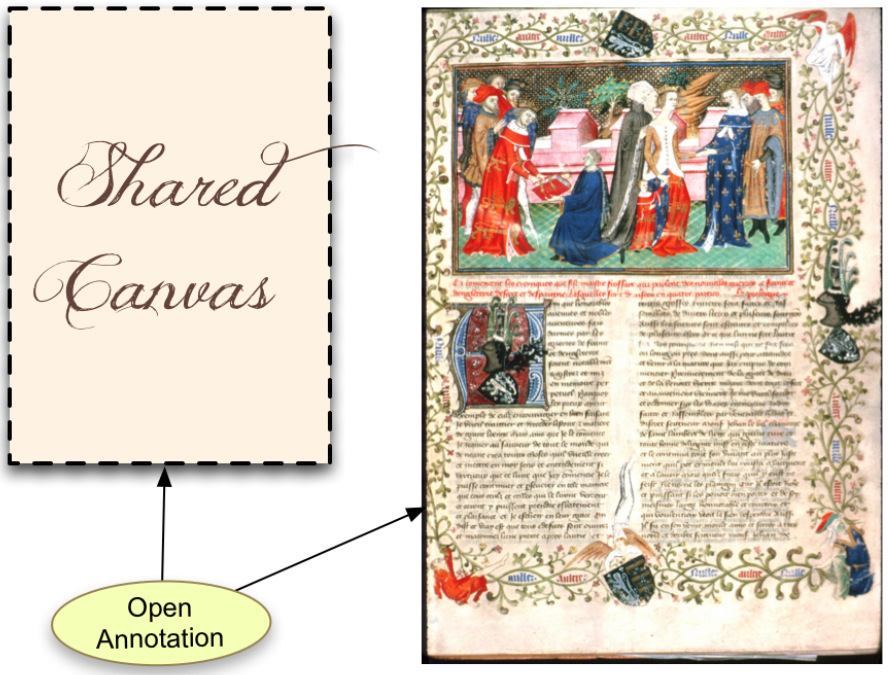
Distributed Repositories of Medieval Calendars and Crowd-Sourcing of Transcription



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http://iiif.io/

This research was primarily funded by the Andrew W. Mellon Foundation

Image Repositories

- Increase in digitization
  - Particularly precious, fragile, beautiful objects
  - e.g. Medieval Manuscripts

- Digitized images online
  - Increasingly Open
  - At high resolution

- Easy to capture an image
- Very hard to capture the text

Source gallica.bnf.fr / Bibliothèque nationale de France

http://gallica.bnf.fr/ark:/12148/btv1b8449691v/

Calendar Pilot

- Ubiquitous in liturgical books
  - e.g. Books of Hours
- Structured and often tabular:
  Date, Day, Saint / Event

- Content varies slightly
- Variation details give us information about the provenance of the object

- Much easier to transcribe than full text

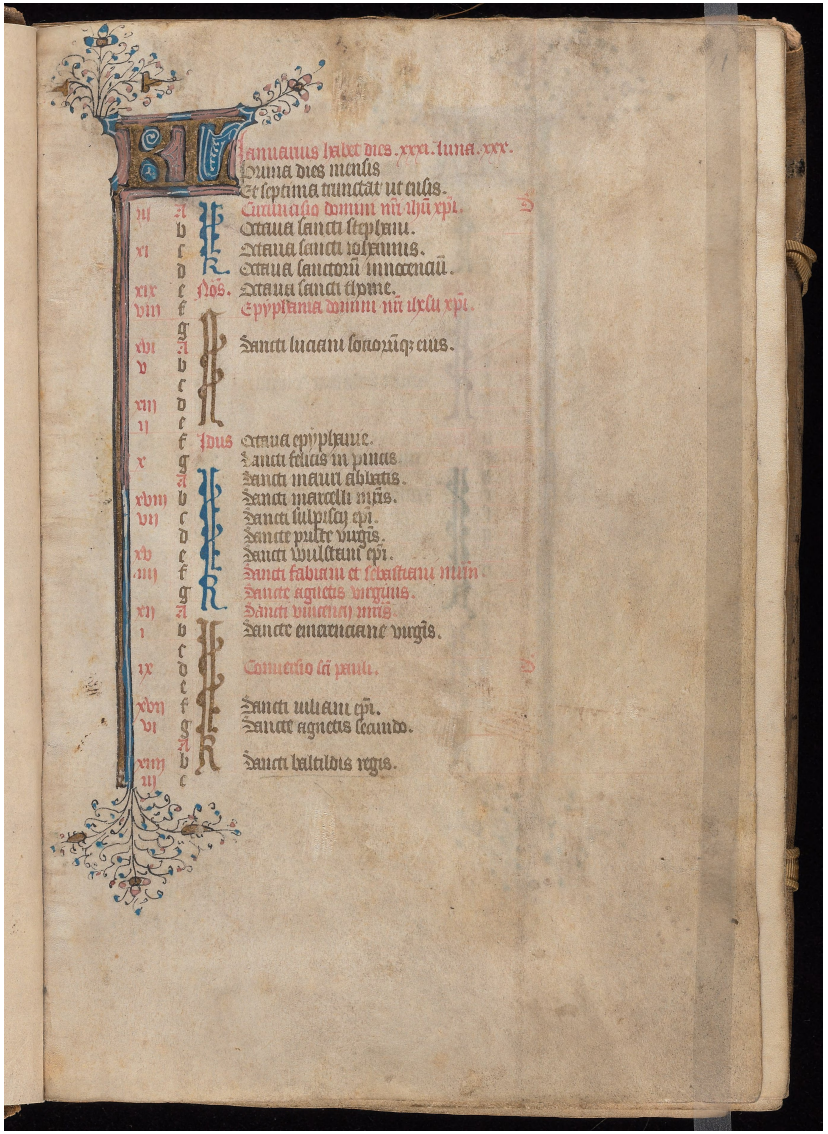
http://www.e-codices.unifr.ch/en/bge/lat0033

Collaborative Crowd Sourcing?

- Meeting at U. Penn including content providers and scholars

- Plan:
  - Collect transcriptions *together*
  - Analyze similarities between manuscripts for patterns of provenance

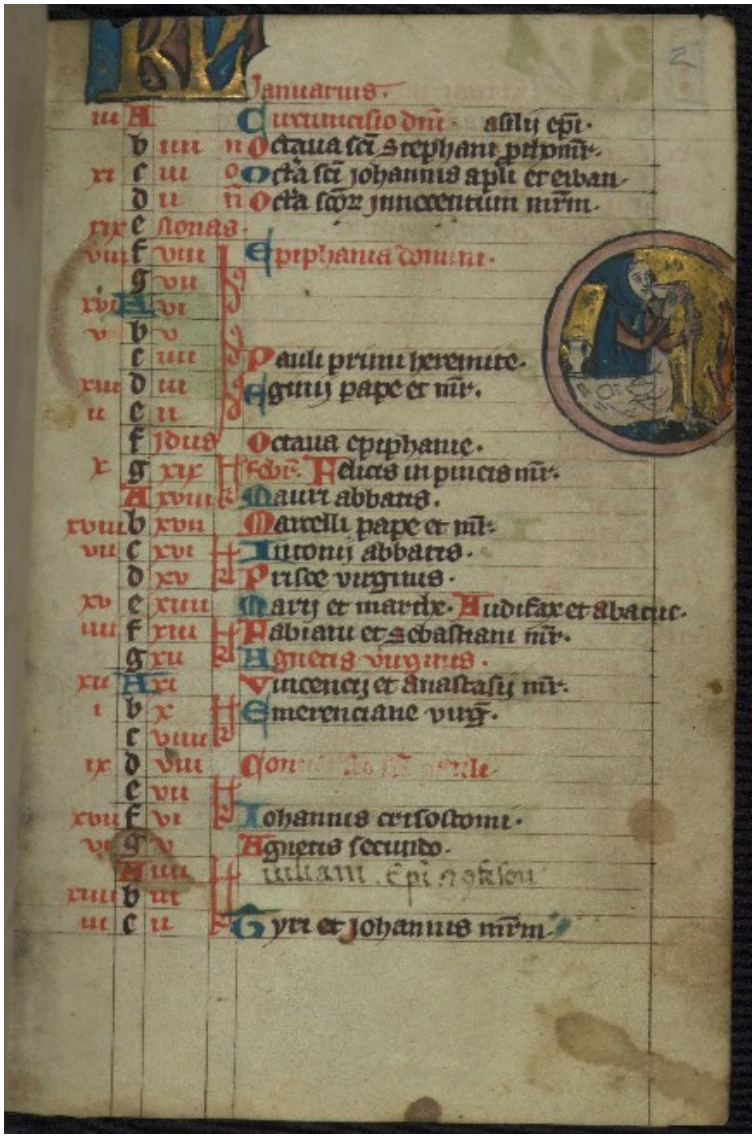
- Manuscripts and images distributed: need a community to collect sufficient data



http://brbl-dl.library.yale.edu/vufind/Record/3446275

Micro Repository Rant: TEI

- Most transcribing done in TEI
- Terrible for this use case:
  - Single XML file
  - Single author
  - Single location
  - Hard to link to images
  - Tries to describe too much
  - Impossible to use once created
- Creating TEI is good for:



http://www.thedigitalwalters.org/Data/WaltersManuscripts/html/W41/

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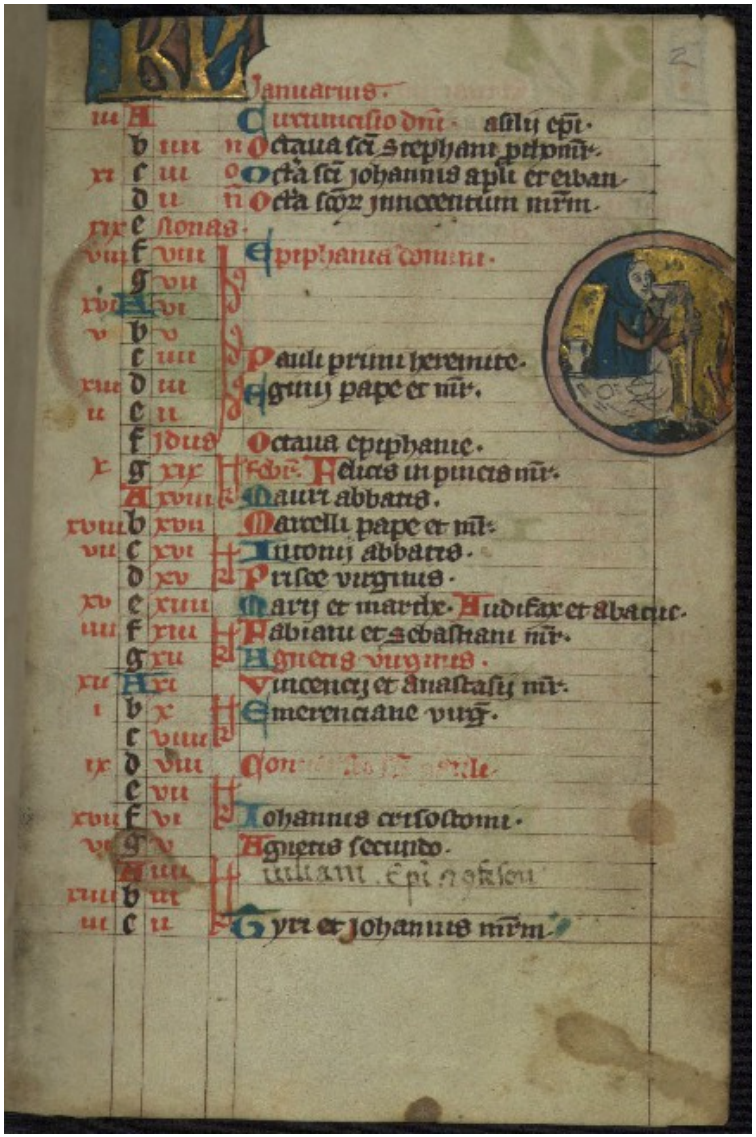
  - Tries to describe too much
  - Impossible to use once created
- Creating TEI is good for:
  - The academic exercise of creating TEI



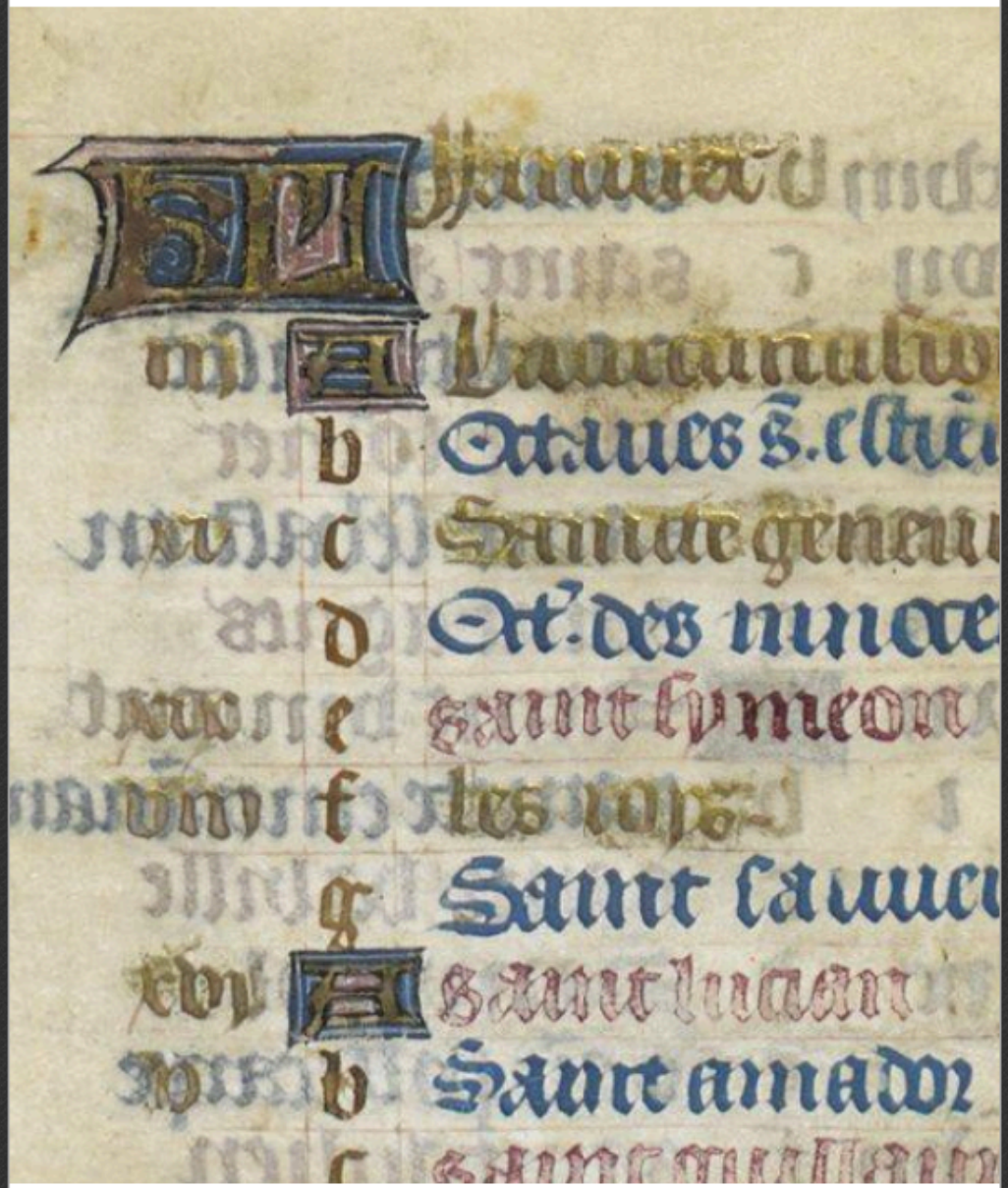
http://www.thedigitalwalters.org/Data/WaltersManuscripts/html/W41/

Requirements

- Distributed image content
  - Consistent, rich API
- Selection of regions
  - Base, not displayed size
- Alignment of text with region
  - Distributed creation
  - Distributed curation
  - Multiple texts per region
  - Styling of the text
  - Some semantics

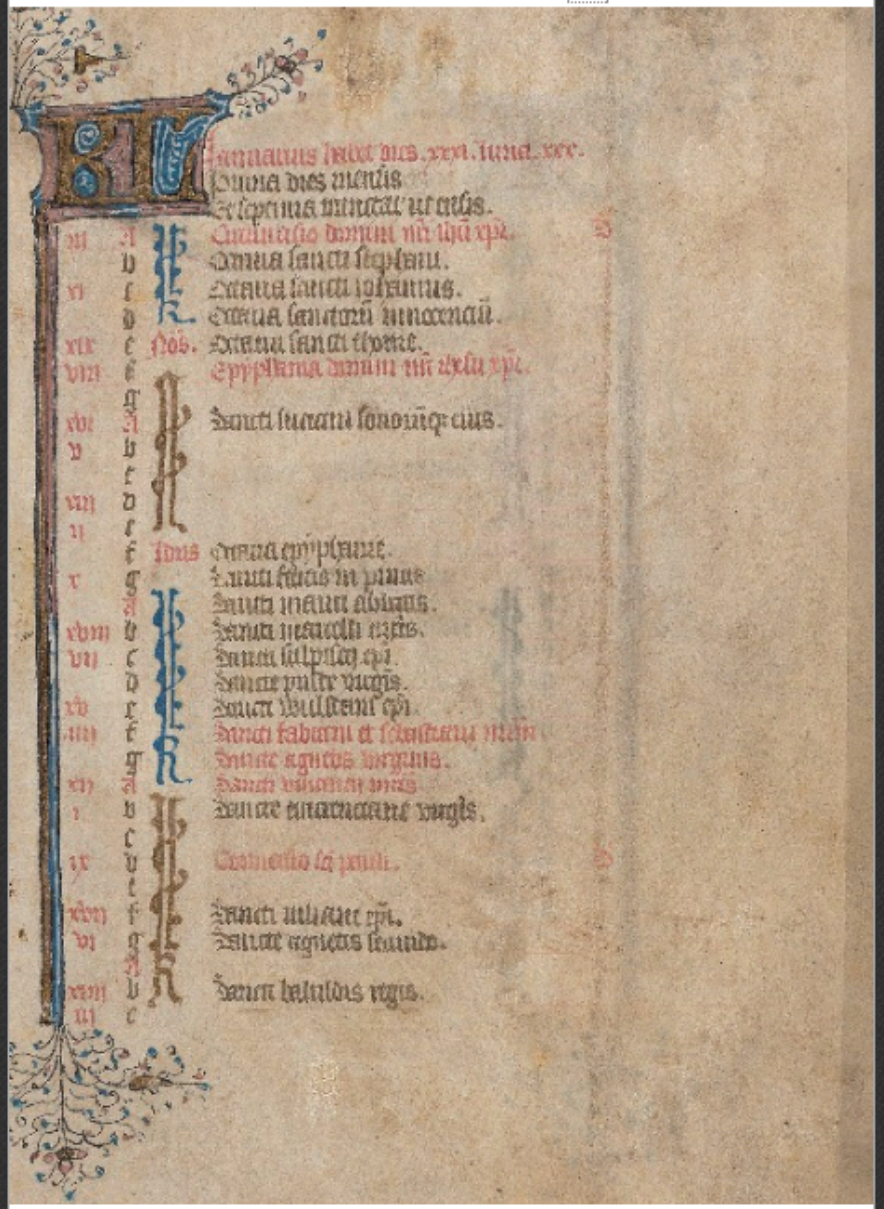
http://oculus-dev.lib.harvard.edu/manifests/view/drs:5981093

Image View : Temporary Calendar Images / Image: 12148-f4



No Dimensions Given ____ × ____ mm

Image View : Temporary Calendar Images / Image:...



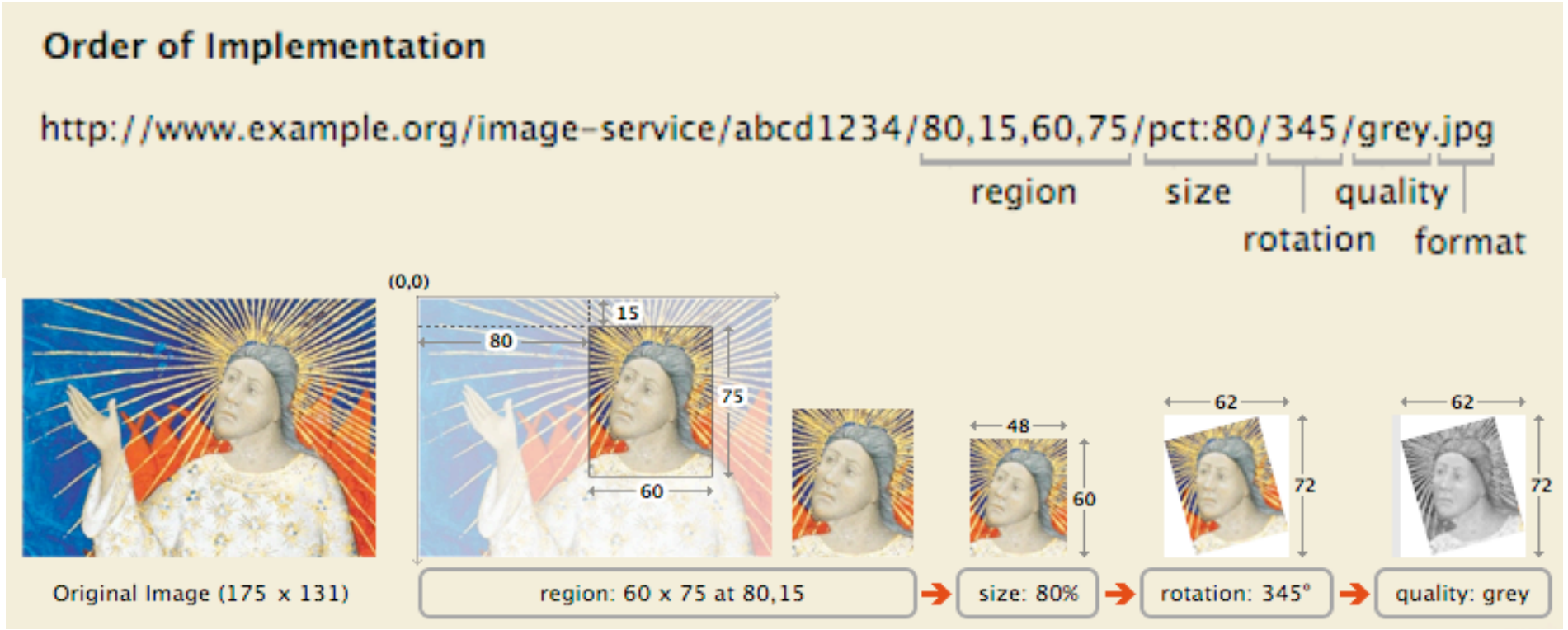
No Dimensions Given ____ × ____ mm

Open Technology: IIIF Image API

Base URL: `{scheme}://{host}{/prefix}/{identifier}`

Image Resource:

`{base}/{region}/{size}/{rotation}/{quality}.{format}`



http://iiif.io/api/image/1.1/

Open Technology: IIIF Image API


```
{
  "@context" : "http://library.stanford.edu/iiif/image-api/1.1/context.json",
  "@id" : "http://iiif.example.com/prefix/object1",
  "width" : 6000,
  "height" : 4000,
  "scale_factors" : [ 1, 2, 4 ],
  "tile_width" : 1024,
  "tile_height" : 1024,
  "formats" : [ "jpg", "png" ],
  "qualities" : [ "native", "grey" ],
  "profile" :
        "http://library.stanford.edu/iiif/image-api/1.1/compliance.html#level0"
}
```

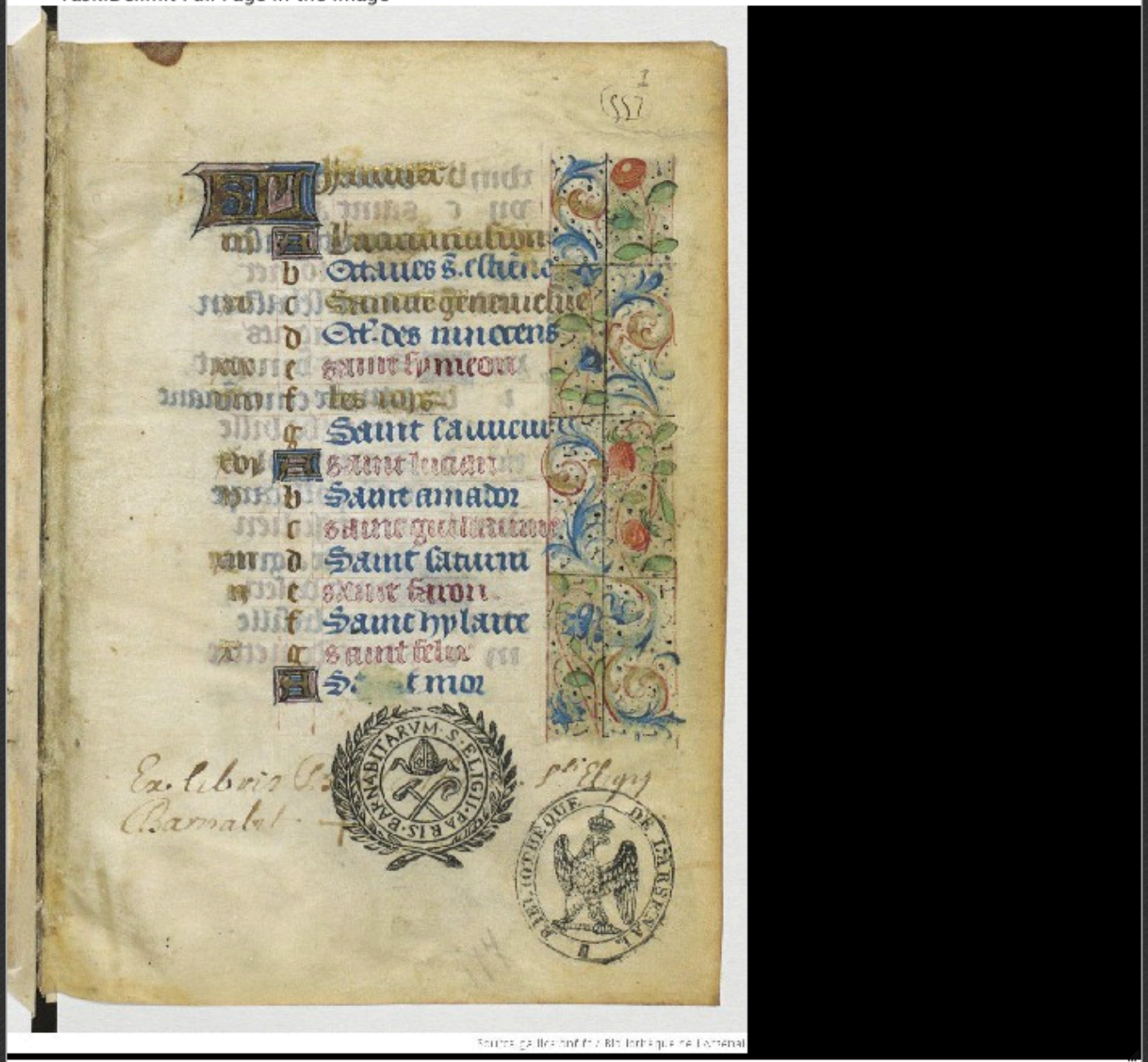

http://iiif.io/api/image/1.1/

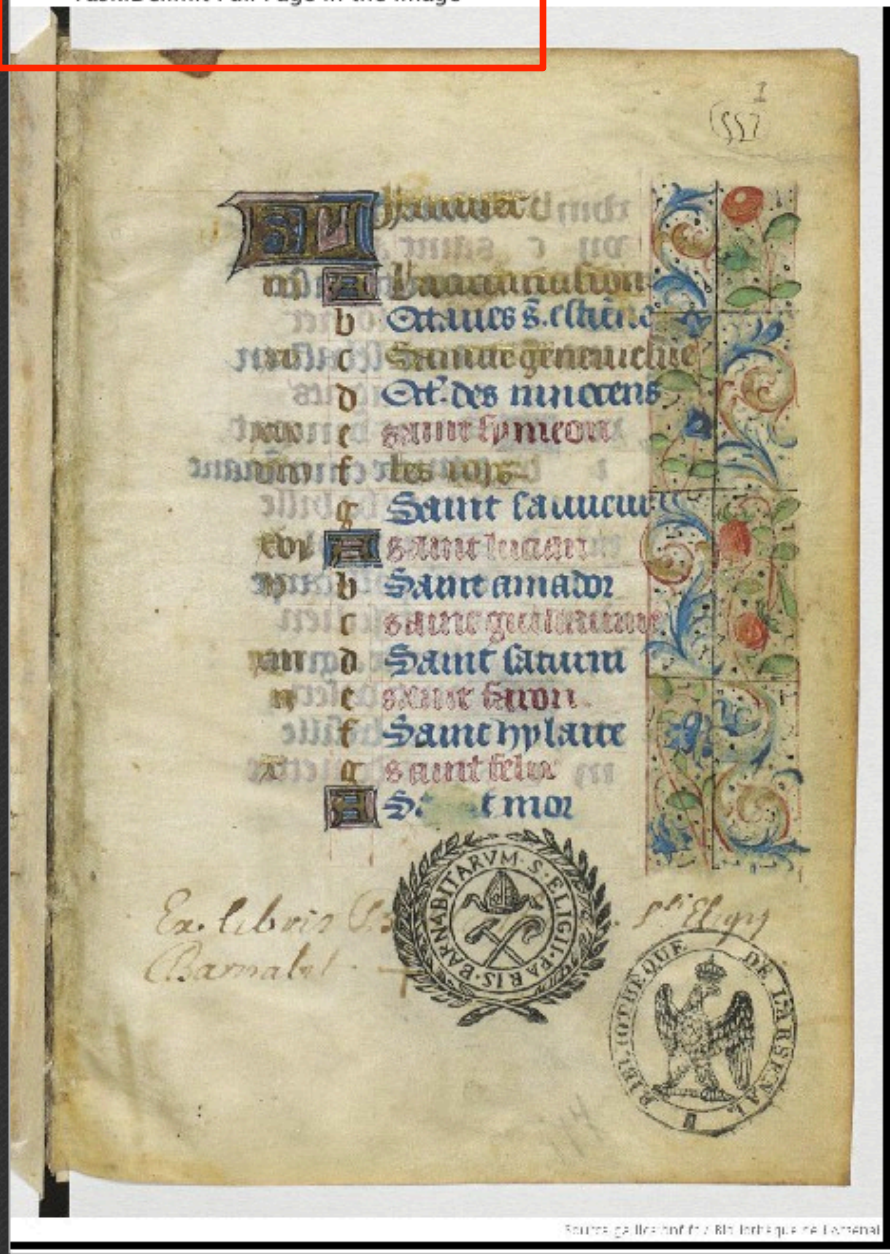
(Part of the) IIIF Community

- ARTstor
- Bibliothèque Nationale de France
- Bodleian Libraries, Oxford University
- British Library
- C2MRF
- Cambridge University
- Cornell University
- DPLA
- Europeana
- e-codices
- Harvard University
- Johns Hopkins University
- National Library of Denmark
- National Library of Poland
- National Library of New Zealand
- National Library of Norway
- National Library of Wales
- Princeton University
- Stanford University
- Wellcome Trust
- UK National Archives
- Yale University

Delimit View : Temporary Calendar Images

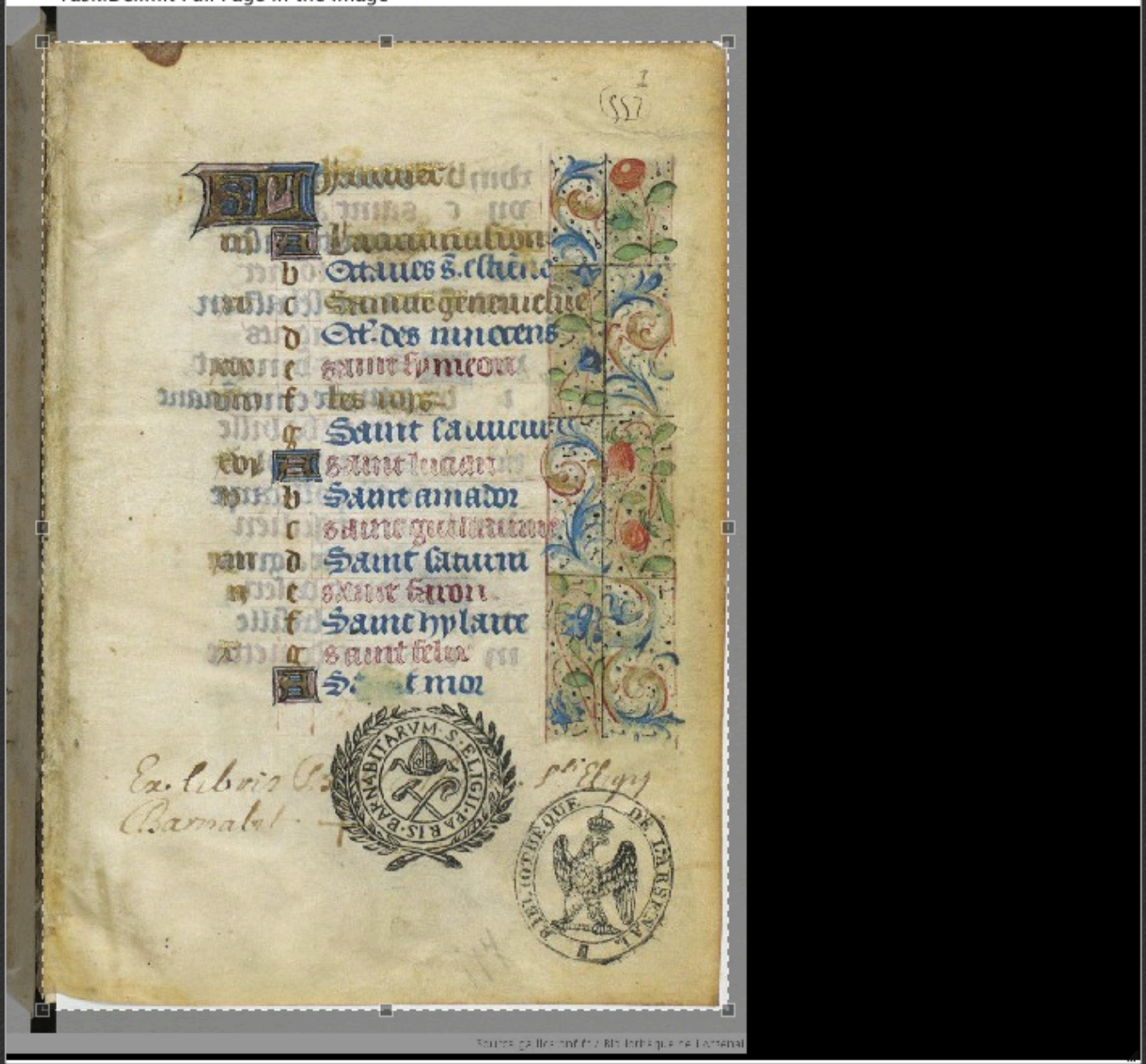
Task:Delimit Full Page in the Image





Delimit View : Temporary Calendar Images

Task:Delimit Full Page in the Image

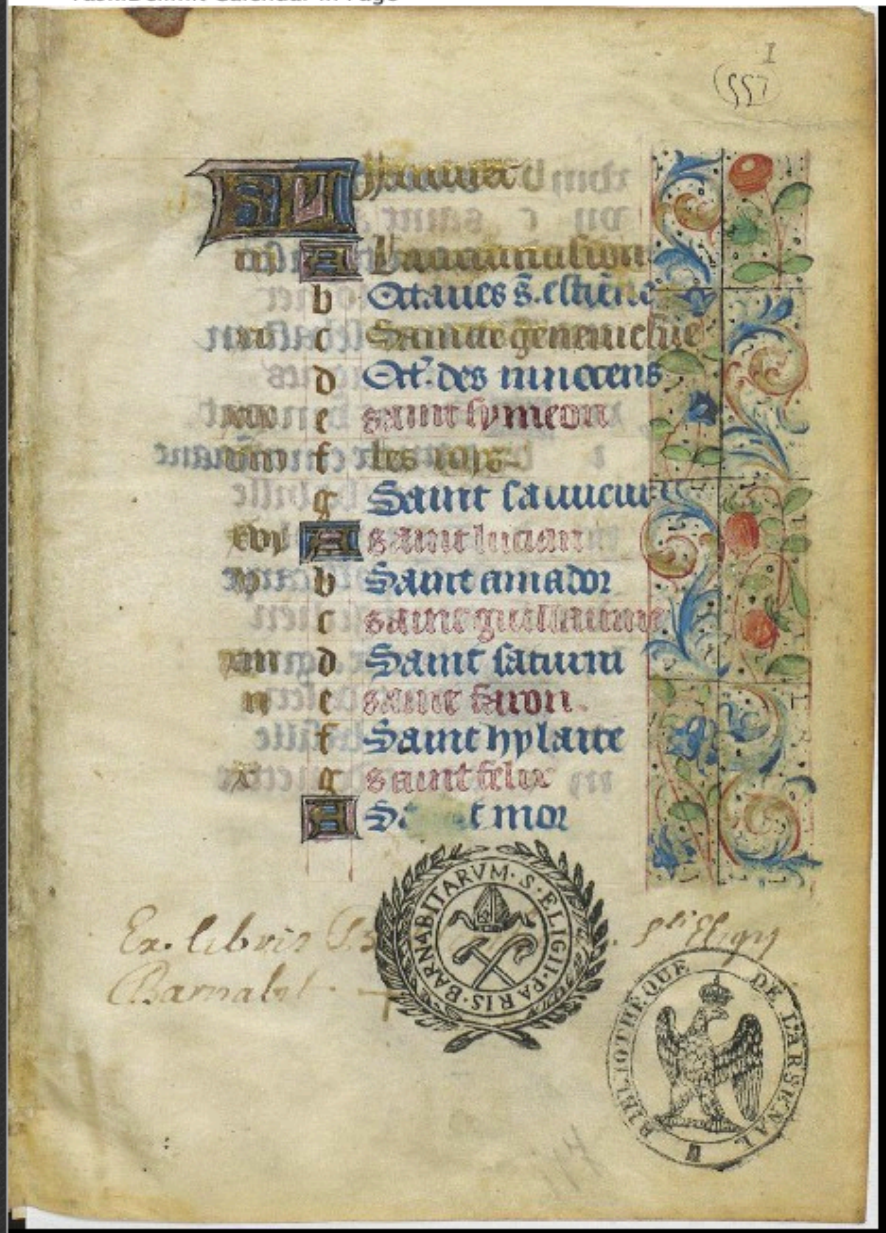


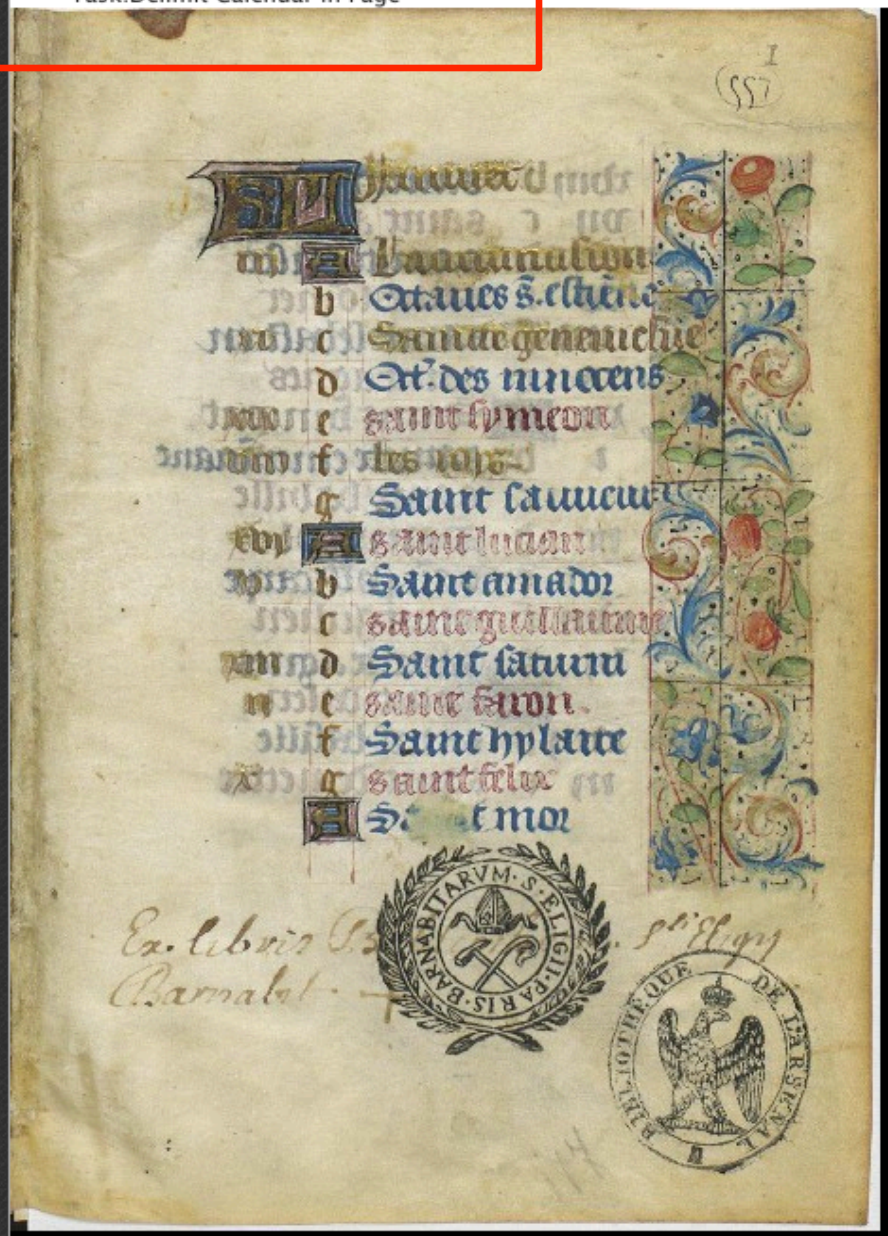
Delimit View : Temporary Calendar Images

Task: Delimit Full Page in the Image

Delimit View : Temporary Calendar Images

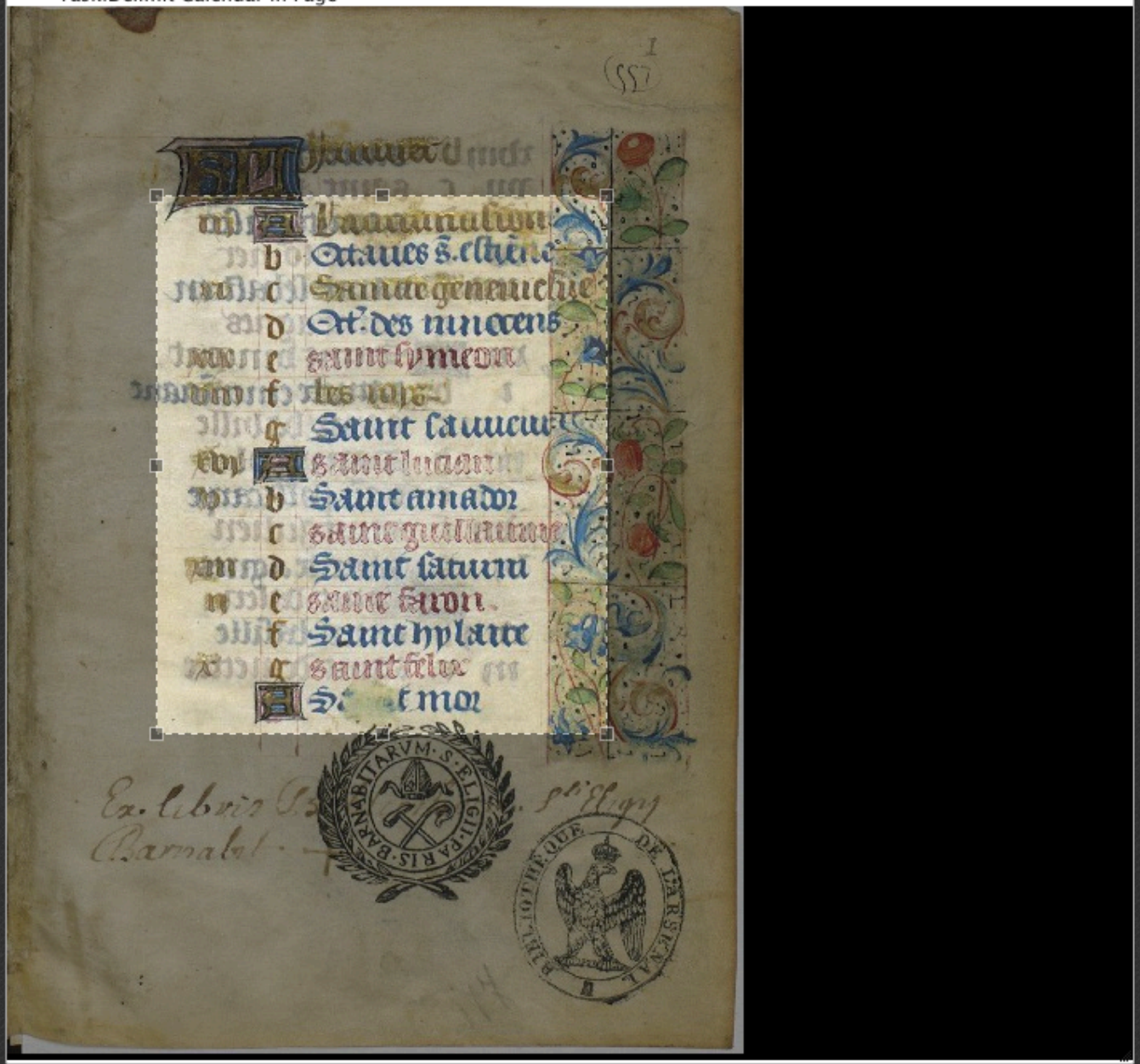
Task:Delimit Calendar in Page





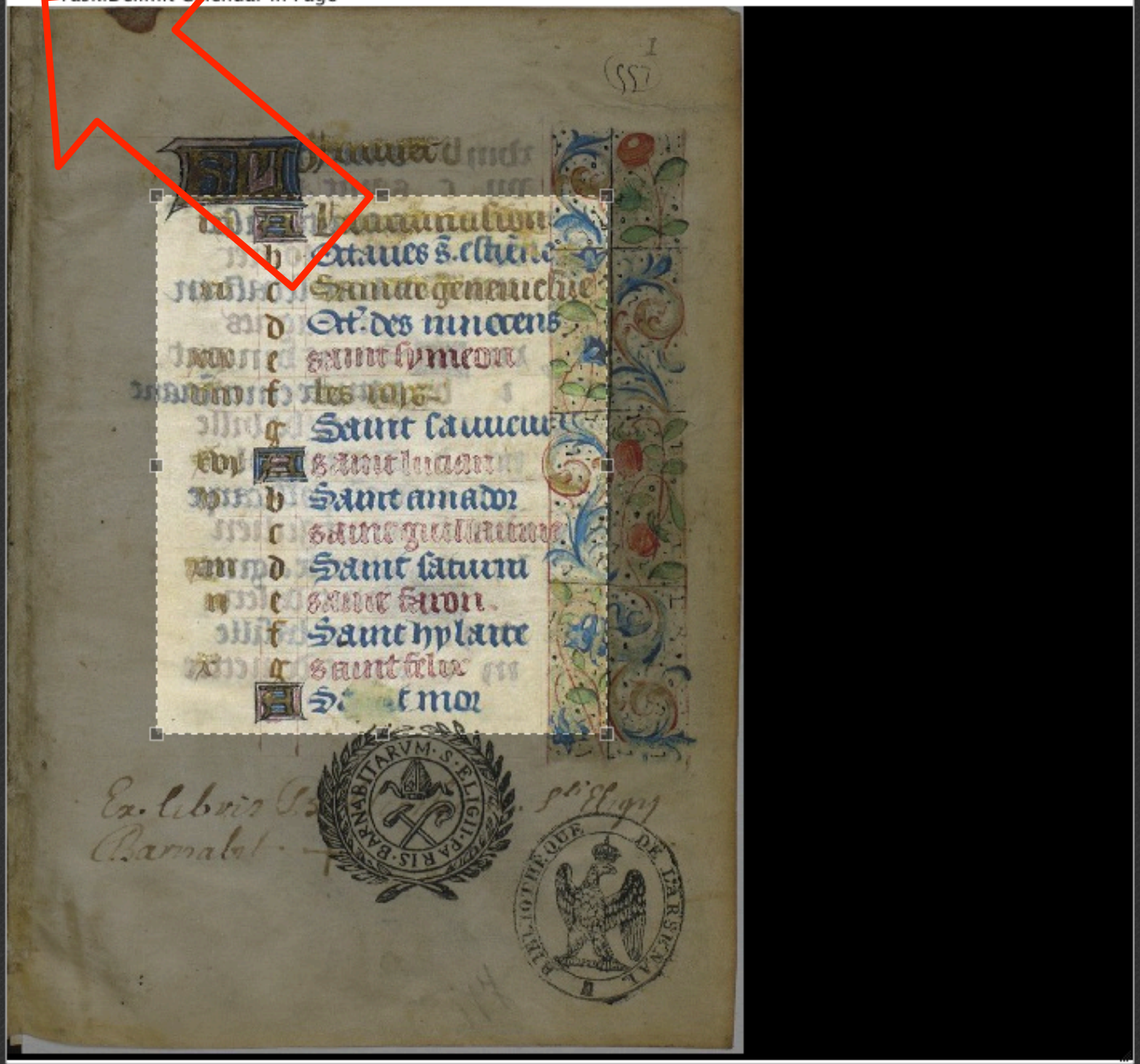
Delimit View : Temporary Calendar Images

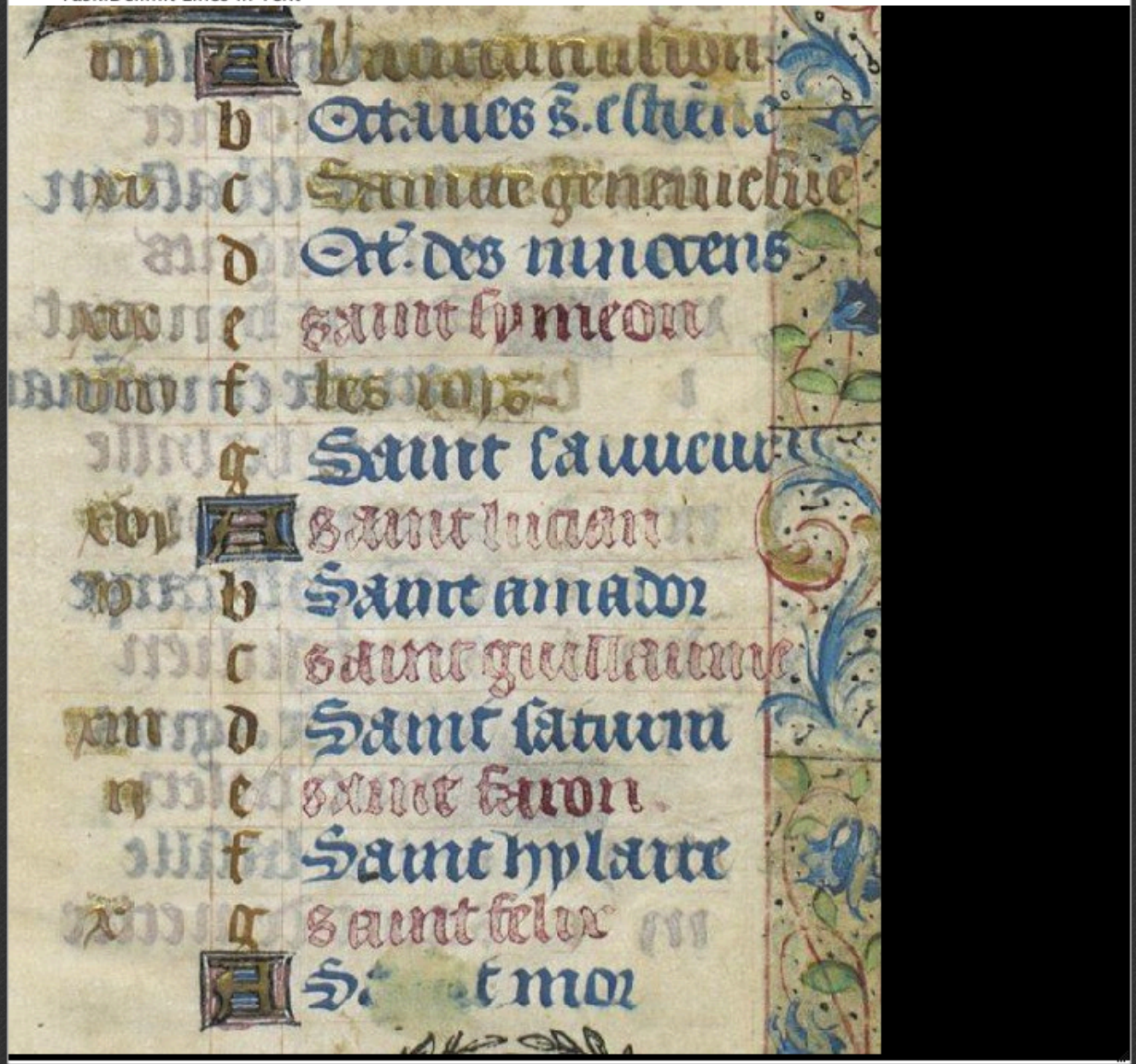
Task:Delimit Calendar in Page



Delimit View : Temporary Calendar Images

Task: Delimit Calendar in Page





Open Technologies

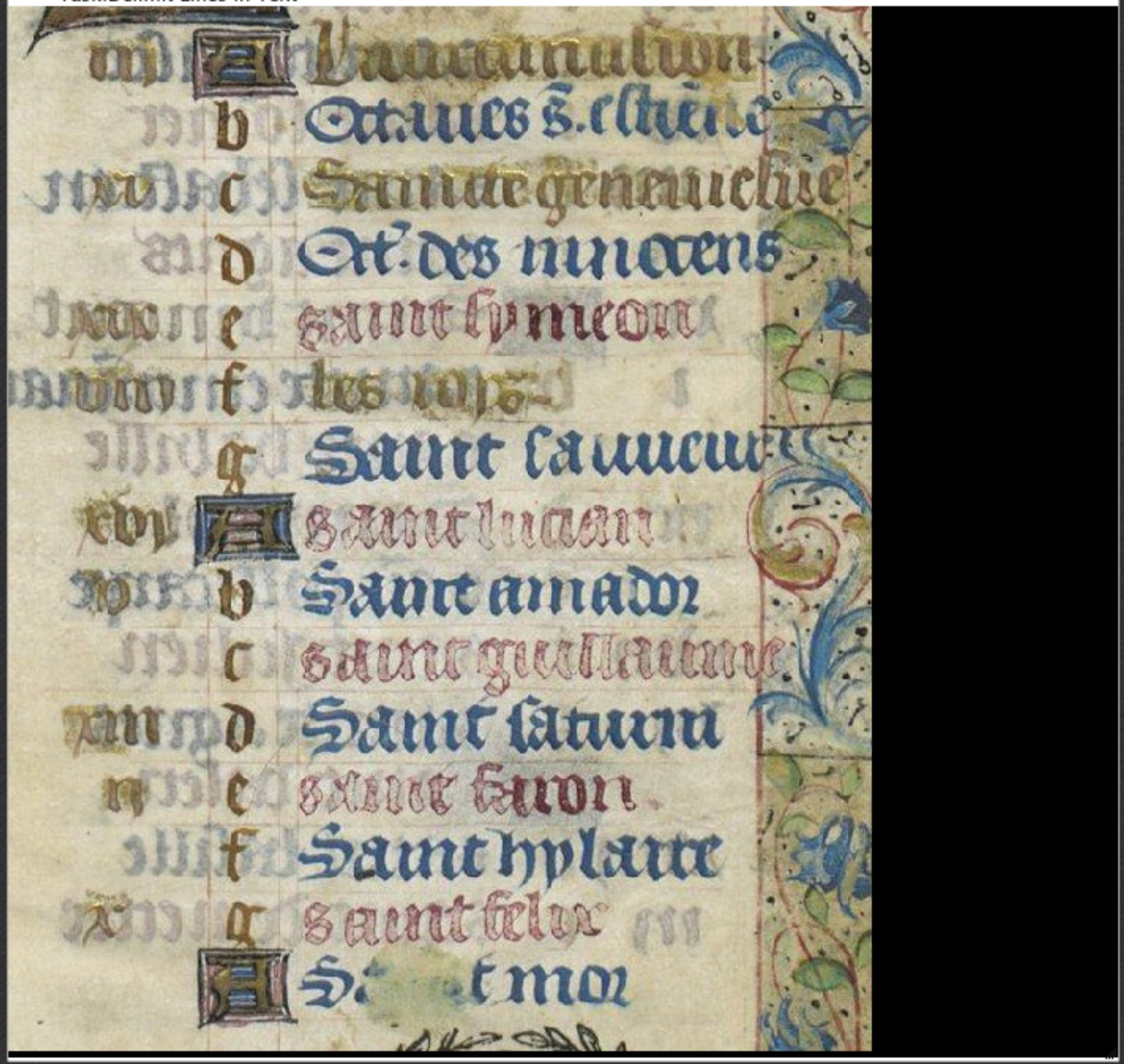
- Mirador
  - IIIF Community developed viewer
    - Stanford, Harvard, Yale, [LANL]
  - Zooming via Open SeaDragon
    - Princeton, and OSD committers

- JCrop
  - JQuery plugin for drawing little boxes

- MongoDB
  - Store information via REST interface
  - W3C Media Fragment image segments
  - Trivially converted to IIIF Image API requests

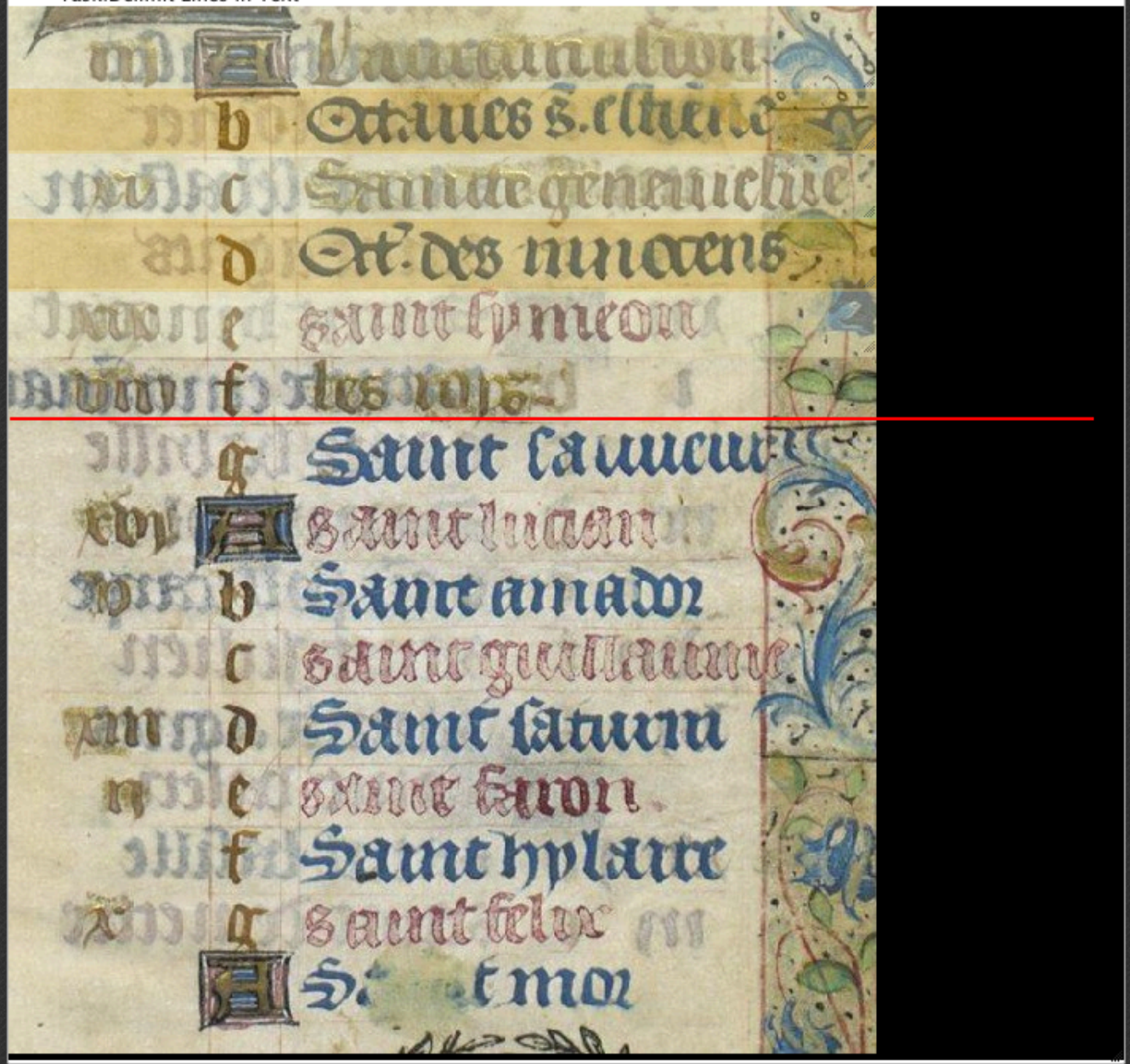
Delimit View : Temporary Calendar Images

Task:Delimit Lines in Text



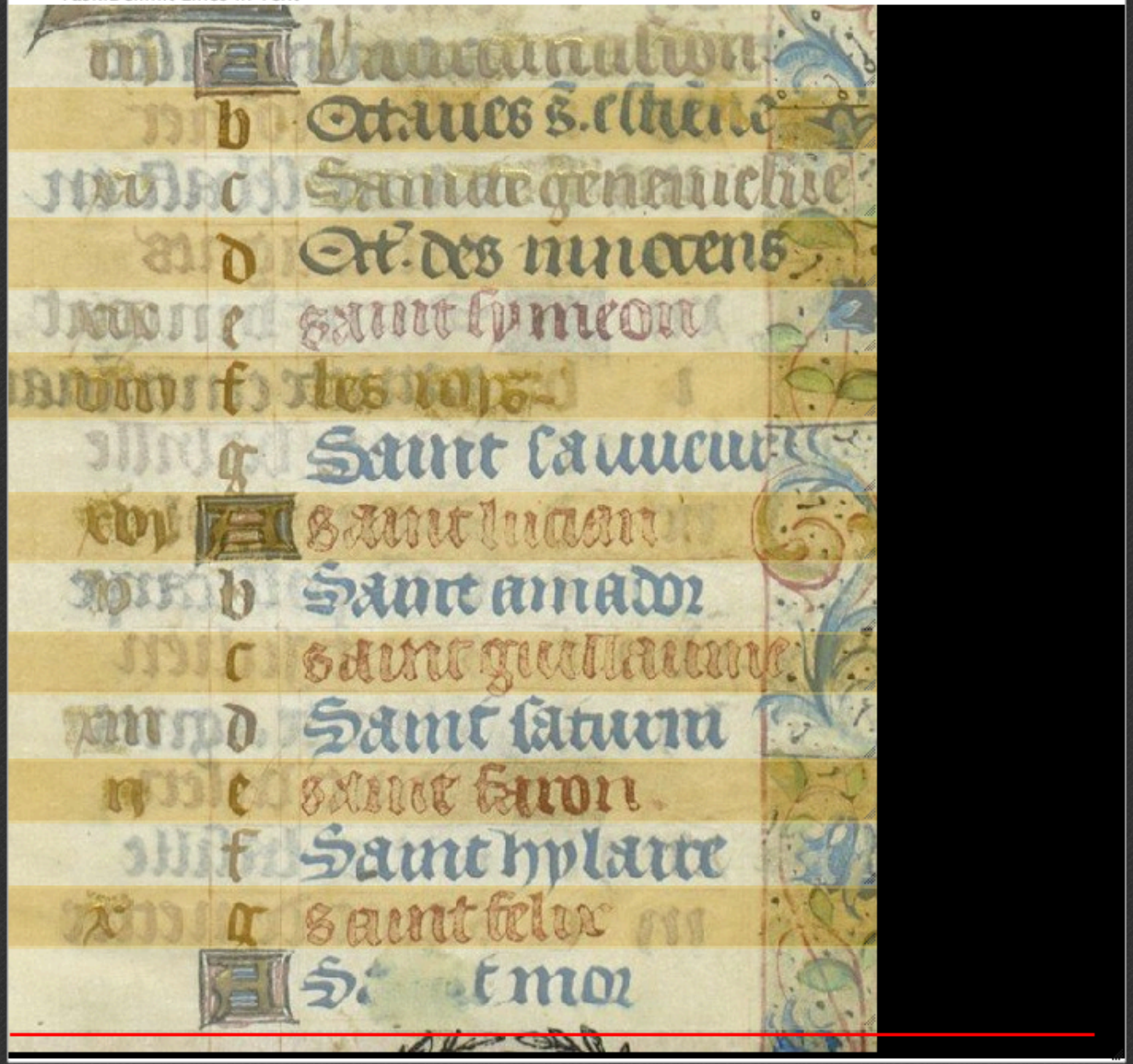
Delimit View : Temporary Calendar Images

Task:Delimit Lines in Text



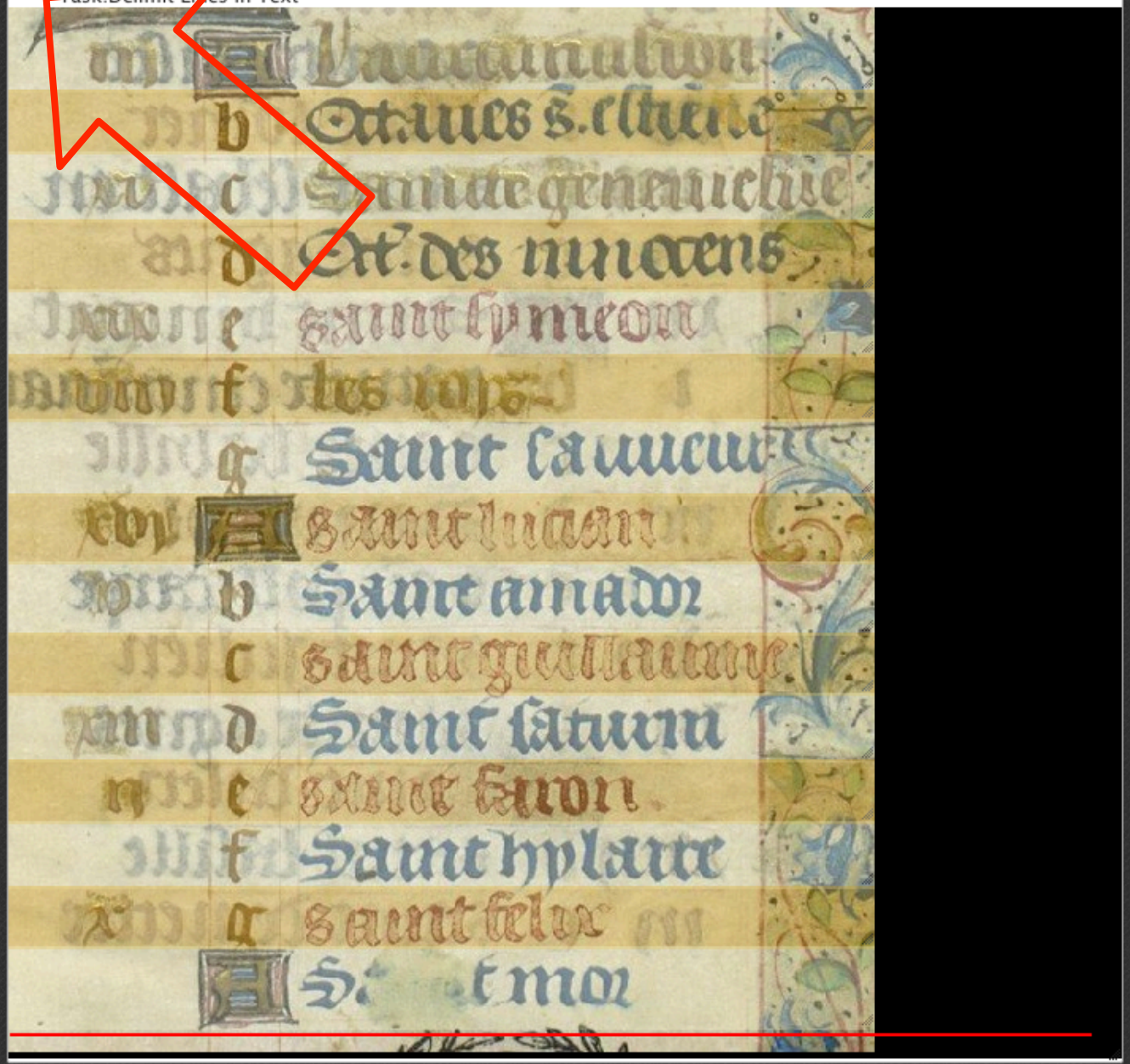
Delimit View : Temporary Calendar Images

Task:Delimit Lines in Text



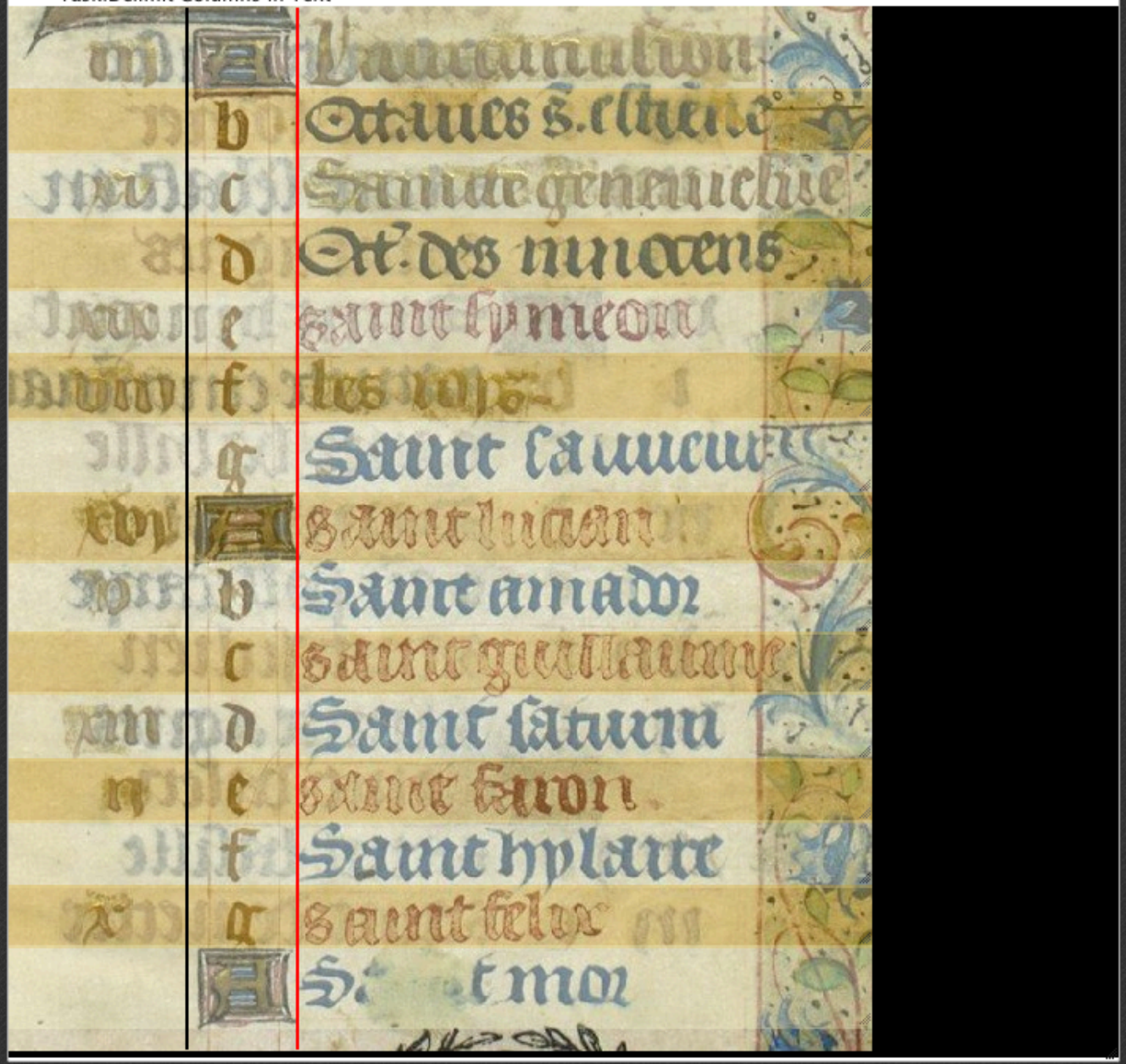
Delimit View : Temporary Calendar Images

Task:Delimit Lines in Text



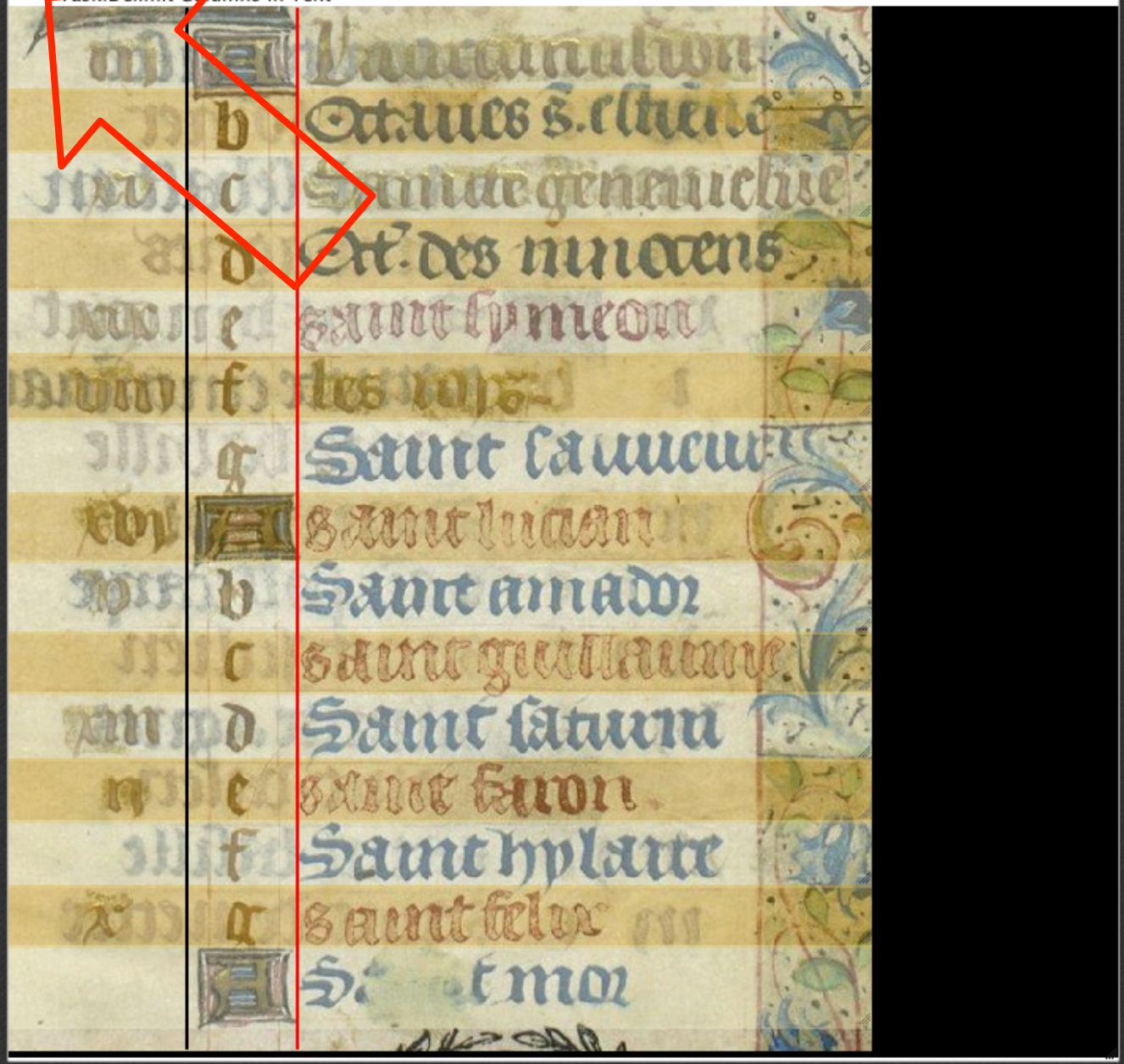
Delimit View : Temporary Calendar Images

Task:Delimit Columns in Text



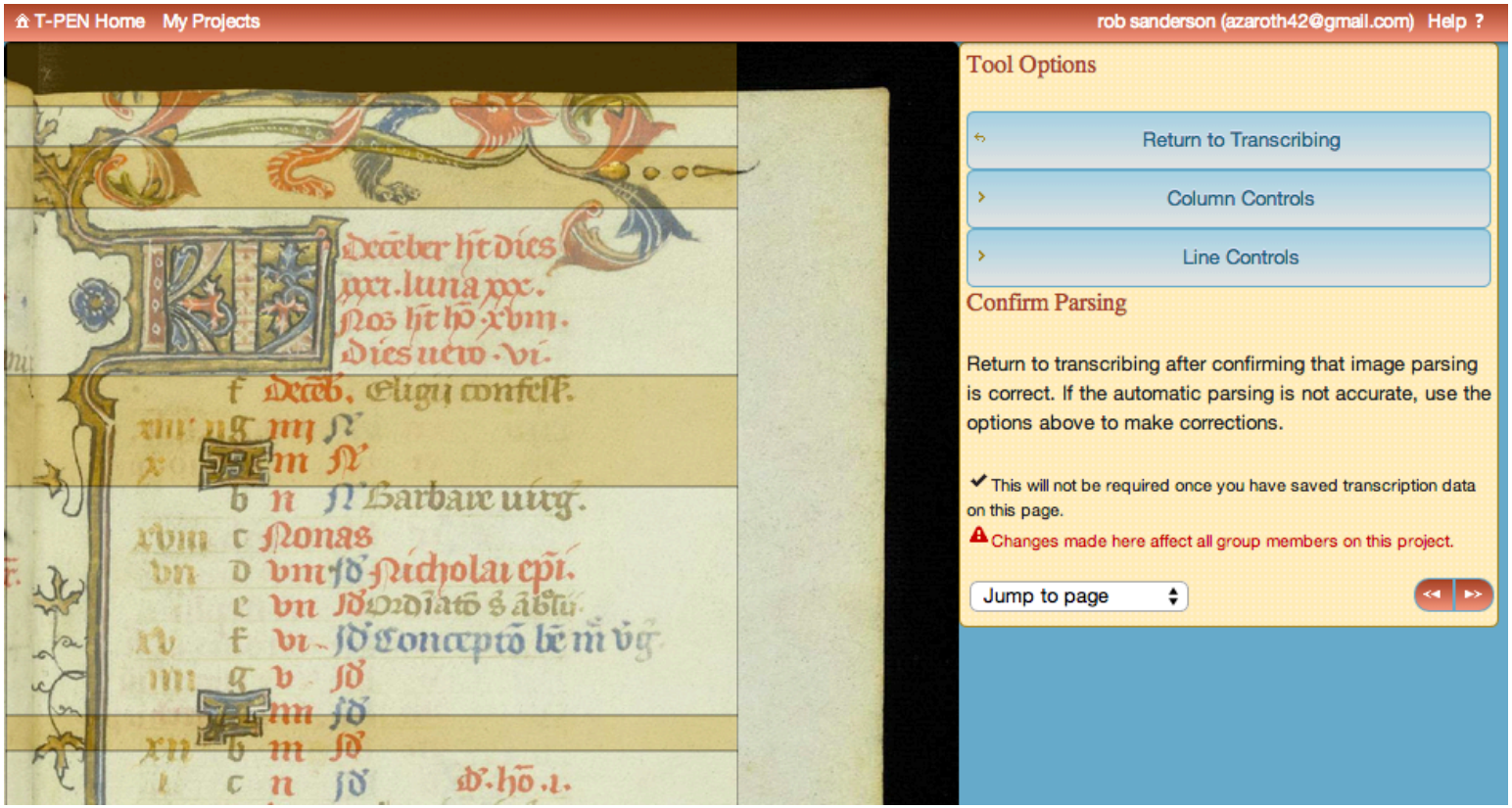
Delimit View : Temporary Calendar Images

Task: Delimit Columns in Text



Open Technology

- Line/Column inspiration from TPEN (IIIF compliant)
  - Transcription tool developed at St. Louis
  - http://t-pen.org/TPEN/
  - Line detection needs correction, no internal columns



Delimit View : Temporary Calendar Images

Task:Assign Type to Columns

Month: January First Line's Date: 1

Golden Number | Domini | Text

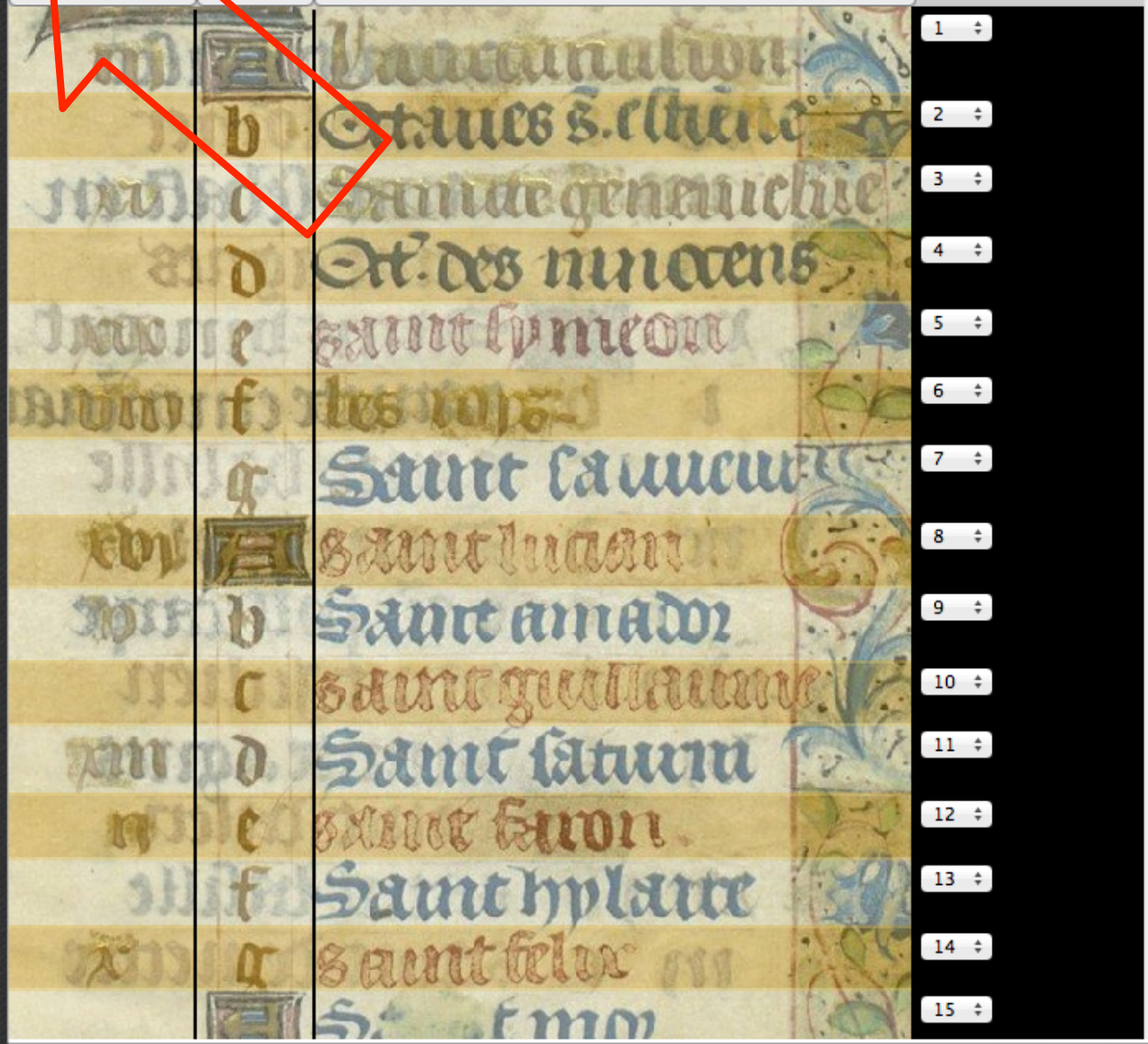
		1
	b	2
	c	3
	d	4
	e	5
	f	6
	g	7
		8
	b	9
	c	10
	d	11
	e	12
	f	13
	g	14
		15

Delimit View : Temporary Calendar Images

Task:Assign Type to Columns

Month: January First Line's Date: 1

Golden Number | Domini | Text



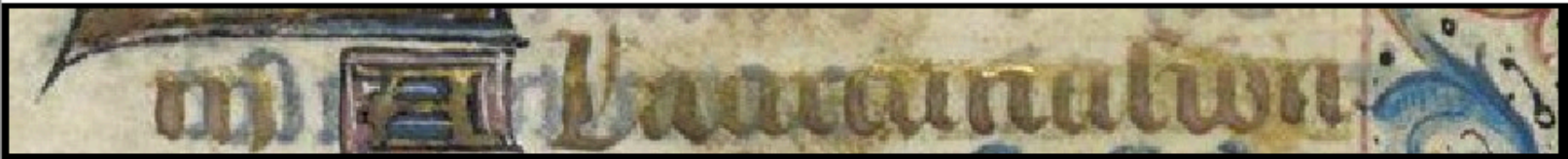
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Boring (but Open) Metadata

- Metadata collection to drive the analysis
  - Stored along with the segments
  - Defaults are normally correct
  - Custom extension, not intended for general purpose use

- Convenient to do inline
  - Other metadata could be added
  - Could be done in a different workflow

Transcription View : Temporary Calendar Images

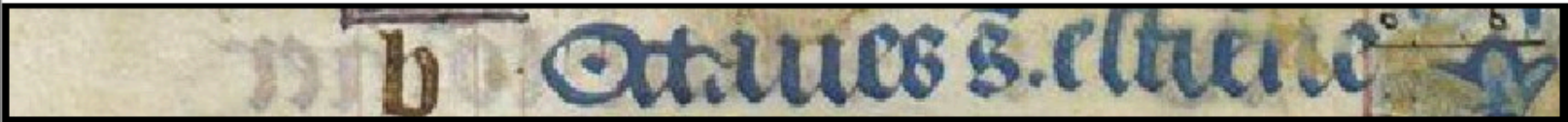


iii	A	La circuncision

Image View : Temporary Calendar Images / Image: 12148-f4

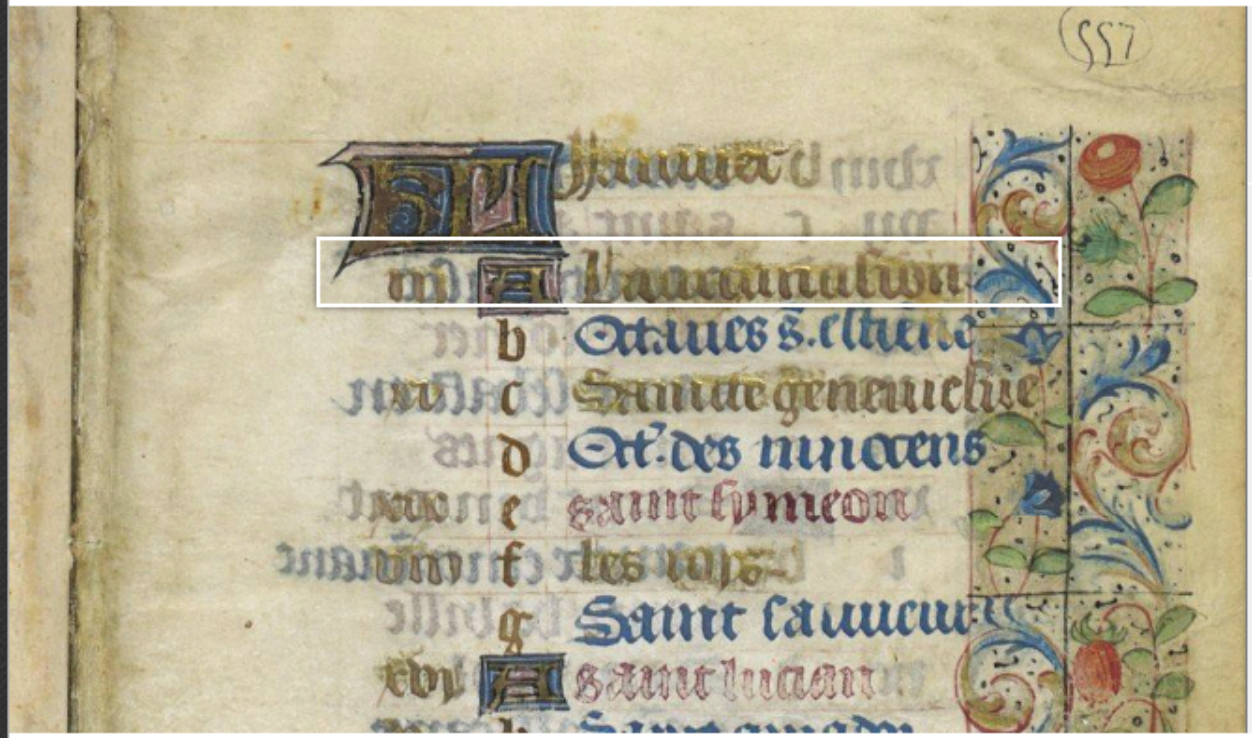
No Dimensions Given ____ × ____ mm

Transcription View : Temporary Calendar Images



letter | text

Image View : Temporary Calendar Images / Image: 12148-f4



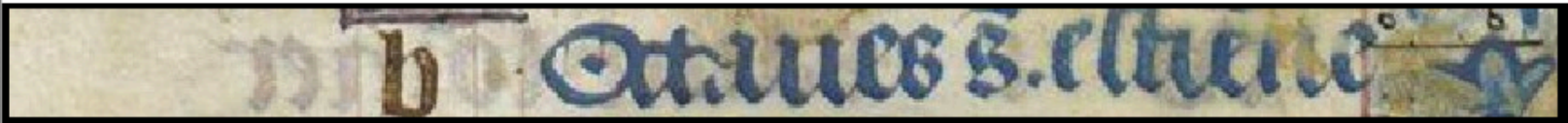
Annotation List (1)

All (1)

iii A
La circuncision

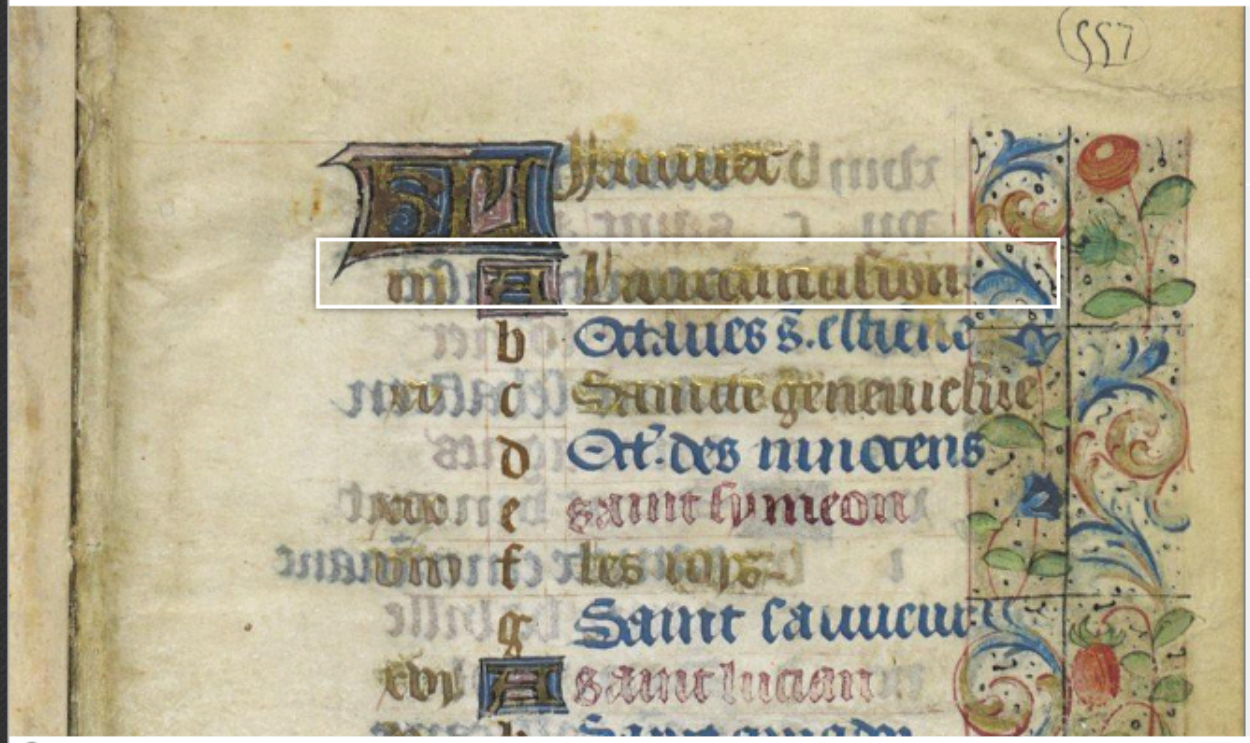
No Dimensions Given ____ × ____ mm

Transcription View : Temporary Calendar Images



b | Octaves S. Estiene

Image View : Temporary Calendar Images / Image: 12148-f4



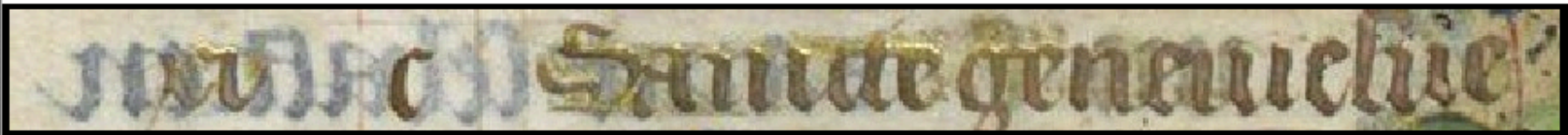
Annotation List (1)

All (1)

iii A
La circuncision

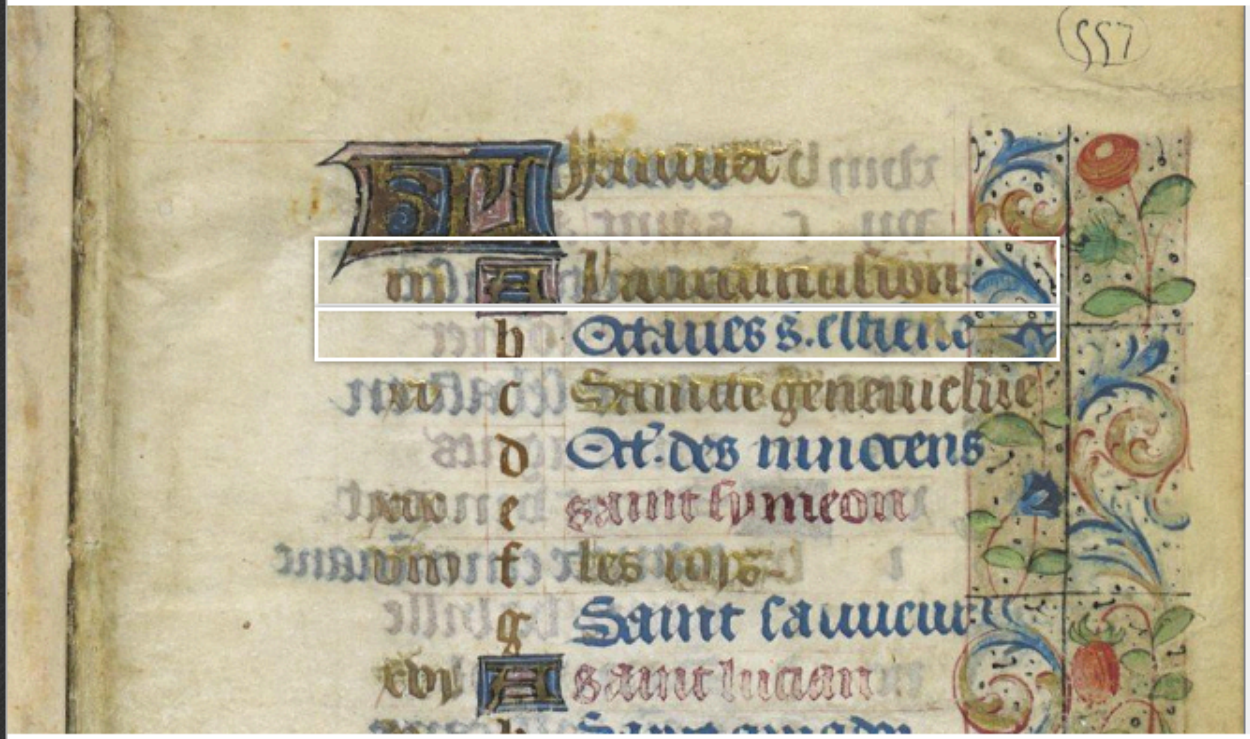
No Dimensions Given ____ × ____ mm

Transcription View : Temporary Calendar Images



letter | text

Image View : Temporary Calendar Images / Image: 12148-f4



Annotation List (2)

All (2)

iii A
La circuncision

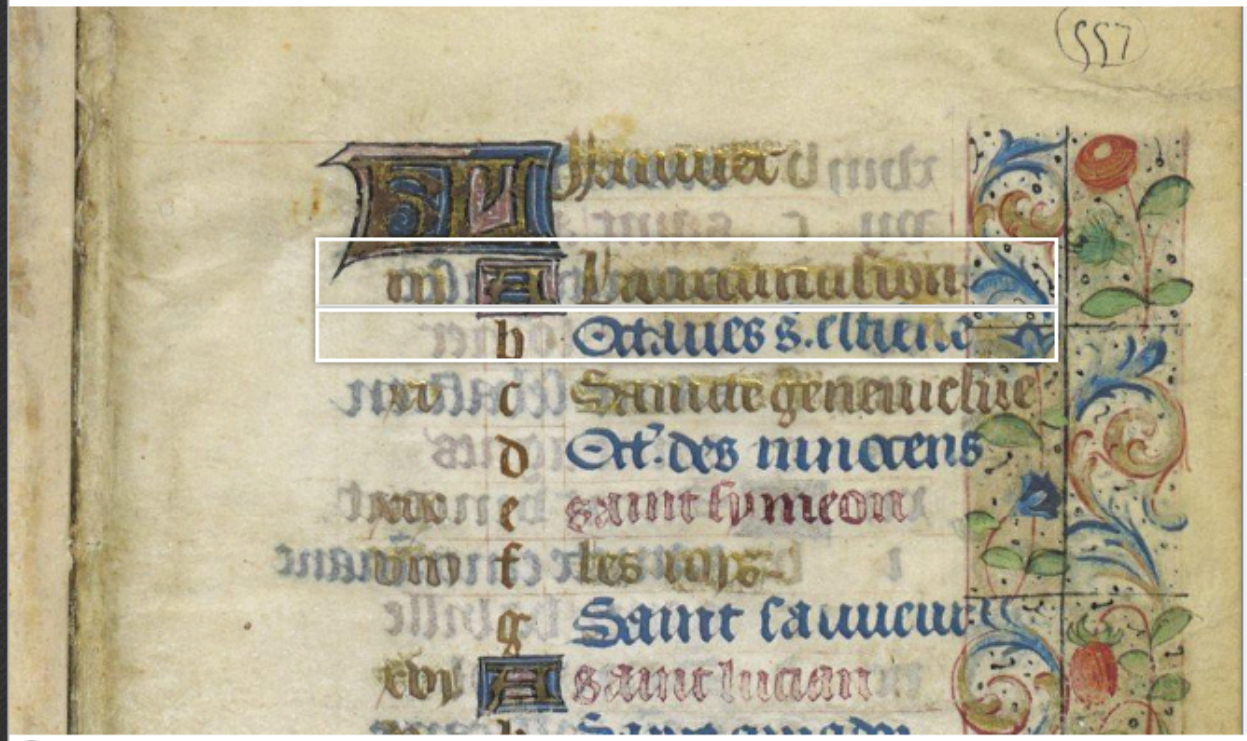
b
Octaves S. Estiene

No Dimensions Given ____ × ____ mm

Transcription View : Temporary Calendar Images

xi	c	Saincte Geneviefve

Image View : Temporary Calendar Images / Image: 12148-f4



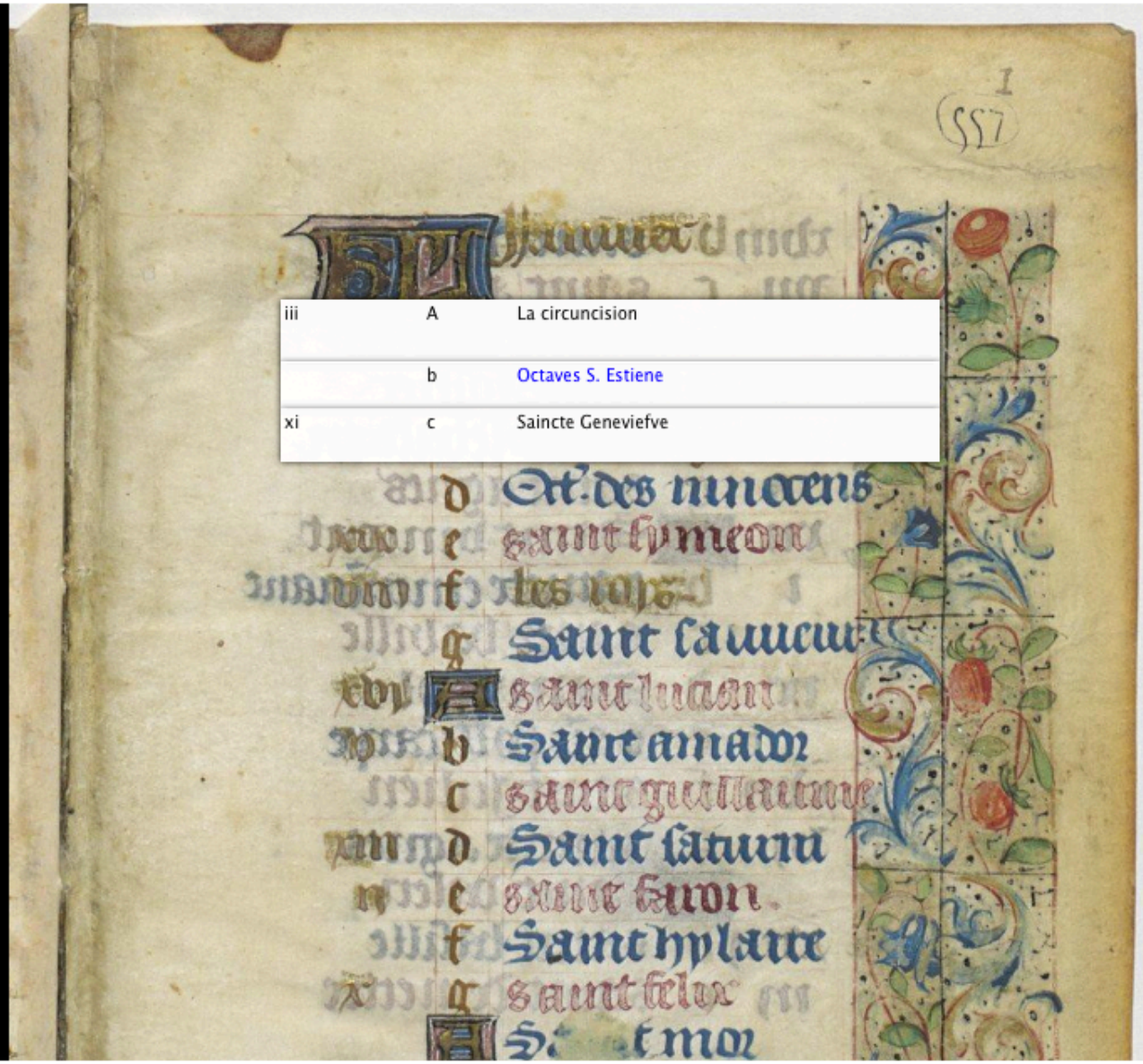
Annotation List (2)

All (2)

iii A
La circuncision

b
Octaves S. Estiene

No Dimensions Given ____ × ____ mm



iii	A	La circuncision
	b	Octaves S. Estiene
xi	c	Saincte Geneviefve

Open Technology: IIIF Presentation API

Text/Image Linking is a subset of a larger challenge:

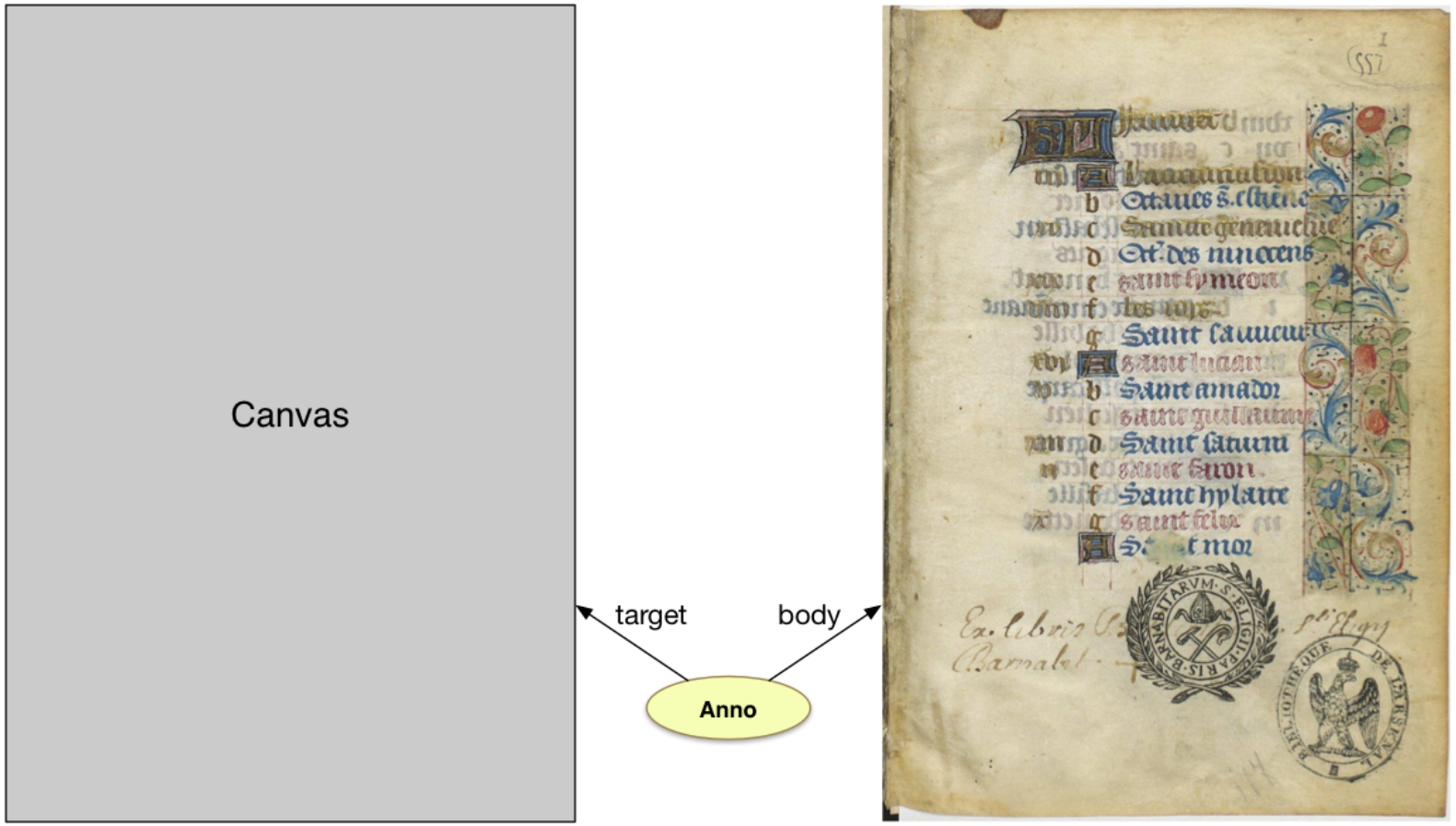
- Non-Text / Image Linking
- Dynamic Images
- No Image to link to
- Multiple Images
- Parts of Images
- Parts of larger texts
- Distributed images, texts and links

Need an indirection layer:

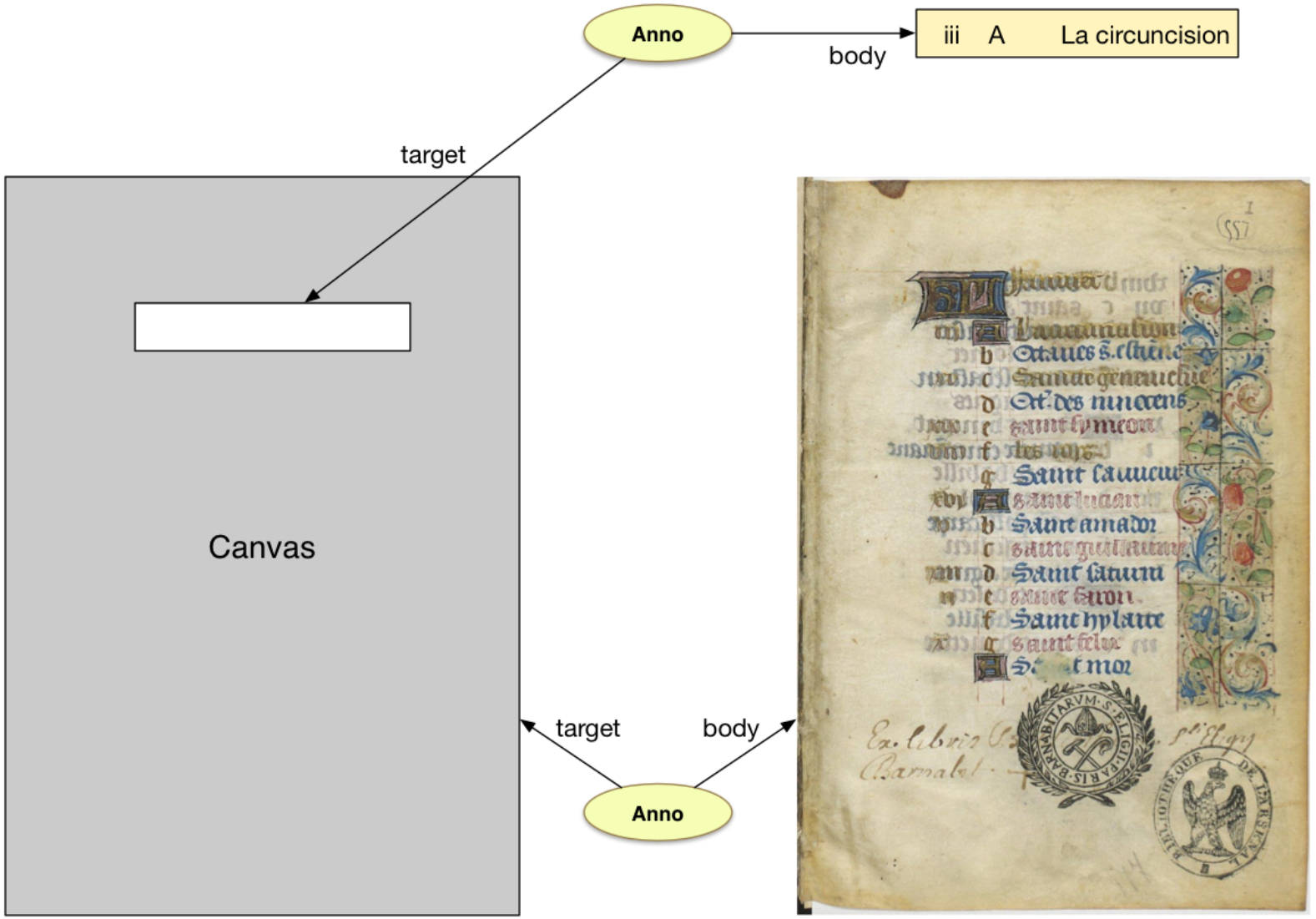
- Solution: align text and image with an abstract Canvas

http://iiif.io/api/presentation/1.0/

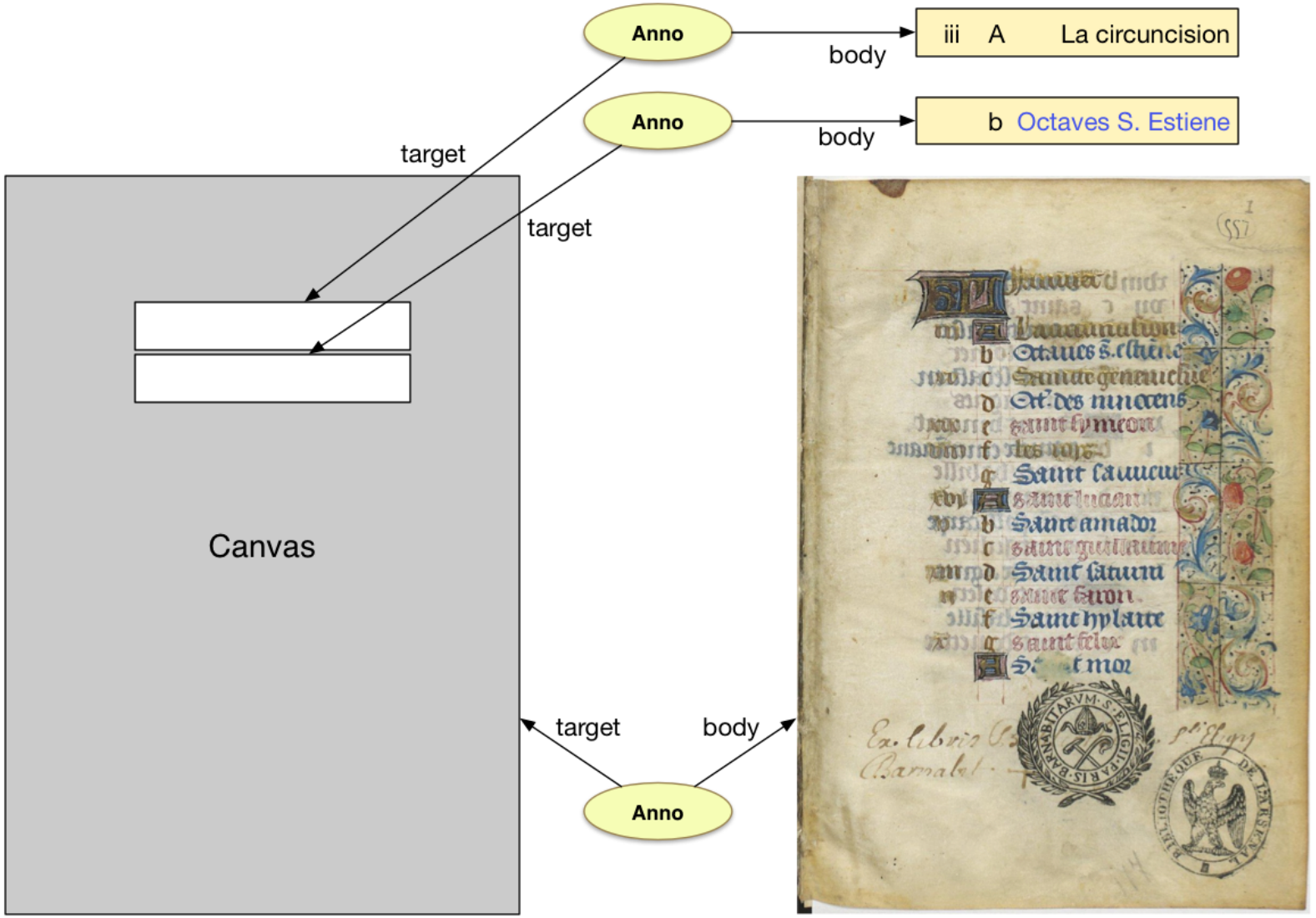
Open Technology: IIIF Presentation API



Open Technology: IIIF Presentation API



Open Technology: IIIF Presentation API



Linked Data People...

If you do not want
to know the score,
look away now!

Linked Data People...

{ "it's" : "just JSON" }

{ } Are The New < >

```
{
  "@context" : "http://www.shared-canvas.org/ns/context.json",
  "@id" : "http://www.example.org/iiif/book1/manifest.json",
  "@type" : "sc:Manifest",

  "label" : "Book 1",
  "metadata" : [
    {"label" : "Author", "value" : "Anne Author"},
    {"label" : "Published", "value" : {"@value" : "Paris", "@language" : "en"} }
  ],
  "attribution" : "Provided by Example Organization",

  "sequences": [
    {
      "@type" : "sc:Sequence",
      ...
    }
  ]
}
```

Web Developers...

If you do not want
to know the score,
look away now!

Web Developers...

<_:it's>
<_:all>
<_:Linked_Data>;

Micro Repository Rant 2: RDF Serialization

"RDF/XML was the Semantic Web's 3 Mile Island incident"
-- Manu Sporny, *http://manu.sporny.org/2012/nuclear-rdf/*

Or … RDF – Not in my back yard!

- Serializing a graph is, admittedly, hard
- RDF/XML is terrible, and too many others
- Web currently uses JSON as convenient transfer syntax
- JSON-LD allows transfer of RDF in syntax that does not require full RDF stack, just a JSON implementation
- … as available in every web browser

- **Rob's Conclusion: Require JSON-LD**
  - *http://json-ld.org/*

JSON-LD Context Magic

```
{  // Canvas resource
 "@context":"http://iiif.io/api/presentation/2/context.json",
```

@context provides mapping for JSON keys into RDF.

```
"sc":"http://www.shared-canvas.org/ns/",
"oa":"http://www.w3.org/ns/oa#",
"service":{
  "@type":"@id",
  "@id":"sioc_svcs:has_service"},
"height":{
  "@type":"xsd:integer",
  "@id":"exif:height"},
"sequences":{
  "@type":"@id",
  "@id":"sc:hasSequences",
  "@container":"@list"}
```

Open Technologies: REST

- Experimental IIIF REST specification
  - *http://iiif.io/api/annex/rest/*
  - For both Presentation and Image

- Trivial Python/WSGI handler
  - Processes @context and generates identities
  - Stores in MongoDB (but API is agnostic)
  - Follows IIIF Presentation and Open Annotation
    - *http://www.w3.org/community/openannotation/*
  - Returns the correct JSON-LD
  - Doesn't fully handle image upload yet

The Future is Now

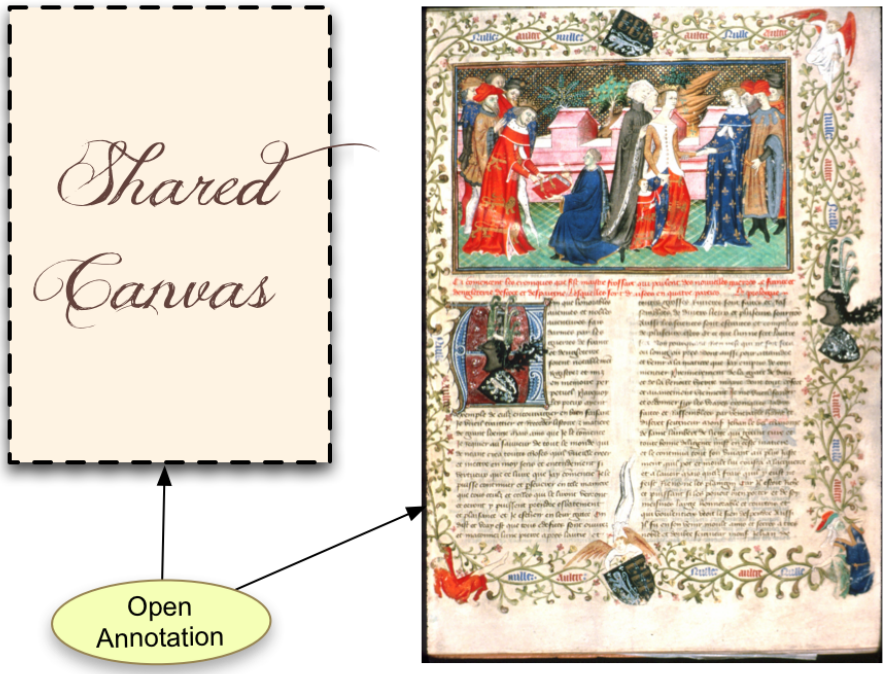
- IIIF Image API 2.0
  - Request for Comment period open!
  - *http://iiif.io/api/image/2.0/*

- IIIF Presentation API 2.0
  - Ditto!
  - *http://iiif.io/api/presentation/2.0/*

Please give us feedback: *iiif-discuss@googlegroups.com*

- Ongoing work with U.Penn to make a more robust system

Thank You



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