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Mediating and connecting: versatile digital publishing in the Edison Papers

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A well-known way of digital publishing is through digital editions of primary sources. Though examples abound in the field of history and the humanities, more broadly, the nature of digital publishing is an unsettled area of practice in the digital humanities. Given the variety of formats and access, edition-specific contents are influential factors to consider, as those impact editorial formats and decisions, whether the primary sources include manuscripts, printed materials or personal papers and archives. In the case of the Edison Papers, the digital edition aims to share primary sources related to the work and inventions of Thomas Alva Edison (1847–1931). When the digital medium works both as a format and as a framework to facilitate access to historical sources, computational tools can mediate between primary sources and users. In the Edison Papers, digital publishing is conceptualised using two main concepts: primary sources and reading collections.

1. Primary sources, digital publishing and layered access

Making modern documents available in digital formats has inspired the work of scholarly editing and digital publishing in the last two decades. In all cases, whether text editions in the form of transcriptions or facsimile images, they serve a practical purpose, making the

contents of texts available for reading and research. Given that primary sources influence the type of digital publishing, we argue that all forms of digital editions are adaptations of the original, targeted primary source. While we agree with Patrick Sahle that scholarly editing should not 'be restricted to literary texts but has to cover all cultural artefacts from the past that need critical examination in order to become useful sources for research in the humanities', his definition of a scholarly edition still focuses on the critical analysis of individual documents. Thus, he distinguishes scholarly digital editions from other digital projects 'such as retrospectively digitised editions, electronic texts, textual corpora, digital facsimiles, editorial projects, digital archives, digital libraries and so on'. Nonetheless, Sahle notes the difficulties with these terms, especially as some editions call themselves archives (Sahle 2016, 33–4; Pierazzo 2016, 49–50). Kenneth Price addresses this terminological difficulty in discussing his work on the *Walt Whitman Archive*. He argues that there is no agreement on terms such as 'project', 'archive', 'edition', 'database' and 'research collection' that can be used to describe what such a scholarly edition encompasses. '*Project* is amorphous; *archive* and *edition* are heavy with associations carried over from print culture; *database* is both too limiting and too misleading in its connotations, and *digital thematic research collection* lacks a memorable ring and pithiness' (Price 2009, 2).

In describing the Edison Papers, we have referred to it in all the ways Price describes the Whitman Archive. The Edison Papers began in the 1980s as a project with a selective microfilm edition and an even more highly selected book edition derived from over 5,000,000 pages of documents in the archive of the Thomas Edison National Historical Park, as well as nearly 20,000 documents from over 100 other archives and collections. The microfilm database provided the basis for a digital image edition launched in 2000, with images from the microfilm edition and other repositories to produce an online digital archive. Over time, this digital image edition has grown to encompass more than 154,000 documents that users can browse in an online platform provided via a Content Management System, Omeka-S (https://edisondigital.rutgers.edu/). In 2022, the book edition volumes were digitised and mounted as open-access content

on Johns Hopkins University Press's Project Muse (https://edison.rutgers.edu/research/book-edition).

As we have thought about the future of these digital editions and how to enable their use, we have begun conceptualising them together as a digital thematic research collection (see also Palmer 2004). While the structure of the Edison Papers digital image edition seeks to replicate the archival collections from which it is drawn, more fine-grained access is provided through searches, indexes and finding aids that enable users to bring together materials related to their own research interests. The book edition serves as another entry to the larger collection and provides additional ways to explore the documents through annotation of the transcribed documents which discuss them in relation to the larger collection. Furthermore, the volume indexes enable users to explore the documents more thematically. The ensuing versatile form and structure connects contents through metadata that are re-usable in linked data and computational analysis. Information is compartmentalised, while connecting several areas of expertise and scholarly work, so that information is also interchangeable with data that scholars can manage computationally. As Price argues, 'those constructing a database choose to categorize information' and '[t]he process of database creation is not neutral, nor should it be' (Price 2009, 21). In this way, the database becomes a form of critical analysis. Amy Murrell Taylor explores a variety of perspectives from users of *Civil War Governors of Kentucky Digital Documentary Edition* (http://discovery.civilwargovernors.org/); for example, an 'archive of problems', but also a repository collecting 'the exceptional', and even a 'process', as the project advanced from documentary editing to a fully searchable online database (Taylor 2019, 152; 154). Taylor describes the ever-changing experience of historians in libraries and archives as '... a physical experience, a journey even, because for a very long time the archive has been a physical place. But archives are changing and so too are our stories' (Taylor 2019, 151).

The advancement of the Edison Papers has reflected some of the changes that historians have been experiencing when they access

sources in real life and digital archives alike. Digital publishing, for the Edison Papers, draws from several sources. Presently, the digital editions are the image edition (https://edisondigital.rutgers.edu/) and the book edition (https://edisondigital.rutgers.edu/). The concept of providing multiple layers of access, already implicit in the Edison Papers book and image editions, proves to be a useful tool for enhancing the accessibility of complex historical collections in digital environments. Furthermore, we plan to open the integrated edition through a layered access, a methodological approach for which the Edison Papers have been singled out as a model (see the preface to a forthcoming volume by Vincent Longo and Matthew Solomon, *Orson Welles's "The Heart of Darkness": Film Research, Anti-Nazism, and the Representation of Indigenous Peoples*, University of Michigan Press, 2022). The concept of providing multiple layers of access was already implicit in the various formats in which the papers became available, first through the Edison Papers book and image editions available on Johns Hopkins University Press Project Muse, next with microfilm sources shared in the Internet Archive and published primary sources in HathiTrust and JSTOR.

In the original version of our digital image edition, the Edison Papers provided a rudimentary way for users to save a set of documents for their own use. The concept has been applied to a framework in manuscript-based collections, for example a Scholars' Workbench in METAscripta, a digital workspace at St Louis University's Vatican Film Library (https://metascripta.org/). The Edison Papers editorial team recognised that the Edison Papers needed to enable both scholars and non-expert users to discover, use and understand these primary sources in a customisable way. The resulting integrated edition would encompass a book edition of selected, transcribed and annotated documents and a much larger image edition from which documents are drawn, including extensive metadata that expand information related to each document, a way to overcome what Joris van Zundert called 'information silos' causing problems for digital scholarly editions (van Zundert 2018, 11). This method prevents the tendency to determine a final, established text to read as 'correct', and as such it has been interpreted by van Zundert as

the 'intellectually hedonistic ideal of publishing the definitive edition' opposed to a 'teleological conception of resource and re-use' (2018, 11–12). Given that digital editions rely on layout approaches based in the print medium, we examine book design and frameworks that transfer, adapt and innovate book contents in digital formats for an improved user experience.

2. Reading collections

As we think about the future of our digital editions, we have conceptualised an experience like that of a library or archive reading room in which a researcher can access a set of documents, collect them, and create notes and copies for their own research needs – what Sahle describes as 'a workplace or a laboratory where the user is invited to work with the texts and documents more actively' (2016, 30). Users engaged with digital publishing benefit from collecting and curating materials they are interested to read. In the Edison Papers, this environment, named the Reading Rooms, has the purpose of opening reading collections in digital spaces for scholars, in particular to hold together a thematic collection of their own, by filtering primary sources and collecting materials of interest. Collecting materials means, primarily, bringing together materials from the Edison Papers digital book and image editions together with digitised primary published sources and archival materials from other repositories. As an artificial go-between, Reading Rooms facilitate the website navigation through contact points that are meaningful for users in a variety of views, by keeping track of searched, browsed and annotated materials that readers selected. Many prospective users of the Edison Papers – scholars in a variety of disciplines, educators, students, collectors and other curious readers – are not interested in Edison himself; instead, they come because the Edison Papers touch on the historical development of new technologies and industries, including telecommunications, electric light and power, materials processing, batteries for industry and automobiles and the emergence of technology-based entertainment technologies in the form of sound recording, motion pictures and radio. They

also provide material for studying the cultural meanings of new technologies and of invention and innovation more broadly and for studies of creativity and engineering practice (Israel 1998; https://edison.rutgers.edu/life-of-edison/bibliography). We envision the Reading Rooms as similar to the JSTOR Workspace (https://www.jstor.org/workspace/), a portal for scholars to find and bring together research materials. Our goal is to enable scholars to bring together documents from the Edison Papers digital image and book editions, along with related materials from other digital archive collections, as well as published primary sources in HathiTrust and JSTOR in order to build their own thematic research collection.

At the centre of our concept for the Reading Rooms is the use of the International Image Interoperability Framework (IIIF, https://iiif.io/) to enable the delivery of images and texts from multiple servers on the Web to create a reader-centred interactive experience. IIIF is, thus, the connecting key to deliver and display visual information in panes displaying images side by side and to enable their annotation. The image framework supported by IIIF allows for assembling digital images in an array or sequence. Through interoperable images, such as IIIF-compliant images and their collections, materials are showcased to readers in a coherent way, allowing deep zoom, comparison, structure of the image itself or page order, for a book or collection, and annotation through the main IIIF image viewer we implement, Mirador Viewer. Reading Rooms would enable users to have an instance of Mirador Viewer in which they could open two or more items, or item collections for comparative reading and annotation. In this way, users could bring together documents from the image edition using their IIIF manifest and metadata for the documents. In addition, a separate collection of notebooks includes manifests that enable users to reconstruct the physical notebook, while still maintaining the individually indexed document metadata. In similar fashion, documents from the Edison Papers book edition, from other collections and primary printed materials from HathiTrust and JSTOR can be brought into a user's reading room by using IIIF manifests.

Presenting and accessing digital images depends on a framework for digital image standards. Regardless of digital content, features of interoperability open up different kinds of materials and ways in which users can think about accessing that material, in a viewing experience ranging from deep zooming to comparing and contrasting images, as well as annotating. Annotation features of Mirador have been heralded as 'a paradigmatic shift' because the viewer enables innovative ways for scholars to 'understand, approach and interact with cultural heritage resources' (van Zundert 2018, 8; 20). Annotations open more opportunities for readers, as testified by a project at the Vatican Library, 'Thematic Pathways on the Web', which produced more than 26,000 IIIF-based annotations in a project developed by the Vatican Library and Stanford and funded by the Andrew W. Mellon Foundation between 2016 and 2019. In his review of this edition, Alberto Campagnolo describes how the 'resource flows from example to example, presenting the reader with a quasi-book-like experience' (Campagnolo 2020, 323–4). At the same time, it is important to remember that digital editions may, or may not have the format of a book, or intend to look like one. Jeffrey C. Witt maintains that 'the textual idea' shapes scholars' goals and the vision they have of their own outputs and deliverables through IIIF, regardless of the context of book manuscripts or the different field of archives and personal papers (Witt 2020). Such assumption about texts can be addressed through annotations drawing on individual items, curated collections made available by cultural heritage institutions and users' selections as well.

Integrating IIIF views into the Edison Papers produces a resulting digital edition that is customised, based on readers' queries, and designed to promote comparative reading and scholarship, but also applications in pedagogy, resulting in a versatile investigation of technological development and industrialisation in the nineteenth and twentieth centuries. With interoperable images, IIIF-compliant images, both individually and in side-by-side layouts, present primary sources to readers in a uniformised view and one tab only. By selecting images and text formats, primary sources can be seen

individually or collectively, so those interested in digital publishing also need to take into account what Ruecker and Roberts-Smith (2017) call 'interpretive experience design'. A scholarly audience would bring the most demanding audience and the one possibly claiming more features in consulting primary sources online.

As the platform of choice for the Edison Papers is provided in Omeka-S, metadata (Dublin Core) are provided for items and for item sets, seen in their context. The image manifests, compliant with the IIIF standard, become consumable documents in their own right that researchers, scholars and students can then utilise in novel ways based on the evolving tool sets of the digital humanities, for example exploring metadata and the re-usability of text- and image-related information. The immense digital edition of the Edison Papers is also made more accessible through its finding aids and indexes. Additionally, pedagogical resources are available, regardless of individual annotations, and users can gain further experience and historical views from document-based essays, exhibits and narrative timelines, to story maps that link to documents in the Edison Papers digital and book editions and to other stable open-source content such as HathiTrust.

3. Conclusions

Thanks to the content portability and interconnectedness that is a key value of IIIF, the integrated digital edition envisioned by the Edison Papers would create a virtual environment for scholars to collect, collate and compare sources based on their research needs. This virtual environment, called Reading Rooms, will enable users through IIIF manifests to bring together related resources in the immense collection of Edison Papers that can be discovered through layered access ranging database searches and finding aids to essays and exhibits. Since a layered access to the editions pertains to design and planning, it impacts the experience of not only scholars, but non-expert users to discover, use and understand primary sources in history as objects. The process of understanding sources in a

digital format is conducive to the task that 'engage audiences in complex acts of interpretation' (Owens 2018; Ruecker and Roberts-Smith 2017). In a IIIF digital environment, this interpretation is enabled by the building of side-by-side image displays of related materials, both in light of the structure of the image itself or within a specific folder or volume framework and by manipulating, comparing and annotating images. The use of IIIF standards to enable this collation and manipulation of interoperable digital images rendered by IIIF-compliant technologies, such as Mirador Viewer, make them very appealing in the field of cultural heritage.

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