JHNA's Enhancements (or "*JHNA* 2.0")

Jennifer Henel

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The goal for this project was to create an interactive digital presentation on the evolution of Peter Paul Rubens's The Fall of Phaeton *by modeling the use of technical study in an art historical context.*

Fig. 1 Peter Paul Rubens, *The Fall of Phaeton*, begun ca. 1604-1605, completed ca. 1610-1612 (Stage 3), oil on canvas, 98.4 x 131.2 cm. Washington, D.C., The National Gallery of Art, Patrons' Permanent Fund, 1990.1.1 (photo: Greg Williams) (artwork in the public domain) [IIIF multi-mode viewer]

1   With this purpose in mind, Melanie Gifford and I began to consider the primary audiences for the project. While *JHNA* has an established user/reader community, the project offered opportunities for expansion. The audiences would encompass art historians and conservation scientists interested in exploring the content in depth as well as a potentially broader audience of undergraduates, graduate students, and others seeking to understand research methodologies in

the field of technical art history. As the Digital Humanities Developer contracted for this project (with important support from the Samuel H. Kress Foundation), I worked with Melanie to determine a conceptual framework. After some discussion, we decided that there were two challenges to sharing this research:

1. presenting the material in a user-friendly and efficient way, one that would allow readers fluid access to the text and the relevant images as they scrolled, and
2. creating a "sandbox" for readers to explore the technical evidence independently; see Exploration and Resources.

2   The "sandbox" has taken the form of enhanced image offerings using the International Image Interoperability Framework (IIIF, or "triple eye eff"). IIIF was founded with the goals of providing depth of access using application programming interfaces (APIs) that allow for better navigation between the various image viewing platforms through which museums, universities, and other cultural institutions share their images. At the same time, it maintains important object metadata across these viewers — as well as offers the user opportunities to compare, zoom, and explore images in unprecedented ways. For our purposes, the OpenSeaDragon viewer, an open-source tool modified and customized by Cuberis (a design and technical development firm devoted to museums) that works well with the WordPress content management system used by *JHNA*, offered the greatest gains with easy content management system (CMS) integration.

3   This viewer is favored by such forward-thinking institutions as The Leiden Collection. The Leiden Collection initially engaged scientist Robert Erdmann to adapt his "curtain" viewer, which displays visible light images, as well as in layers with technical imagery such as X-rays and infrared reflectograms, for their online scholarly catalogue (which launched in 2017). Subsequently, The Leiden Collection opted to convert all images to IIIF compatibility and enhanced selected objects with a IIIF-compatible "curtain/sync" viewer in OpenSeaDragon akin to the Erdmann-created display (see, for example, Pieter Lastman's *David Gives Uriah a Letter for Joab*).
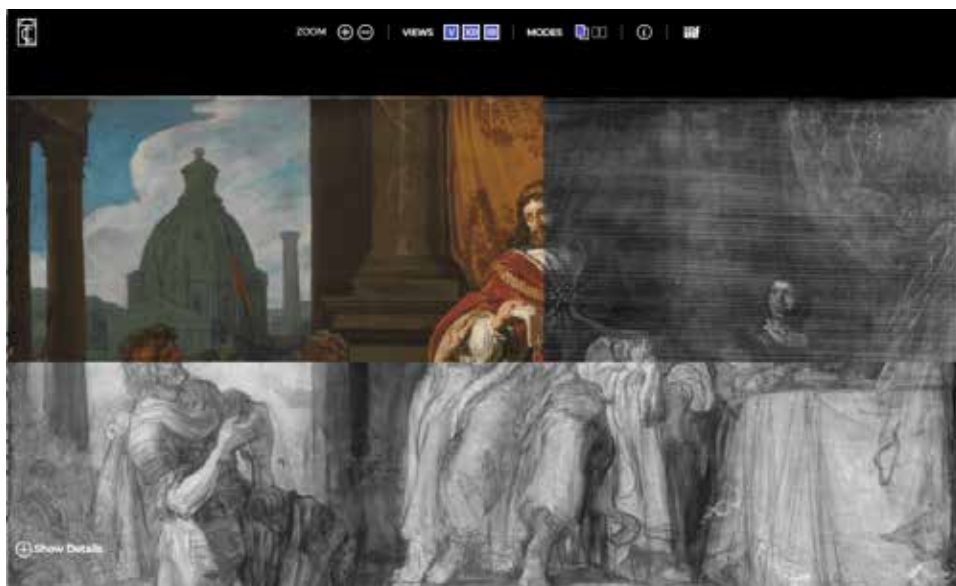

Fig. 2 A screen shot of The Leiden Collection OpenSeaDragon viewer, showing Pieter Lastman's *David Gives Uriah a Letter for Joab* [side-by-side viewer]

4   The enhanced viewer allows users to explore *pentimenti*, changes in the support, and so forth across a single image. The viewer also offers a sync option, which displays registered images that allow for concurrent zooming to the same point across multiple images. Creating these images in IIIF, the OpenSeaDragon viewer now provides the images with the same behavior.
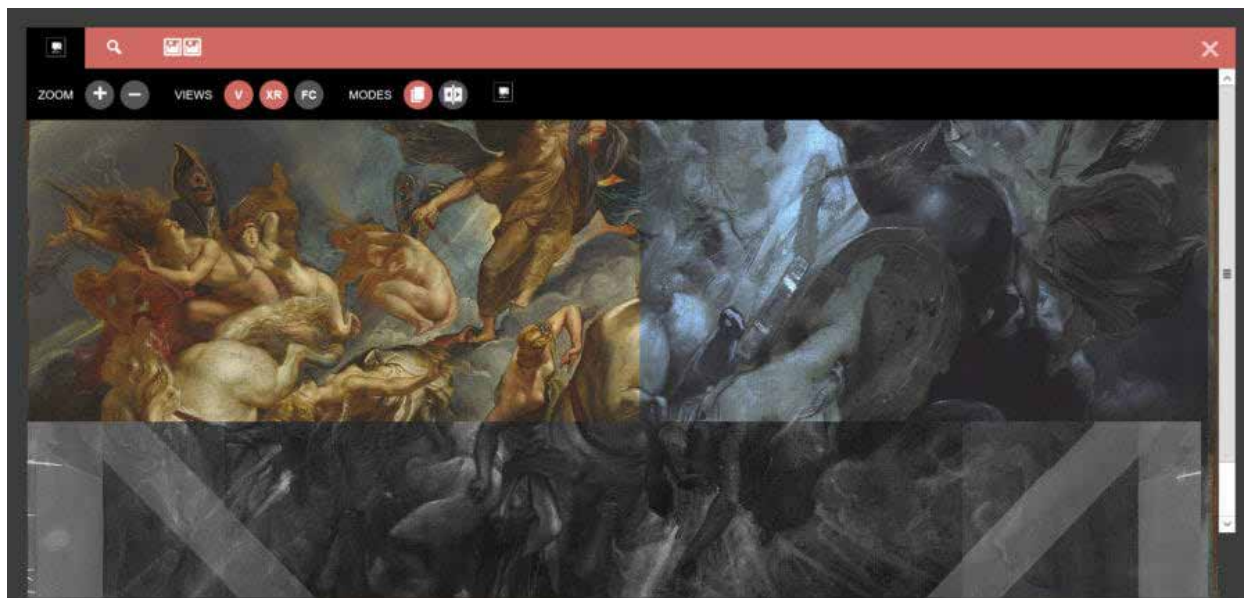

Fig. 3 A screen shot of the IIIF multi-mode viewer, displaying visible light image, x-radiograph, and false-color infrared reflectogram [side-by-side viewer]

5   Thanks to the generosity of the Cuberis team and The Leiden Collection, the OpenSeaDragon viewer code is available for use and customization via GitHub. This code served as the basis for the *JHNA* team (managing editor Heidi Eyestone, programmer Morgan Schwartz, and myself) to develop it for *JHNA* while adding some enhancements. The curtain/sync viewer offers a deep look into a singular image set. But an image-compare tool, one that permits the comparison of two images side-by-side in the traditional art historical approach, was a vitally desirable feature for this project. The National Gallery of Art Online Editions' *Dutch Paintings of the Seventeenth Century*, for example, employs a modal compare window for the comparative figures in an object entry (for example as an object on view here).
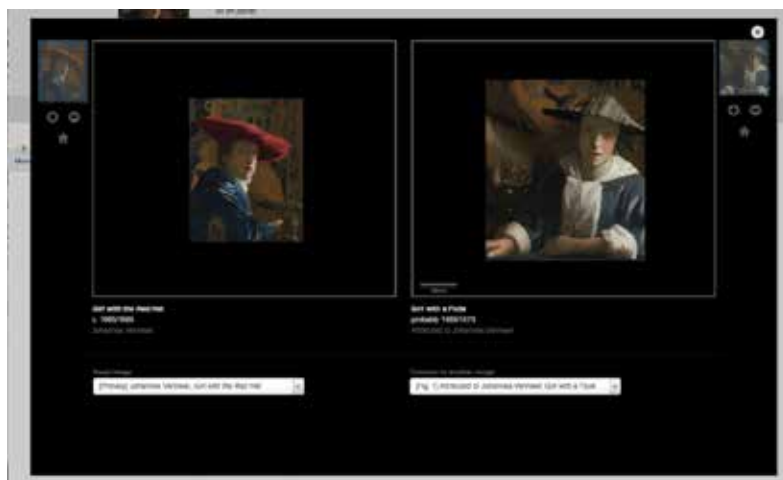

Fig. 4 A screenshot of the National Gallery of Art Online Editions' *Dutch Paintings of the Seventeenth Century*, detail of Johannes Vermeer's "Girl with a Red Hat" entry, image compare [side-by-side viewer]

6   It also appears with zoom and pan controls, as well as a dropdown menu for other comparative figures mentioned in the text. Our team sought to merge the viewers used by The Leiden Collection and the National Gallery of Art into an enhanced image viewer for *JHNA* by combining the benefits of deep zoom / overlay options with IIIF for a singular image with the ease of comparing images that are solely drawn together by the author's text.

7   One particularly challenging element with the implementation of this project has been IIIF image storage. Most IIIF images are extremely large files hosted by the object's home institution. As online journal publications are not typically in the business of hosting images for indefinite use on their servers, the immediate solution was to host the large image files through IIIF Hosting, which requires a monthly subscription. However, through the largess of our colleagues at the University of Heidelberg, we are delighted to host our images for the foreseeable future on heidICON, the university's IIIF server, home to a trove of IIIF-compatible images. Solving this issue has not been easy nor straightforward, but utilizing other IIIF hosting services until such a time as all art historical images are hosted and in IIIF compliance puts *JHNA* on a pioneering path for other online scholarly journals. Hopefully, when more institutions offer their images as IIIF-compatible, server space will no longer be the burden of the publisher and will revert back to the home institution.

8   The final version of the *JHNA* image viewer is a forward-looking hybrid model, offering IIIF imagery of *The Fall of Phaeton*, an enlarged view of the selected image, and finally, side-by-side image comparison, with the option to toggle between other images called out in the text. The modal window sits on top of the text, so when user/readers finish exploring the image, they can close out the window to return to the text with ease.

9   Additionally, this project features section navigation in the right sidebar, which allows the reader to jump between different sections of the text without scrolling and searching.
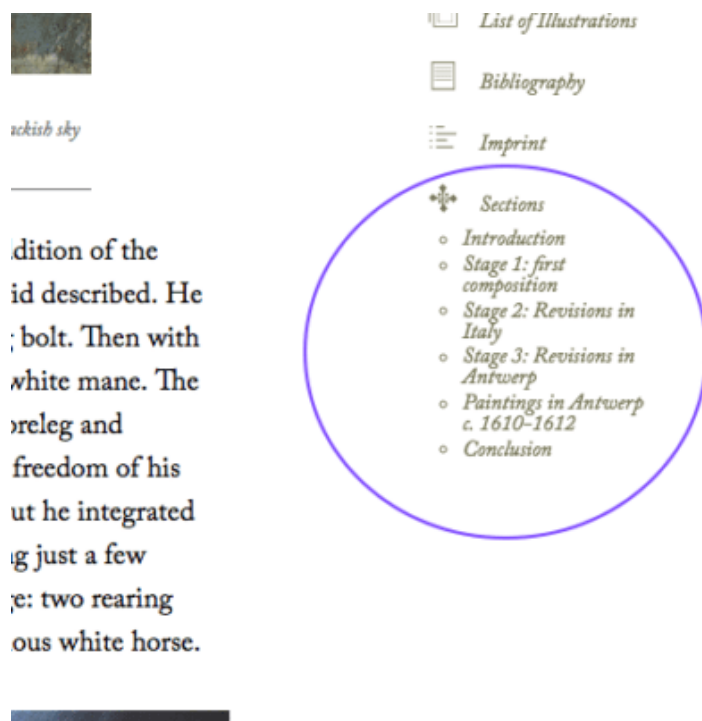
Fig. 5 Screen Shot of Chapter Navigation in *The Fall of Phaeton* article. [side-by-side viewer]

10 The hope is that this offers an improved linear reading experience, and that the nonlinear image exploration is seamlessly integrated with the text of this featured article and those to come; with past *JHNA* editions; and with the site as a whole. While we already have ideas for the next viewer enhancements, we are delighted to share our progress in this first digital art history publication. It is our hope that this effort contributes to the digital art historical community and other online scholarly journals seeking to engage researchers in new and innovative ways by forging new pathways to explore text and object.

WEBSITES | REFERENCES

International Image Interoperability Framework (IIIF): **https://iiif.io/about/**

OpenSeaDragon Viewer: **https://openseadragon.github.io**

Peter Paul Rubens, The Fall of Phaeton IIIF Manifest (can be used in other IIIF viewers such as **Mirador** by pasting the URI into the search bar): **https://api.myjson.com/bins/c3m4r**

The Leiden Collection: **https://www.theleidencollection.com/**

National Gallery of Art Online Editions' Dutch Paintings of the Seventeenth Century: **https://www.nga.gov/research/online-editions/17th-century-dutch-paintings.html**

Cuberis: **https://cuberis.com/**

IIIF Hosting: **https://www.iiifhosting.com/**

heidICON: **https://heidicon.ub.uni-heidelberg.de/**

Jennifer Henel is an independent consultant in the digital humanities. She serves as a Vice President for Communications with the **Digital Art History Society**. She is formerly the curatorial coordinator for digital content and curatorial associate in the department of Northern Baroque Paintings at the National Gallery of Art, Washington, D.C., where she served as project manager for a number of digital and analog efforts, including NGA Online Editions' initial publication, *Dutch Paintings of the Seventeenth Century*. She received her masters in art history from the George Washington University in 2009.

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