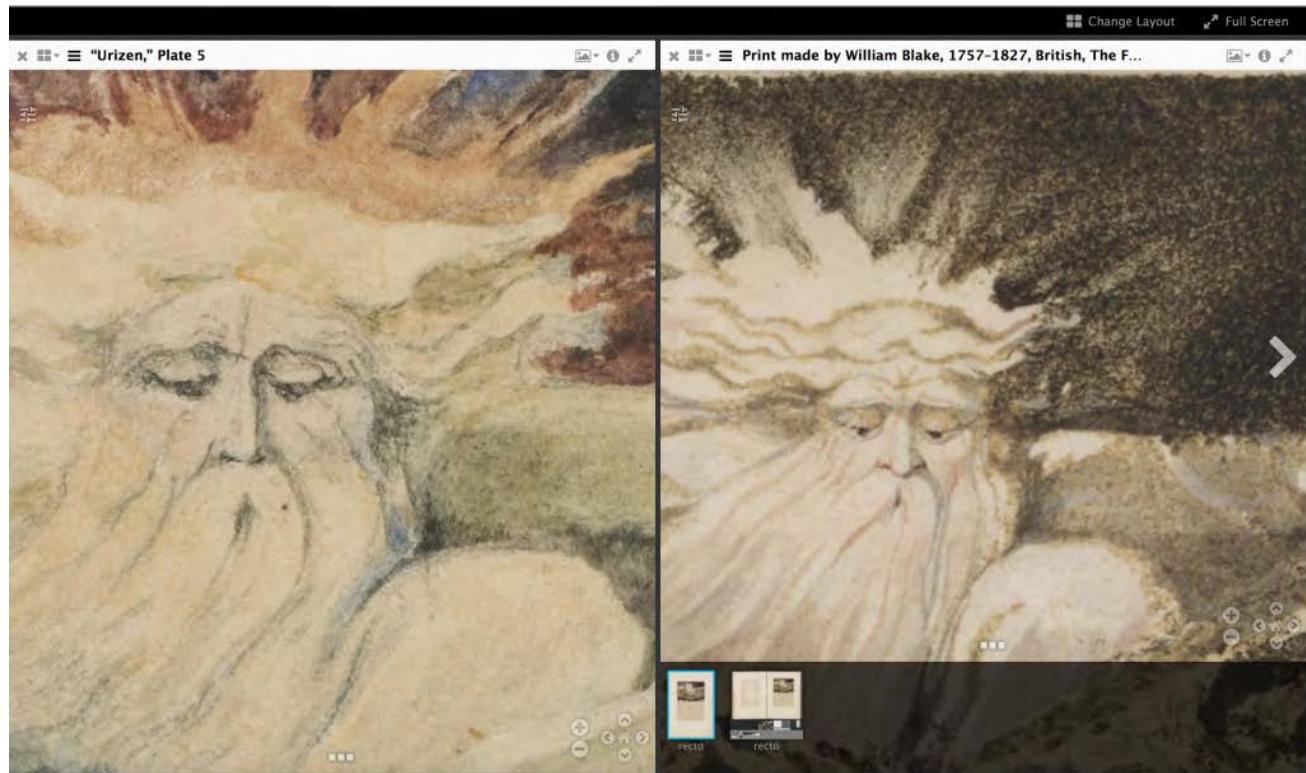
### **Collection example: Art**

Ransom Center Curator of Art Tracy Bonfitto appreciates that Mirador allows users to zoom in closely to get a better sense for a work's details, medium, and process, and to compare images from different institutions.

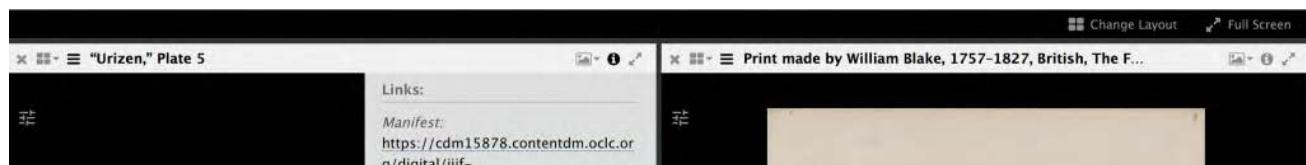
This screen shot shows how you can examine color variants across two different pulls of William Blake's Urizen print. The print on the left is from the Ransom Center's collection, shown next to a related work held by the Yale Center for British Art.

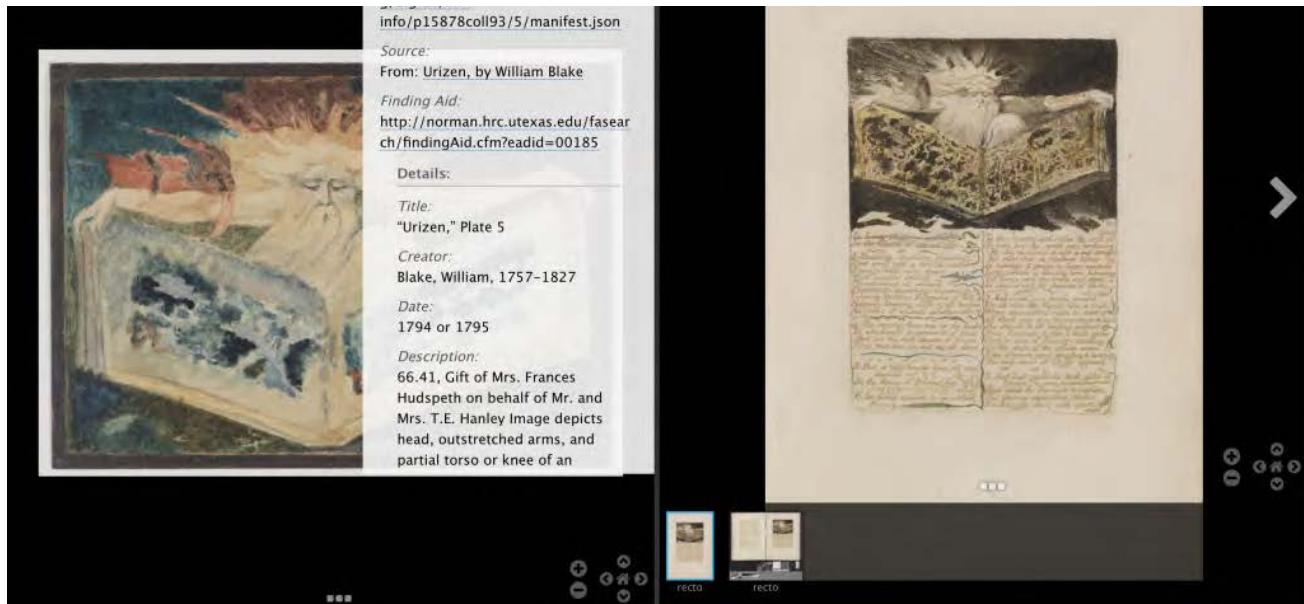
"Each of these relief etchings were hand-colored to very different effect," she says. "Researchers can closely compare variations in the rendering of the open book and of Urizen's face, for example, or consider the details of our unbound print, to which the text was never added, against a print that

made up part of Blake's *Book of Urizen*."



The IIIF Mirador image viewer showing the Center's Urizen, Plate 5, 1794 or 1795 (left) and the Yale Center for British Art's The First Book of Urizen, Plate 8, 1794 (right), both by William Blake





The IIIF Mirador image viewer showing the metadata for the Center's Urizen, Plate 5, 1794 or 1795 (left) and the Yale Center for British Art's The First Book of Urizen, Plate 8, 1794 (right), both by William Blake

### Collection example: Early books

Ransom Center Pforzheimer Curator of Early Books and Manuscripts Aaron Pratt says that as more institutions digitize their copies and make them available via IIIF, “it will be possible for textual editors to compare even more copies simultaneously in Mirador, greatly facilitating what has historically been difficult—and tedious—work.”

He explains:

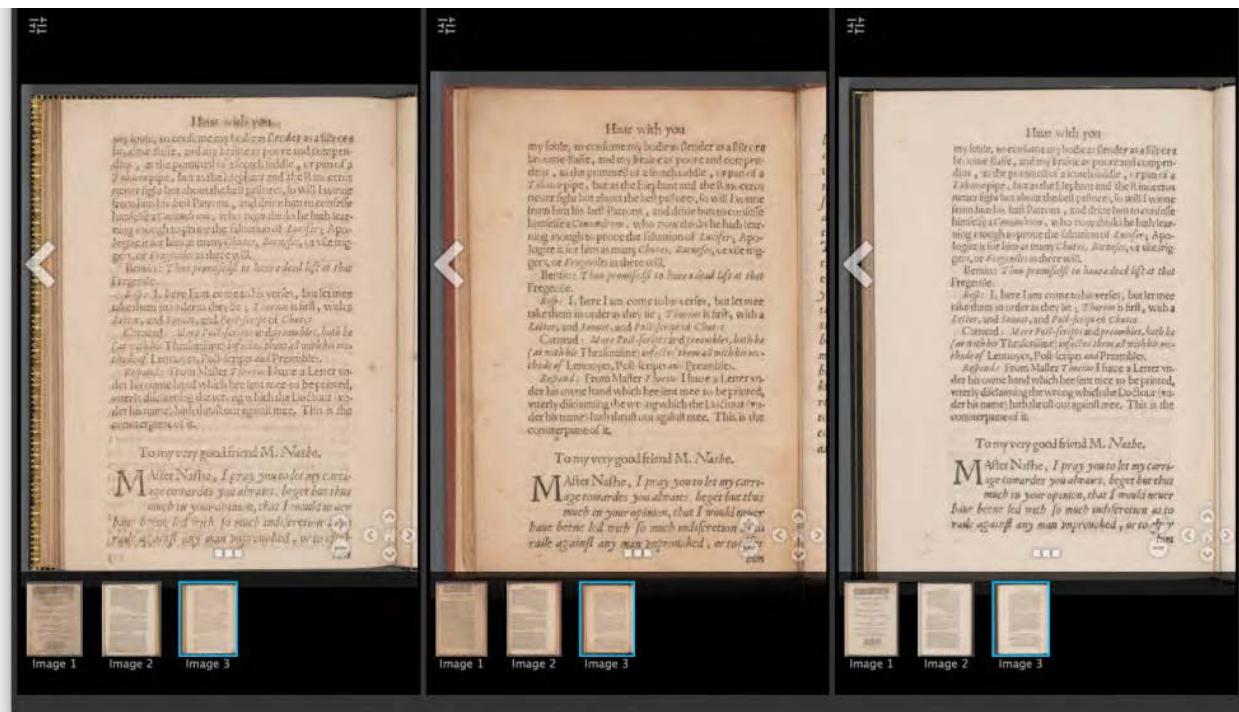
“The works of the sixteenth-century English writer Thomas Nashe constitute an important milestone in the development of English prose, and the book collections here at the Ransom Center hold numerous early Nashe editions. We are especially lucky to have three copies of

his polemical dialog, *Have with you to Saffron-Walden* (1596). Although print did help to make books more consistent, from copy to copy of a given edition, the process of getting books through the press almost always generated variants of one kind or another. Each letter, after all, had to be set by hand, and there's a good chance that at least one correction had to be made each time a new set of pages was in the press.

Because Mirador can view multiple items at the same time, it has great promise when it comes to one of modern editors' central tasks: collating copies, looking for these press variants.

In this screenshot showing the Center's three *Saffron-Walden* copies, we can spot one such variation on the third line of the page: two of the Ransom Center copies begin the line with "dius" and one with "dent," as in "compendius" and "compendent." (Nashe's current editors report that "compendent" appears in fewer known copies than "compendius" and is almost certainly the earlier setting, an error.)





The IIF Mirador image viewer juxtaposing the Ransom Center's three copies of Thomas Nashe, Haue wvith you to Saffron-walden (London: J. Danter, 1596). The display shows sig. V4v of Ransom Center shelfmarks Wg N177 596h, Ag N177 596h, and Pforz 763.

"We are delighted to join the IIIF community in this way," says Ransom Center Head of Digital Collections Services Liz Gushee. "The Center is committed to sharing our collections as broadly as possible and in finding new way to support scholarship. IIIF and Mirador are exciting new tools that will facilitate discovery, creativity, and engagement with the Center's collections and beyond."

View instructions for using the Mirador Viewer at  
<https://hrc.contentdm.oclc.org/digital/custom/iiif/>  
[https://hrc.contentdm.oclc.org/digital/custom/iiif/\).](https://hrc.contentdm.oclc.org/digital/custom/iiif/)

## Comments

[Maia Williams \(http://grasigner.com/service/photo-touch\)](http://grasigner.com/service/photo-touch) says

[March 13, 2018 at 10:29 am \(http://sites.utexas.edu/ransomcentermagazine/2017/12/05/thousands-of-cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/#comment\\_12427\)](http://sites.utexas.edu/ransomcentermagazine/2017/12/05/thousands-of-cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/#comment_12427)

[cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/#comment-13437](http://sites.utexas.edu/ransomcentermagazine/2017/12/05/thousands-of-cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/#comment-13437)

That a great news! So by joining this platform anyone can lean the heritage and culture of there nations, societies or a ancient time! Really it sounds awesome and I feel thrilled! Thanks for making such platform.

[Reply](http://sites.utexas.edu/ransomcentermagazine/2017/12/05/thousands-of-cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/?replytocom=13437#respond) (<http://sites.utexas.edu/ransomcentermagazine/2017/12/05/thousands-of-cultural-heritage-materials-now-instantly-shareable-in-new-online-platform/?replytocom=13437#respond>)

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**Gregory Markus**

*EuropeanaTech Community Manager, Netherlands Institute for Sound and Vision*



**Antoine Isaac**

*R&D Manager, Europeana Foundation*

## IIIF adoption by Europeana: future perspectives for the Network



Feedback

*Chat "regardant" à travers une longue-vue et autre chat perché dessus : photographie de presse Agence Rol | Agence Rol. Agence photographique, Bibliothèque nationale de France, département Estampes et photographie, EST EI-13 (89)*

Sharing of high quality images on the Web, something many take for granted, has in recent years become a focal point for cultural heritage institutions across the globe. The Image Interoperability Framework ([IIIF \(\[http://iiif.io/\\)\]\(http://iiif.io/\)](http://iiif.io/)) is at the core of this collaborative effort. Europeana has become fully committed to IIIF, its community and its goals for the past year, and will take its engagement further with the launch of a new Task Force.

As reported in a previous blog, we have created an [IIIF profile for the Europeana Data Model \(EDM\)](#) (<https://pro.europeana.eu/post/iiif-datasets-in-europeana-a-scholar-s-delight>) that makes EDM interoperable with the IIIF standard. This enables Europeana data providers to reference their IIIF resources in the Europeana Collections portal and the Europeana APIs. Our approach, which was designed in collaboration with the IIIF community, is followed by others. Very recently, the [Nomisma.org](#) (<http://nomisma.org/>) project has [extended its own data model with the EDM profile for IIIF](#) (<https://pro.europeana.eu/page/edm-in-nomisma-org>), and re-used its data guidelines in order to enable IIIF images within [the viewer of Numishare and Coinage of the Roman Republic Online](#) (<http://numismatics.org/crro/>).

However, while Europeana Foundation and several Network institutions have signed on to and committed to implementing IIIF, there is still a large part of the Europeana Network unaware of the work being done by IIIF and how to get involved. Therefore, after hosting [IIIF working group meet-ups in Amsterdam](#) (<http://pro.europeana.eu/event/the-iiif-working-group-meeting>), Europeana is taking longer-term actions to ensure that the Network is well informed about IIIF solutions and their benefits, and how it can be involved in appropriate developments of the technology.

For that reason, EuropeanaTech just launched a new [IIIF Task Force](#) (<http://pro.europeana.eu/taskforce/iiif>). Led by the Austrian National Library, it intends to identify the current trends and tendencies in the adoption of the IIIF technology by Europeana content providers.

The Europeana Network of content providers being so large and diverse, simply recommending partners to implement IIIF wouldn't be that efficient. The network is at varying levels of digital solvency, and their collections include images corresponding to different kinds of cultural objects, which could benefit from the availability of specific IIIF implementation recipes. At a time when IIIF is devising extensions to cope with other types

of content (e.g. audiovisual or 3D), Europeana partners owning such content in their collections could provide crucial input. In order to move forward together, an initial assessment of the landscape is necessary, otherwise there could be a risk of seeing some institutions left behind, which does little to serve our collective good of presenting cultural heritage in the best way possible. The Task Force will evaluate what requirements are necessary in terms of sharing content within the Europeana Network, and give appropriate recommendations for future application of IIIF technologies within the Europeana ecosystem - as well as for potential contributions from the Network to the IIIF community.

On another note, Europeana Foundation has just been nominated to join the IIIF Executive Committee, the governing body for the IIIF consortium. This nomination will ensure that the Network is appropriately represented and heard through the Foundation, and with the help of other Network members involved in the IIIF community. It is also the acknowledgement that European cultural institutions are starting to play a key role, after a phase in which the bulk of IIIF development and adoption has taken place in the US - and this is something we must feel proud of!

The next Annual IIIF meeting(<http://iiif.io/event/2017/vatican/>) will take place in Europe, on June 6-9 at the Vatican. Proposals (<http://iiif.io/event/2017/vatican-cfp>) are still welcome: be sure to register in due time if you are interested!

If you can't wait until June, the National Library of Scotland and University of Edinburgh are holding a IIIF technical workshop (<https://www.eventbrite.co.uk/e/iiif-technical-workshop-tickets-31536545657>) and IIIF use-case showcase (<https://www.eventbrite.co.uk/e/iiif-showcase-improving-access-to-image-collections-tickets-31536512558>) on 16-17 March.

Feedback

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Created by **Gregory Markus**

**EuropeanaTech Community Manager, Netherlands Institute for Sound and Vision**

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Created by **Antoine Isaac**

**R&D Manager, Europeana Foundation**

Antoine focuses on R&D for making data work better, and manages collaborations with peers from all over the place, including W3C, DCMI or any other relevant/enthusiastic community. Antoine studied computer science in France, and has not yet managed to cut ties with the Free University Amsterdam, ...

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(<http://www.linkedin.com/in/antoineisaac>) [antoine.isaac@europeana.eu](mailto:antoine.isaac@europeana.eu)

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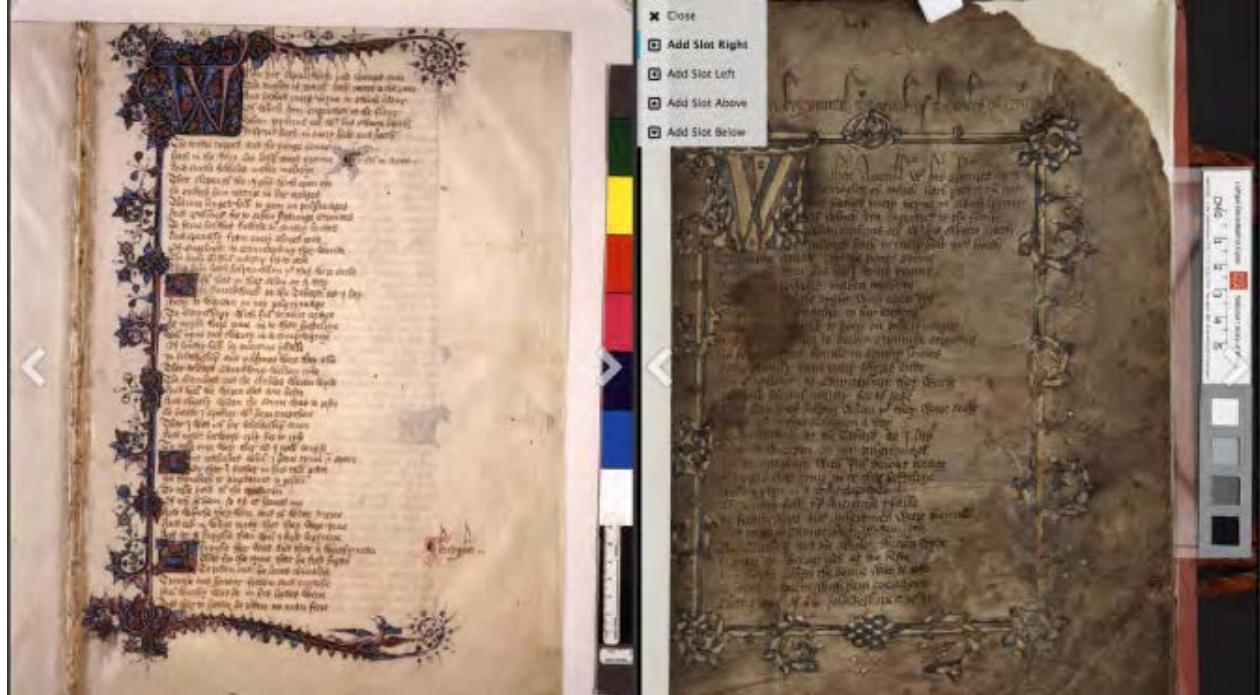
Feedback



# Digital Manuscripts at Stanford

Building Resources for Research and Pedagogy

**Author: Benjamin Albritton**



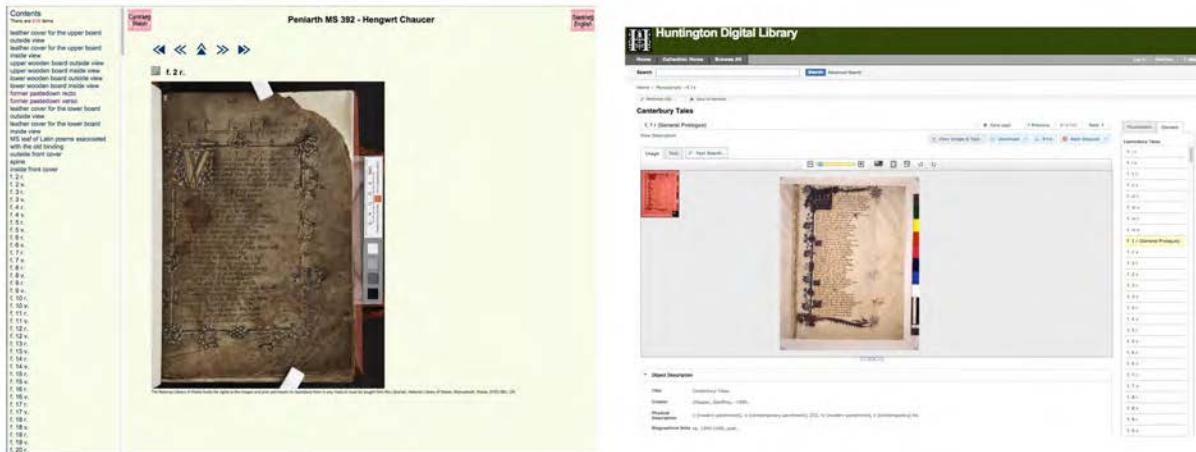
## Fellow Travelers: The Canterbury Tales and IIIF

by Benjamin Albritton

Those who study medieval texts are often faced with the fact that multiple versions of those texts exist in manuscripts scattered across collections, libraries, institutions, and sometimes continents. The rapid growth of availability of digital images of those manuscripts affords scholars and students the opportunity to compare witnesses more easily than in

decades past, when we relied on scratchy microfilm copies or expensive in-person visits to the physical manuscripts. As valuable as online images are, we are still struggling with usability: both what we want to do, and how we want to do it.

Interoperability, that unwieldy buzzword that has nearly as many definitions as practitioners, provides one path on the road toward a true digital medieval studies. In this context, the term means: the ability of software tools to use content from anywhere on the web through common APIs. Rather than diving into the details of such a vague statement here, let's pose a question: "What if I wanted to compare the opening pages of the *Canterbury Tales* from two different manuscripts?"

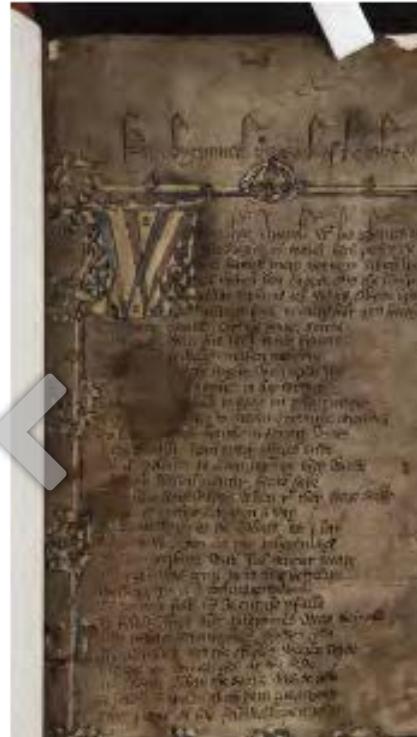
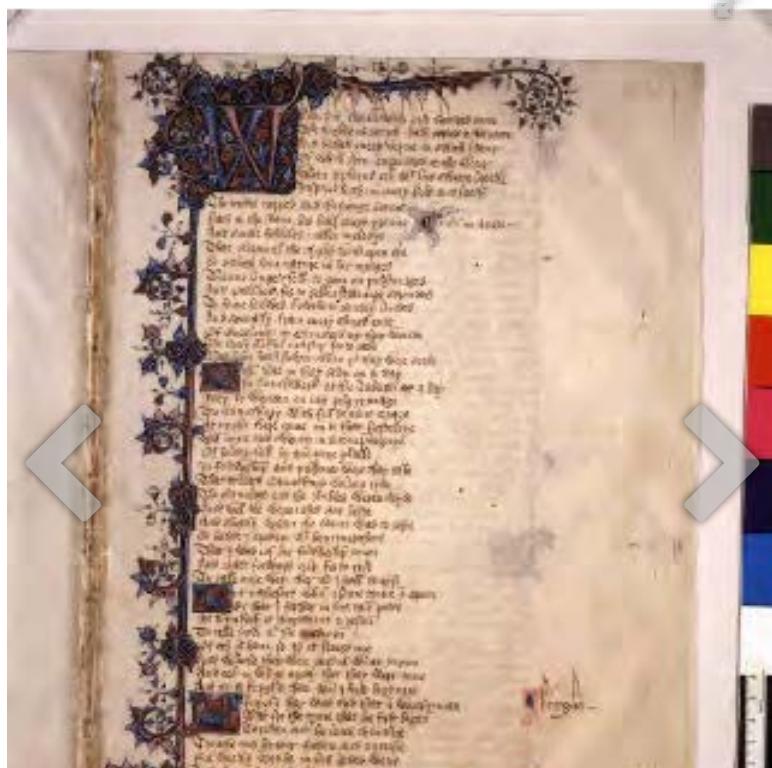


### *The Hengwrt and Ellesmere Chaucer mss.*

The answers to that question are varied. A researcher could:

- Open up two different web sites in a browser (see screen caps above of those of the [Huntington Library](#) and the [National Library of Wales](#))
- Compare published facsimiles – putting printed images side-by-side
- Acquire copies of images from the books and compare them on one's own computer
- But what if there was another (possibly better) way?

## IIIF and Mirador

[Bookmark](#)[Change Layout](#) [El 26 C 9 – Canterbury Tales](#) [The Hengwrt Chaucer](#)

See this demo in its native environment [here](#).

This demo opens with the General Prologue of the *Canterbury Tales* from two of the most famous Chaucer manuscripts: the Ellesmere Chaucer held at the Huntington Library (MS El 26 C 9) and the Hengwrt Chaucer held at the National Library of Wales (Peniarth MS 392). These images aren't being rehosted here at Stanford, they are coming directly from their home institutions (so the hosts can track usage of these images). The embedded version of this demo is somewhat limited, so follow the link to the full example [here](#).

### What are we looking at?

Each institution has published some data (a ‘manifest’) that lets us know where to find the image files for each object, as well as additional information like the sequence of the images, some description, page labels – just enough information to drive a piece of viewing software like the one in the demo above. They have also made their images available via the IIIF image API – a set of rules that allows many different types of software to access images held at different institutions the same way. So, we are seeing images coming from Los Angeles and Aberystwyth in a viewer hosted at Stanford. Because of this arrangement, it may take some time for one of the manuscripts to load.

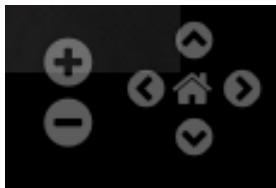
In a world where content is everywhere online, being able to access that material in predictable ways and re-use it has become extremely important. The list of libraries, museums, and other institutions supporting the IIIF image API is growing rapidly – which means that we, as users of those images, are benefitting from a surge of development to produce tools that take advantage of a wide swath of content.

## More about Mirador

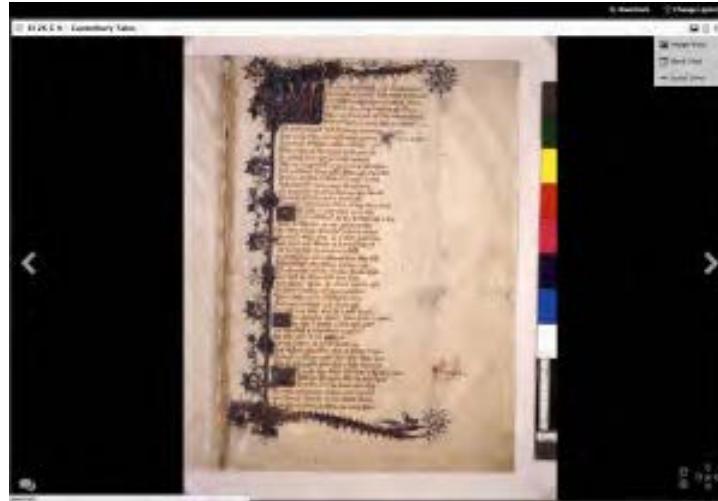
Mirador is one such tool (there are others, see the IIIF website for more), and its specialty is comparison: across folios, across objects, across collections, across repositories... It allows multiple viewing modes, as many viewing windows as your screen real-estate will allow, and has emerging annotation components for reading and creating annotations (the latter functionality is not turned on in this demo).

Mirador allows us, in a simple demo like this, the ability to:

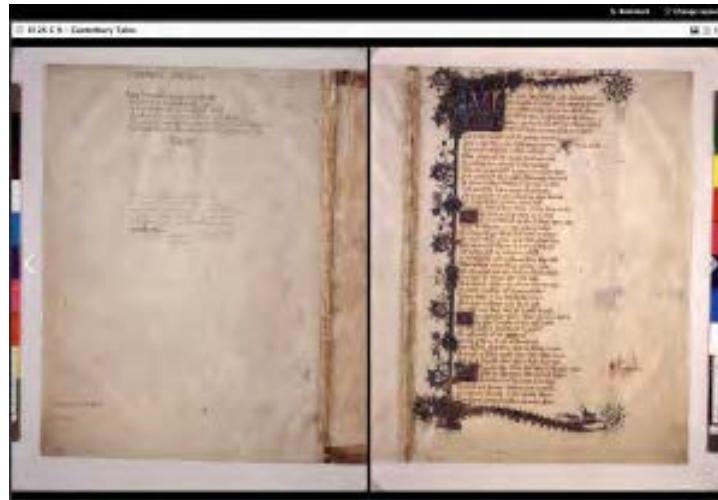
- zoom in to any detail using the plus/minus buttons (or mouse scroll)



- work through the text page by page, comparing details like decoration, paleography, textual variants, etc. (use the arrow keys to move sequentially through the books)
- examine one book in detail (or two, as the embedded viewer above demonstrates)



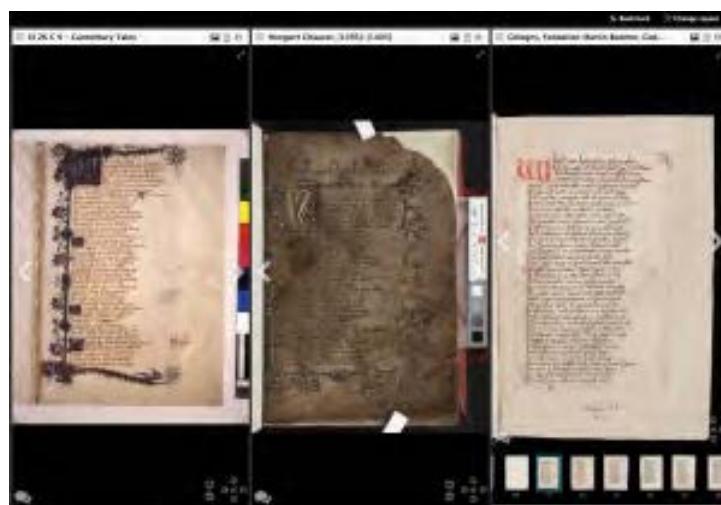
- examine one book as a series of openings, something many manuscript scholars prefer to the “disembodied page” image approach



- switch to a thumbnail view to navigate within the book



- add in a third manuscript for comparison (or four, or five...)



Mirador, like the other IIIF-compliant viewers that are being developed, provides a number of different options for working with content online. This short video provides a little bit more information about navigating through the tool and its options:

## Introducing Mirador 2.0



### How To Make Your Own Comparison Demo

One of the nicest things about the IIIF approach to shared content is that it lowers the barriers to building light-weight demonstrations like this for teaching and research purposes. The institutions that host the images are on the hook for long-term access and preservation, so it's not necessary to host your own copies of the images. Further, the viewing software that is available is primarily free and open-source. So how do you make your own Chaucer (or anything else) comparison demo? A few simple steps get you up and running:

1. Install Mirador (or a comparable IIIF-compliant viewer) either on your own machine or deployed on the web (code available at github). There are instructions for installation in the README and on the project wiki.
2. Find the IIIF manifests for the content you want to add to your instance. In this case, the two Chaucer manuscript manifests can be found at:
  1. The Ellesmere Chaucer at The Huntington Library

2. [The Hengwrt Chaucer at the National Library of Wales](#)
3. [Bonus, Cologny, Cod. Bodmer 48, via e-codices](#)
3. Add these manifests to your Mirador instance by:
  1. adding them through the “Add new object from URL” box, which temporarily adds the manuscripts to your workspace, or
  2. configure your index.html file to include those manifests all the time

That's pretty much it. The trick, as you might imagine, is finding out where the manifests are for the manuscripts you're interested in. The community is starting to come to grips with this issue, but at the moment it's not terribly easy. Good IIIF partners like e-codices or the new [Digital Bodleian](#) site from Oxford University provide the manifest URL as part of the metadata for each of their objects (Oxford even gives us a IIIF logo as a guide to the manifest, which is very helpful as a visual signal to users).

## Looking Forward

One could imagine building course- or publication-specific instances of a demonstration like this – something that would provide a starting premise and context (two Chaucer manuscripts showing the same text, for instance), but allow students, readers, or casual viewers the ability to explore such a juxtaposition in new, interesting, and hopefully unexpected ways. There are thousands of manuscripts available now from interoperable repositories that can be used, and – with more institutions joining IIIF each year – thousands more in the offing. As the tools get easier to use and configure, it will be fascinating to see what becomes possible for medieval studies.

We're already seeing a number of scholars and projects taking advantage of the opportunities offered by IIIF ([Jeffrey Witt, at Loyola University](#) and [the Biblissima project](#) to name two, alongside platforms like [Broken Books](#) at Saint Louis University). What could you do in your own practice with resources and tools like these?

## Other online resources:

- [Short description of the Hengwrt Chaucer from The National Library of Wales](#)
- [Short description of the Ellesmere Chaucer from The Huntington Library](#)
- [The Hengwrt Chaucer Digital Edition](#) by Estelle Stubbs
- [CTP2: Canterbury Tales](#), transcriptions and collations by Peter Robinson and Barbara Bordalejo
- [Digitally Enabled Scholarship with Medieval Manuscripts at Yale](#), with a project led by Alastair Minnis which provides an analysis of inks and pigments used in hand produced copies of Chaucer's Canterbury Tales and other contemporaneous Middle English works.

*Many thanks to Glen Robson and Dafydd Tudur at the National Library of Wales, and to Vanessa Wilkie and Mario Einaudi at the Huntington Library for their help in making these materials available.*

 July 14, 2015    Canterbury Tales, Chaucer, Digital Medieval, IIIF, Interoperability, Mirador

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Front-End Engineer at Stanford University Libraries

May 10, 2016 · 3 min read

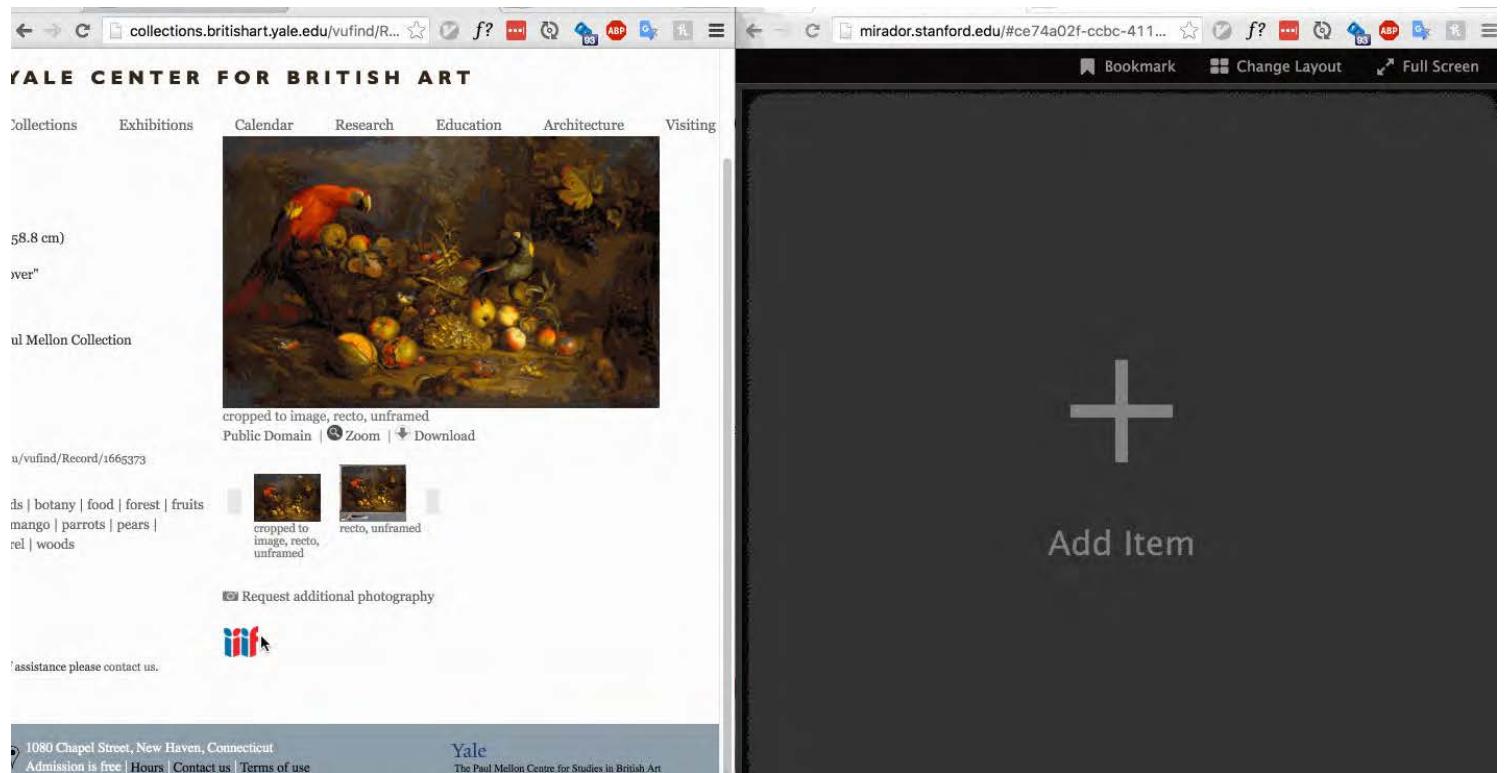
## Create and Share IIIF Items Quickly and Easily with Drag and Drop over Email

There has been a lot of excitement in the [IIIF](#) community recently surrounding the appearance of drag-and-drop icons in several major digital collection catalogues. If you visit the [Yale Center for British Art](#), [e-codices](#), the [Digital Bodleian](#), and other major online catalogues, you'll see this icon:



Just Drag and Drop

If you have an instance of [Mirador](#) running, you can drag and drop one of these icons directly into a blank workspace area to open them in the same environment. It works with images and manifests, whether they are image collections or books.



Mirador and Universal Viewer both support drag-and-drop icons from IIIF catalogues. Creating an image that can be dragged this way is dead simple, and will help scholars, students, and anyone else make the most out of cultural heritage resources. Here's how it works.

Drag and drop uses the browser's built-in dataTransfer API. If you're adding drag-and-drop icons to a website, just wrap an image of the IIIF logo in an anchor tag and giving it an href.

```

1  <a target="_blank" href="http://mirador.britishart.yale.edu/
2      

This next part, after the question mark, is the link to your object's manifest.json file or, for images, info.json file.

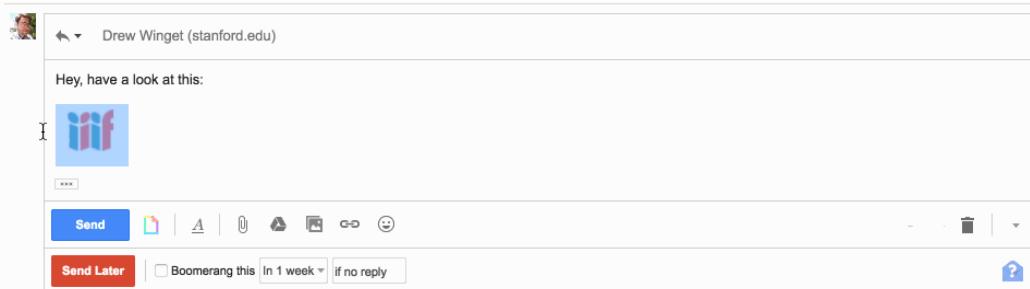
<http://mirador.britishart.yale.edu/?manifest=http://manifests.britishart.yale.edu/manifest/1079>

The word "manifest=" here tells Mirador and other viewers what to do with your icon, and the url points to a IIIF manifest (for groups of images), or an info.json file for ungrouped images. Almost all IIIF catalogues provide this kind of url to represent their assets in results pages, even if they don't yet provide drag-and-drop icons.

It only recently occurred to me that this format is well-contained and simple-enough that you can actually do this in an email. Simply:

1. Add an image to your email
2. Highlight it like you would a section of text
3. Add a link (with ⌘ + K/ Ctrl + K) from the toolbar.

Since Internet Archive has made all their items available over IIIF, here's an example with a nice dual-language scan of Plato. Check it out:



I hope this will help colleagues share and discuss great works more fluently in the software they use most. Let me know what you think, and how you might use it. Also, let others know if you provide IIIF endpoints, or draggable icons, in your repository pages.



Drew Winget [Follow](#)

Front-End Engineer at Stanford University Libraries

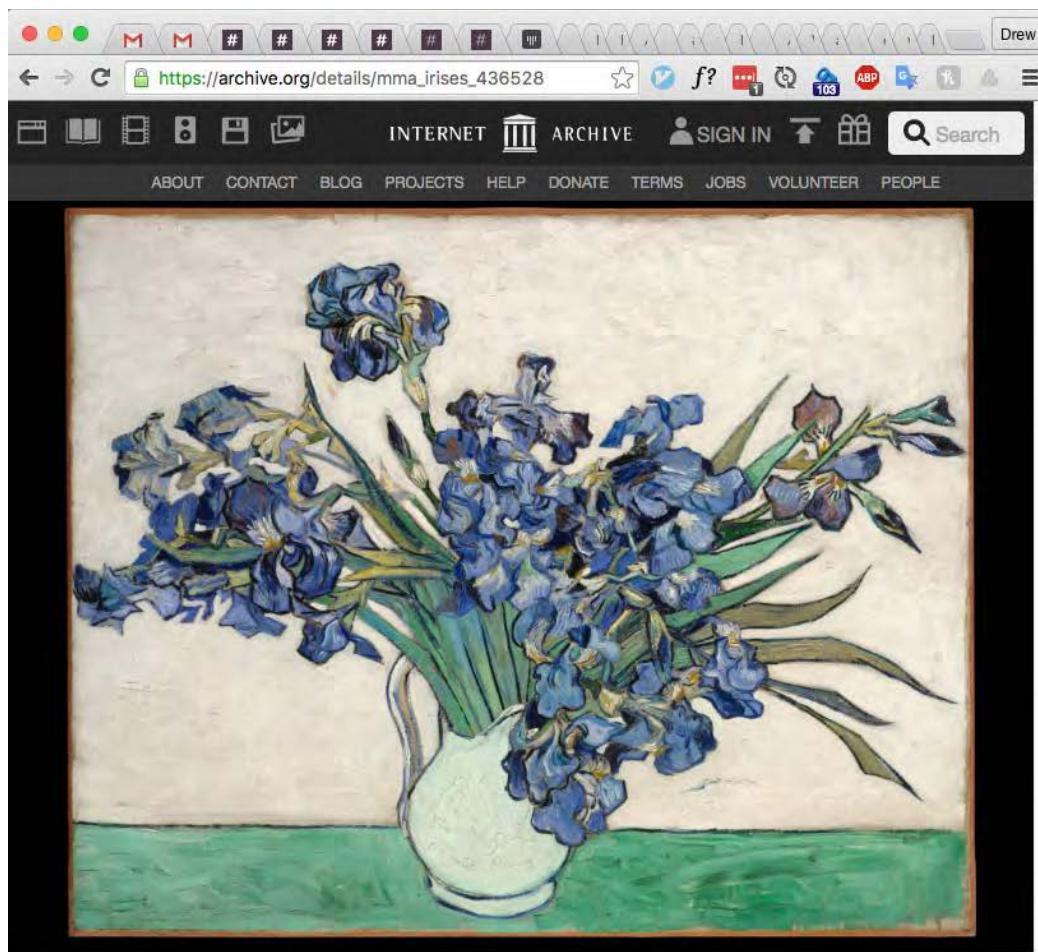
Dec 11, 2017 · 3 min read

## Use Internet Archive's IIIF Endpoint to Unlock Your Images' Potential

Many libraries, archives, and museums rely on the Internet Archive to preserve their materials, but have often overlooked the role IA can play in improving access. Last year, the Internet Archive announced it would expose all of its image and book resources through the IIIF protocol, under the auspices of its new experimental arm, archivelab.org. The move made more than 9.3 million images and millions of books available in an interoperable way. Here's how to make the most use of that new capability.

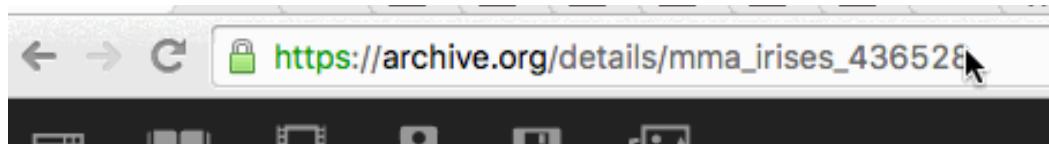
### Viewing IA Materials through IIIF

Every Internet Archive resource, whether a webpage, book, video, or image, has a unique identifier that bundles its resources together across the IA system. When you search for items on the Internet Archive homepage, you'll eventually arrive at a results page looking something like this:

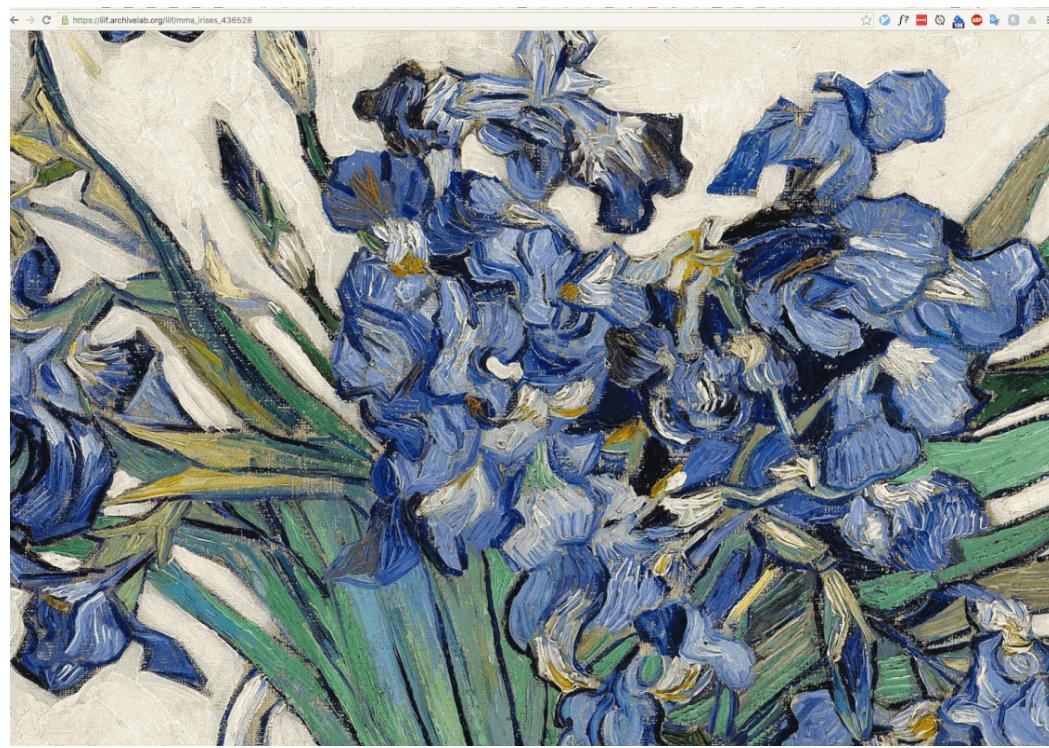
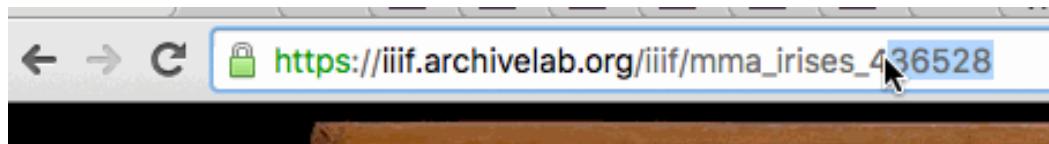


The screenshot shows a web browser window with the URL [https://archive.org/details/mma\\_irises\\_436528](https://archive.org/details/mma_irises_436528). The page displays a reproduction of Vincent van Gogh's painting "Irises". Below the image, the title "Irises" is shown with a small icon. The page includes metadata such as "Published 1890", "Topics Europe, Canvas, Netherlands, Paintings, Metropolitan Museum of Art, Oil on canvas, 1890, Oil paint", and detailed object identifiers like "Identifier mma\_irises\_436528" and "Accession\_number 58.187". On the right, there are "DOWNLOAD OPTIONS" for JPEG and TORRENT, and a section indicating "7 Files" and "6 Original". A logo for the Metropolitan Museum of Art is also present.

True to form, the Internet Archive has excellent taste in URLs. This last segment is the unique identifier for the digital object this result page represents:



Now for the good stuff. Any single image or book url on IA that has one of these identifiers has an alternate representation on archivelab.org—its IIIF endpoint. To see any IA image in OpenSeadragon, simply paste its identifier after the archivelab IIIF endpoint base url (<https://iiif.archivelab.org/iiif/>).

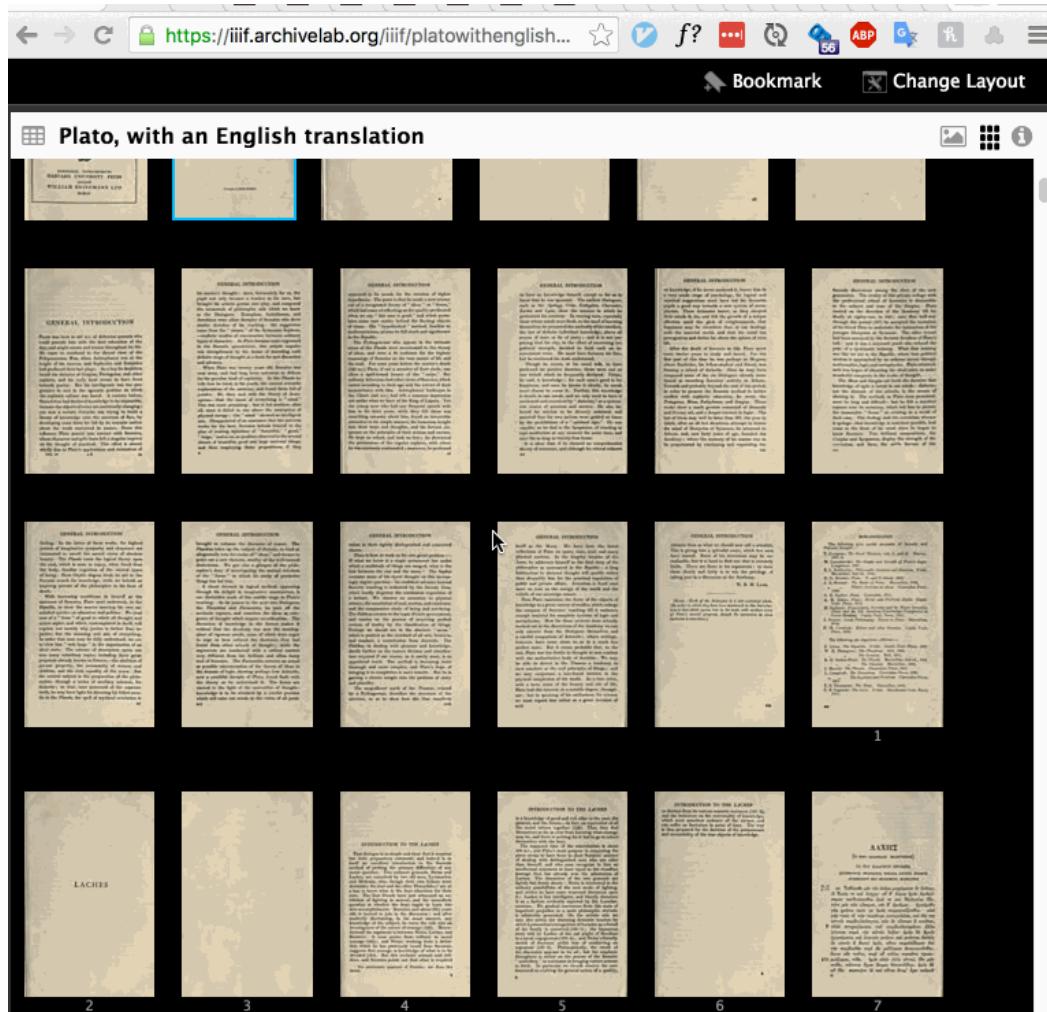


Try it live on Archive Labs:

[https://iiif.archivelab.org/iiif/mma\\_irises\\_436528](https://iiif.archivelab.org/iiif/mma_irises_436528)

The same is true for books on Internet Archive. View them in Mirador the same way. Here's some Plato:

<https://iiif.archivelab.org/iiif/platowithenglish04platuoft>



## Getting an IA Image into Your Third-Party Viewer

It's nice to view materials on IA's own site, but the real advantage of IIIF is its support for interoperable exposure of the resources. You can display a resource from the Internet Archive using any client viewer of your choosing, on your own domain, for the benefit of your users.

By this point, IIIF veterans will be baying, “Where is the info.json!? Where is the manifest!?”

For images, just add “/info.json” to the url, or “/manifest.json” to any url to get the raw IIIF or “linked data” representations. The links we looked at above were just previews after all. Try it:

Irises (The Met):

Plato:

<https://iiif.archivelab.org/iiif/platowithenglish04platuoft/manifest.json>

## Getting an IA Book into Mirador or the UV

Just as we can add /info.json to the end of an archivelab iiif endpoint to retrieve an image resource’s info.json, we can add /manifest.json to the end of

## How the System Works

## How IIIF Support Could Be Improved

One thing I would like to see (although it would require the IIIF endpoint service to mature out of labs first) is a drag-and-drop icon added to the list of download options in the result pages, or perhaps a separate section for various linked data representations of IA resources.