

Image servers and IIIF

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Digital images as source material in DH

- Visual material has taken second seat to textual material in computing (and DH) but support is growing
- Images are essential source material for many humanities disciplines.
- Even for textual sources image support can be essential where pure text is not available or not accurate enough.

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[CT 14, pl. 36, 1879-07-08, 022](#)
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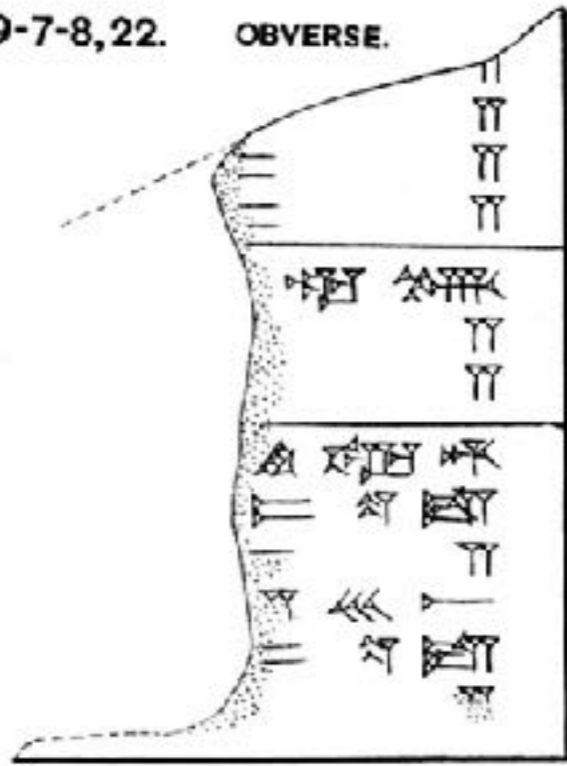
[View line art](#)**Tablet**

Primary publication [CT 14, pl. 36, 1879-07-08, 022](#)
 Author(s) Thompson, R. Campbell
 Publication date 1902
 Secondary publication(s)
 Collection British Museum, London, UK
 Museum no. BM —
 Accession no. 1879-07-08, 0022
 Provenience
 Excavation no.
 Period
 Dates referenced
 Object type tablet
 Remarks
 Material clay
 Language
 Genre
 Sub-genre
 CDLI comments
 Catalogue source 20120419 cdliadmin
 ATF source no atf
 Translation
 UCLA Library ARK [21198/zz002c110k](#)
 Composite no.
 Seal no.
 CDLI no. P429690

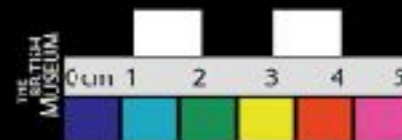
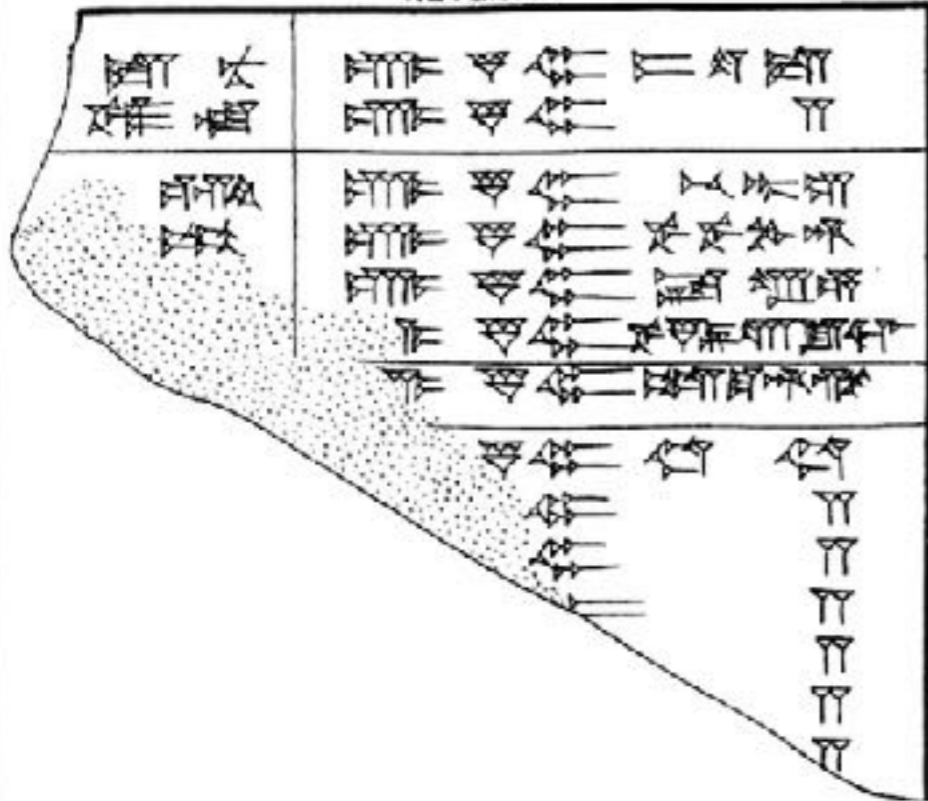
[\[click on image to enlarge\]](#)

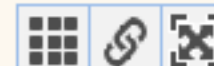
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79-7-8,22. OBVERSE.



REVERSE.





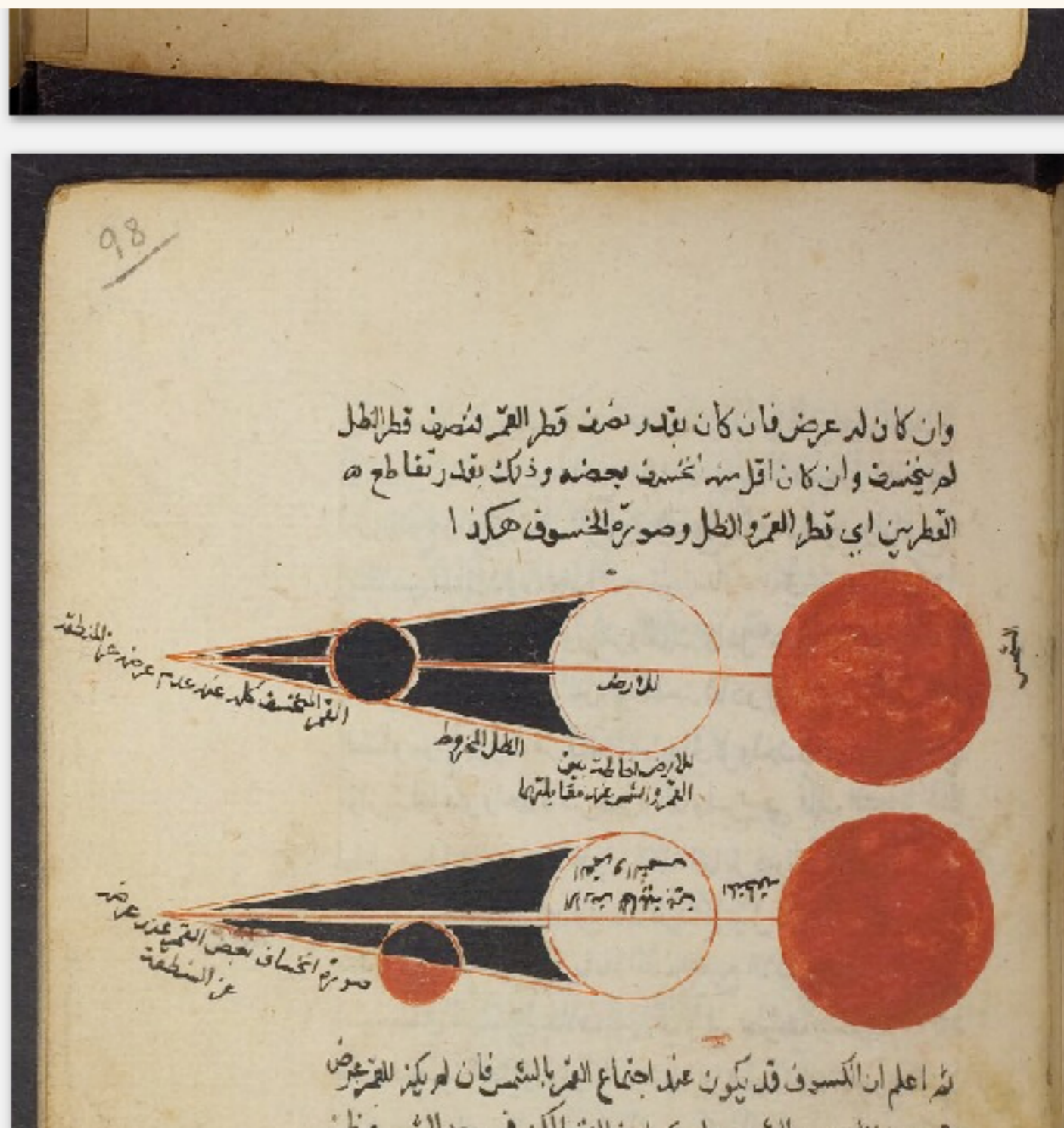
Petermann_I_673

Titles in this Codex

Title	Folios
Risālah fī 'amal bi-al-rub' al-mujayyab	1a-4a
Risālah 'ala rub' al-mujayyab bi-ghayr muri	4b-7a
UNKNOWN_Astronomy: General [ANON]	7b-9a
Risālah fī al-'amal bi-rub' al-jayb	13a-17b
Risālah fī al-'amal bi-al-rub' al-mujayyab	18a-22b
Zād al-musāfir ilā rasm khujūl faḥl al-dā'ir	23a-36a
Irshād al-hā'ir ilā takhrij tādī al-dā'ir	37a-88a
Jadwal al-Farḡhān'	88b-90a
Jāmi' al-funūn wa-jāmi' al-ḥunūn	91a-101b
al-Mulakhkhaḥ fī al-hay'ah al-baṣiṭah	103b-124b
UNKNOWN_Astronomical Tables/zījes [ANON]	125a-126

Title Information

Title	رسالة في العمل بطريق المجيب Risālah fī al-'amal bi-al-rub' al-mujayyab
Author	ANONYMOUS
Subject	Astronomical Instruments
Language	Arabic Show more



Images in silos


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CT 14, pl. 36, 1879-07-08, 022
[Click for archival page](#) [View the art](#) **Tablet**

Primary publication	CT 14, pl. 36, 1879-07-08, 022
Author(s)	Thompson, R. Campbell
Publication date	1902
Secondary publication(s)	
Collection	British Museum, London, UK
Museum no.	BM —
Accession no.	1879-07-08, 0022
Provenience	
Excavation no.	
Period	
Dates referenced	
Object type	tablet
Remarks	
Material	clay
Language	
Genre	
Sub-genre	
CDLI comments	
Catalogue source	20120419 cdliadmin
ATF source	no atf
Translation	
UCLA Library ARK	21198/zz002c110k
Composite no.	
Seal no.	
CDLI no.	P429590



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ISMI
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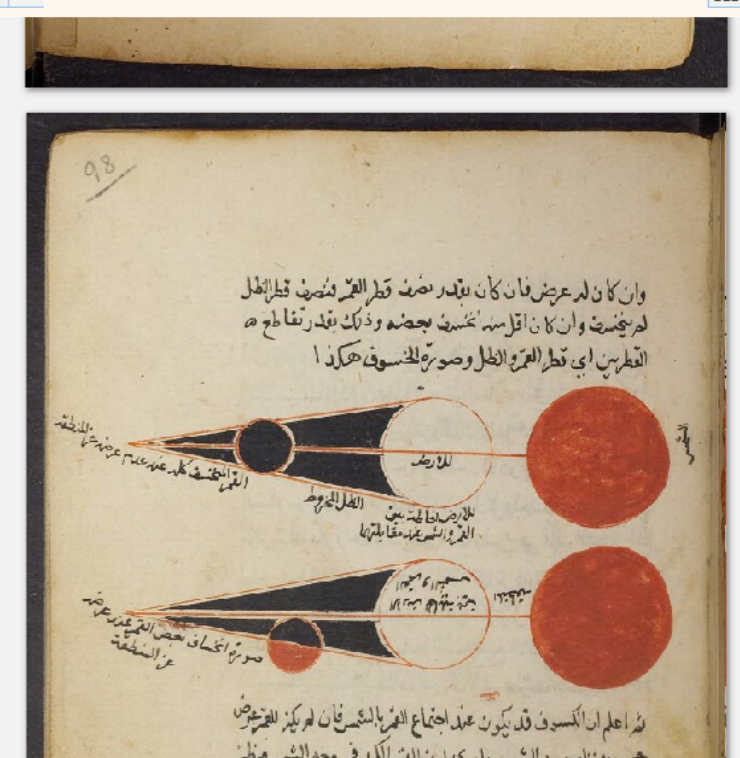
Page 205 of 282 Zoom level: 2

Petermann_I_673
Titles in this Codex

Title	Folios
Risālah fī al-'amal bi-dinārī al-mujayyab	1a-4a
Risālah 'ala rub' al-mujayyab bi-ghayr murī	1b-7a
UN-KNWN_Astronomy: General [ANON]	7b-9a
Risālah fī al-'amal bi-nih' al-jayh	13a-17b
Risālah fī al-'amal bi-al-rub' al-mujayyab	18a-22b
Zāu al-musāfir ilā rasam al-udī (fa) al-dā ir	23a-30a
isrād al-hā ir ilā takmil' tadī a--32' r	37a-88a
Jadwa al-Faḥān'	88b-90a
Ilm' al-ḥimīr wa-ḥimī' al-ḥimīr	91a-101b
al-Mulakhḥaḥ fī al-hay' ah al-baḥār	103b-124b
UN-KNWN_Astronomical Tables/zijes [ANON]	125a-126

Title Information

Title	رسالة في العمل بتاريخ شمسي
	Risālah fī al-'ama bi-al-rub' al-mujayyab
Author	ANONYMOUS
Subject	Astronomical Instruments
Language	Arabic
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IIIF: image server standards

- <https://iiif.io>
<https://github.com/IIIF/awesome-iiif>
- IIIF Image API
- IIIF Presentation API
- IIIF Auth API
- IIIF Content Search API

IIIF Participating Institutions

4Science
Art Institute of Chicago
ARTstor
Art Gallery of Ontario
Bayerische Staatsbibliothek (Bavarian State Library)
La Bibliothèque nationale de France
Biblissima
Boston Public Library
British Library
British Museum
Brown University
Cambridge University
Canadiana.org
Carnegie Museum of Art
Center for Open Data in the Humanities, Research Organization of Information and Systems, Japan
Centre de Recherche et de Restauration des Musées de France (C2RMF)
Chinese University of Hong Kong
Cogapp
Columbia University
CONTENTdm
Cooper Hewitt Smithsonian Design Museum
Cornell University
Data Futures Project (University of Westminster)
DPLA
Digital Image Archive of Medieval Music (DIAMM)
Digirati Ltd
Durham University Library
e-codices – Virtual Manuscript Library of Switzerland
École polytechnique fédérale de Lausanne (EPFL)
Europeana
Folger Shakespeare Library
The J. Paul Getty Trust
Ghent University
Gottingen State and University Library
Harvard Art Museums
Harvard University
HES-SO University of Applied Sciences and Arts, Haute école de gestion de Genève
Hill Museum & Manuscript Library (HMML)
Holoscene

Huygens ING (KNAW)
Indiana University
Internet Archive
Johns Hopkins University
Keio University Libraries
Klokan Technologies
KU Leuven - LIBIS+
Kyoto University Library Network
Leiden University
Leipzig University Library (Universitätsbibliothek Leipzig)
Library of Congress
LUNA Imaging
Manuscriptorium - Digital Library of Written Cultural Heritage
Max Planck Institute for European Legal History
MIT Libraries
Moravian Library (Moravská zemská knihovna)
National Gallery of Art
National Library of Austria
Nasjonalbiblioteket (National Library of Norway)
National Library of Denmark
National Library of Egypt
National Library of Israel
National Library of New Zealand
National Library of Poland
National Library of Scotland
National Library of Serbia
National Library of Wales
Nationalmuseum Sweden
New York University Libraries
North Carolina State University Libraries
OCLC
Ohio State University
Pennsylvania State University Libraries
Princeton University Library
Public Record Office Victoria
Qatar National Library
Sirma Group
Smithsonian Institution
St. Louis University
St. Mary's University
Stanford University
State Library of Queensland
Synptica
TextGrid
text & bytes

Trinity College Dublin
United States Holocaust Memorial Museum
Universidad de la Habana, Biblioteca Nacional de Cuba José Martí
University College Dublin
University of Alberta Libraries
University of Basel, Digital Humanities Lab
University of California, Los Angeles
University of California, Santa Barbara
University of Edinburgh
University of Glasgow
University of Hong Kong
University of Illinois at Urbana-Champaign
University of Michigan
University of Notre Dame
University of Oklahoma
University of Oxford (Bodleian Library)
University of Pennsylvania
University of Tokyo
University of Toronto
University of Utah
University of Virginia Library
Vatican Library
Villanova University
Walter J. Ong, S.J. Center for Digital Humanities at Saint Louis University
The Walters Art Museum
Wellcome Trust
Wikipedia (Wikimedia Foundation)
World Digital Library
Yale Center for British Art
Yale University
Zegami

IIIF Image API

`{scheme}://{server}/{prefix}/{identifier}/{region}/{size}/{rotation}/{quality}.{format}`

Image: <http://www.example.org/image-service/abcd1234/full/full/0/default.jpg>

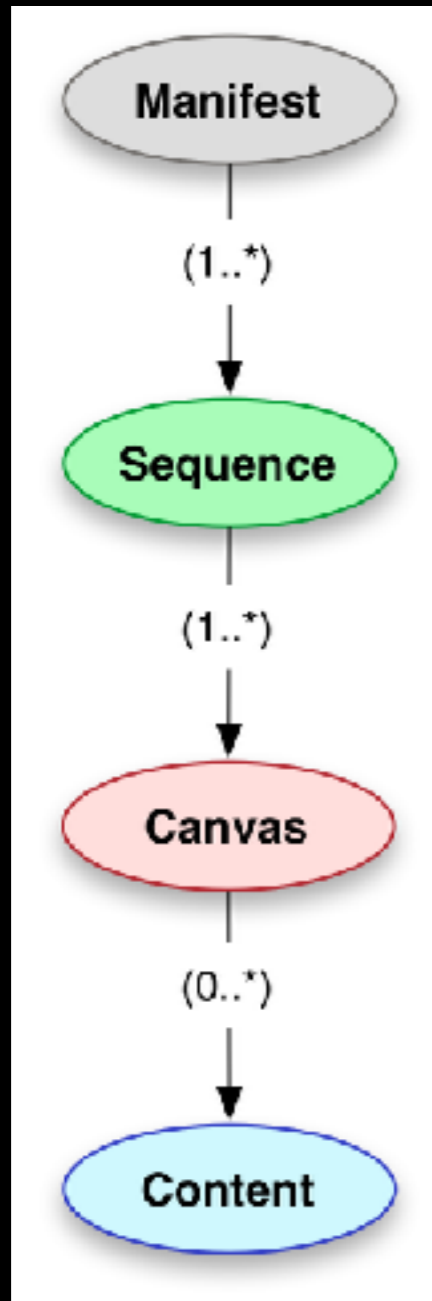
Info: <http://www.example.org/image-service/abcd1234/info.json>

Demo: <http://yenda.tools/en/iiif-api-demo-en/>

IIIF Image API

- <http://iiif.io/api/image/2.1/>
- **Image request** returns image or error code.
- **Information request** returns technical image metadata
 - available image sizes
 - available output formats
 - available image server features

IIIF Presentation API



```
{
  "@context": "http://iiif.io/api/presentation/2/context.json",
  "@type": "sc:Manifest",
  "id": "http://example.org/iiif/book1/manifest",

  "label": "Book 1",
  "metadata": [
    { "label": "Author", "value": "Anne Author" },
    { "label": "Published", "value": [
      { "@value": "Paris, circa 1499", "@language": "en" },
      { "@value": "Paris, environ 1499e siecle", "@language": "fr" }
    ] }
  ],
  "description": "A longer description of this example book. It should give some real information.",
  "navDate": "1856-01-01T00:00:00Z",

  "license": "https://creativecommons.org/publicdomain/zero/1.0/",
  "attribution": "Provided by Example Organization",
  "service": [
    {
      "@context": "http://example.org/ns/jsonld/context.json",
      "id": "http://example.org/service/example",
      "profile": "http://example.org/docs/example-service.html"
    }
  ],
  "seekIn": [
    {
      "id": "http://example.org/library/catalog/book1.marc",
      "format": "application/marc",
      "profile": "http://example.org/profiles/marc21"
    }
  ],
  "rendering": [
    {
      "id": "http://example.org/iiif/book1.pdf",
      "label": "Download as PDF",
      "format": "application/pdf"
    }
  ],
  "within": "http://example.org/collections/books/",

  "sequences": [
    {
      "id": "http://example.org/iiif/book1/sequence/normal",
      "@type": "sc:Sequence",
      "label": "Current Page Order",
      "viewingDirection": "left-to-right",
      "viewingHint": "paged",
      "canvases": [
        {
          "id": "http://example.org/iiif/book1/canvas/p1",
          "@type": "sc:Canvas",
          "label": "p. 1",
          "height": 1800,
          "width": 750,
          "images": [
            {
              "@type": "oa:Annotation",
              "motivation": "sc:painting",
              "resource": {
                "id": "http://example.org/iiif/book1/res/page1.jpg",
                "@type": "dctypes:Image",
                "format": "image/jpeg",
                "service": {
                  "@context": "http://iiif.io/api/image/2/context.json",
                  "id": "http://example.org/images/book1-page1",
                  "profile": "http://iiif.io/api/image/2/level1.json"
                }
              },
              "height": 2800,
              "width": 1500
            }
          ]
        }
      ]
    }
  ]
}
```

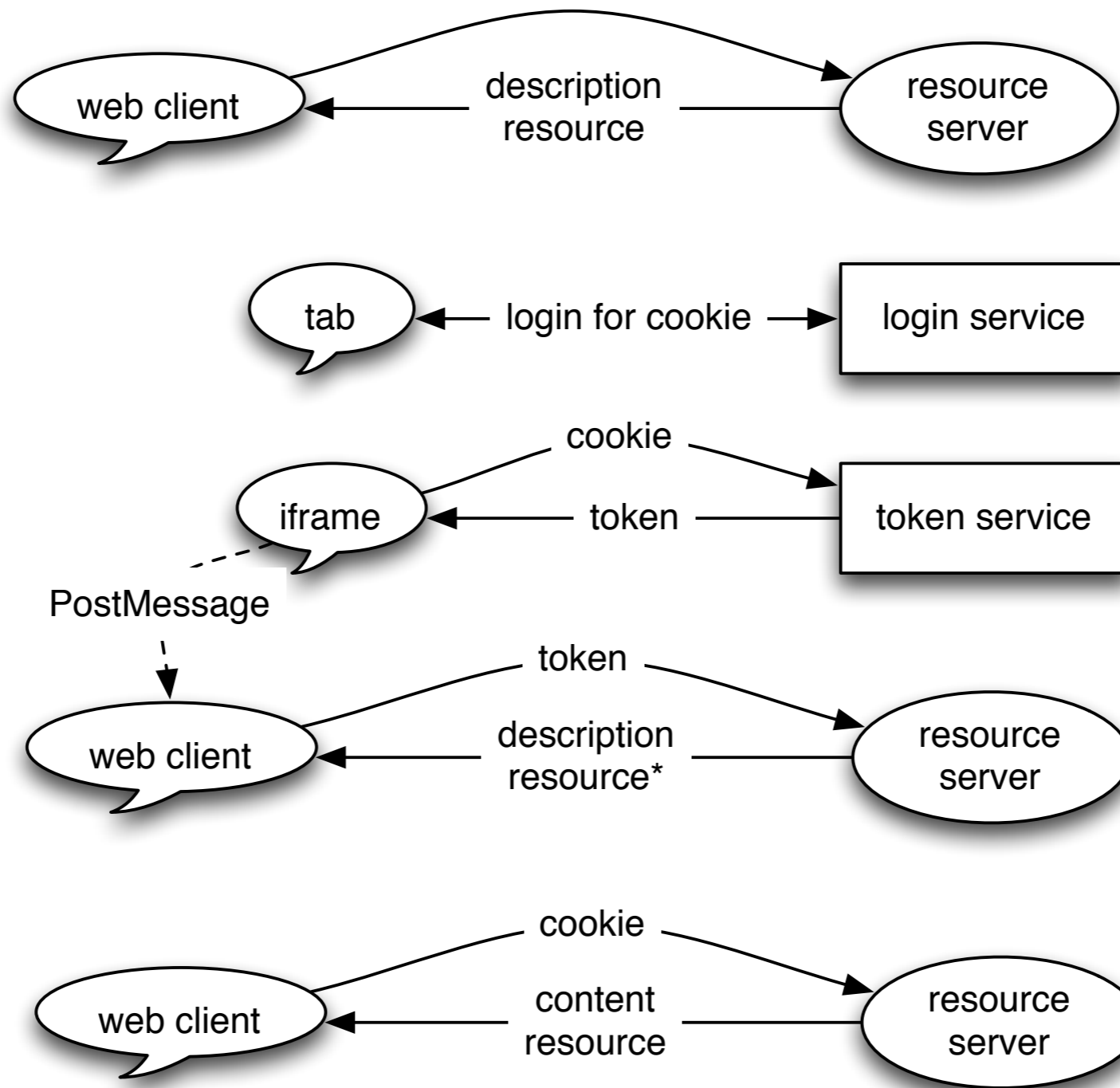
IIIF Presentation API

- <http://iiif.io/api/presentation/2.1/>
- Creating virtual “pages” (**canvas**) and “books” (**manifest**) using Image API resources.
- Canvas can have multiple images (**resource**) and **annotations** (including text).
- Manifest has presentation metadata and one or more sequences of canvases.

IIIF Auth API

- <http://iiif.io/api/auth/1.0/>
- Authentication in the face of differential quality and CORS ;-)
- “a set of workflows for guiding the user through an *existing* access control system”

IIIF Auth API 1.0



IIIF Content Search API

- iiif.io/api/search/1.0/
- “searching annotation content within a single IIIF resource”
- Query: `http://example.org/services/manifest/search?q=bird&motivation=painting`
- Response is Presentation API compatible annotation list.

IIIF image servers

- <https://github.com/IIIF/awesome-iiif#image-servers>
- <https://github.com/loris-imageserver/loris>: Python
- <http://iipimage.sourceforge.net/documentation/server/>: high performance, C
- <https://medusa-project.github.io/cantaloupe/> Java Restlet, modular
- <https://github.com/dbmdz/iiif-server-hymir> Java Spring
- <https://github.com/robcast/digilib> Java Servlet

IIIF image viewers

- <https://github.com/IIIF/awesome-iiif#image-viewers>
- <https://github.com/IIIF/mirador> “reference” viewer
- <https://github.com/UniversalViewer/universalviewer>
embeddable
- <https://ddmal.github.io/diva.js/> read-optimized
- <https://openseadragon.github.io/examples/tilesource-iiif/>
toolkit
- <https://github.com/mejackreed/Leaflet-IIIF>

Application ideas

- Cropping and re-publishing: <https://bl.ocks.org/mejackreed/6936585f435b60aa9451ae2bc1c199f2>
- Creating manifests from multiple sources: <http://demos.biblissima-condorcet.fr/chateauroux/osd-demo/>
- Image comparison: <http://resources.digirati.com/iiif/an-introduction-to-iiif/dee-sbs.html>
- Transcription: <https://fromthepage.com/>
- Fractals: <http://www.appliediiif.org.uk/live/fractalshome.htm>

digilib example

- <https://github.com/robcast/digilib>