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## Livingstone Online: Access Beyond Openness

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The study of nineteenth-century Africa is troubled by issues of access on two fronts. First, explorers' unedited field notes – the closest thing we have to a “raw” record – are rarely available, and, if they are, they are often crumbling, illegible, or located in far-flung archives (Bridges 1998). Second, even when such sources are available in later published forms, they present ethical and ideological problems. Written largely by European explorers and heavily edited, the published texts often exclude the voices of the very populations to which they attempt to provide access. [Livingstone Online](#), a digital project dedicated to the written and visual legacy of nineteenth-century explorer David Livingstone (1813-73), works to counter these issues through its site design, transcription processes, and use of spectral imaging technology.

In order to do so, however, we have had to reconsider our understanding of access, both technologically and ideologically. As a publicly-funded project, we adhere to a high standard of transparency. Yet, as an archive of a contentious figure of imperial exploration, we are also responsive to the recent critiques of access - both of open access as privileging imperial knowledge expansion (Christen 2012; Risam 2017) and of the digital humanities as excluding consideration of race (Gallon 2016). To navigate this conflict, we strive to provide access that is not simply based on openness.

Instead, our project offers an understanding of access that moves in two directions temporally: striving to repair the past by being ethical in our digital treatment and remediation of historical materials, while also acting in a future-oriented fashion in developing and implementing our transparency

policies, data standards, and code of collaboration in order to engage a variety of audiences, including those often excluded from DH practice. In this way, our project attempts to create a digital platform for culturally sensitive materials, while our documentation procedures seek to reveal every step of our decision-making process to critical review.

### Reparative

*Livingstone Online*, now in its twelfth year (2004 present), is a digital museum and library that draws on recent scholarship and international collaboration to restore one of the British Empire's most iconic figures to his global contexts. Our digital collection of high-resolution manuscript images and critically-edited transcriptions – 11,000 images and 700 transcriptions by 2017 – is among the largest on the internet related to any single historical British visitor to Africa. Our site publishes important research on Livingstone's legacy and explores the many ways his ideas have circulated over time. Uniquely, we also takes its visitors far behind the scenes of our work – documenting step-by-step the international collaboration among archives, scholars, scientists, librarians, computer programmers, and other specialists that has made our project possible.

Our use of spectral imaging to uncover the material history of Livingstone's manuscripts gives us important insights into the conditions under which Livingstone and other imperial explorers wrote – from unacknowledged contributors to the many environments through which the manuscripts circulated. In foregrounding these dimensions, we are also creating a new approach to using spectral imaging in cultural heritage projects because spectral imaging has primarily been used to unearth layers of text, rather than to examine the broader circumstances of imperial record-making and the preservation of imperial records over time. This new use of spectral imaging also constitutes an ethics of access, which is framed by critical essays that explore Livingstone's uncredited information sources. Livingstone Online here puts forward an idea of access as uncovering the hidden hands and voices of the past.

For instance, in our study of Livingstone's 1871 Field Diary, we have collaborated with spectral imaging scientists to develop pseudocolor (false color) images to differentiate passages that Livingstone originally wrote from those he added later and those added by other hands. Likewise, the development of animated spectral images has enabled a chronological reconstruction of events in the life of the diary. By

contrast, recourse to images made by principal component analysis (PCA) has uncovered stains on pages otherwise invisible to the naked eye and has introduced us to dimensions of manuscript history otherwise not even suspected to exist.

In addition, we frame these spectral images with paratextual tools that value equally the different kinds of information that Livingstone records. For example, few or no other record remains of many of the villages or the African and Arab individuals Livingstone mentions. As a result, our integrated glossary offers unique, otherwise unavailable geographical information that circulated during Livingstone's time in Central Africa and enumerates the names of people that might otherwise be lost to history. The glossary and other critical materials also provide insight into the complex social dynamics that operated in areas where Livingstone traveled. Overall, Livingstone Online offers a version of access in which the freely available manuscript pages are only a starting point; spectral imaging technology combined with critical building helps construct a reparative ethos of access.

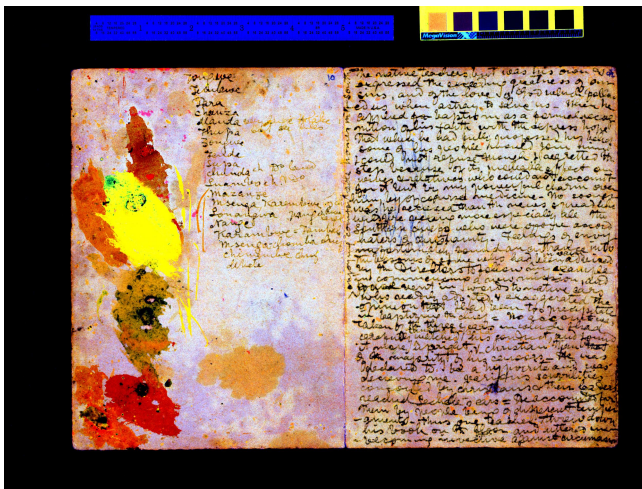


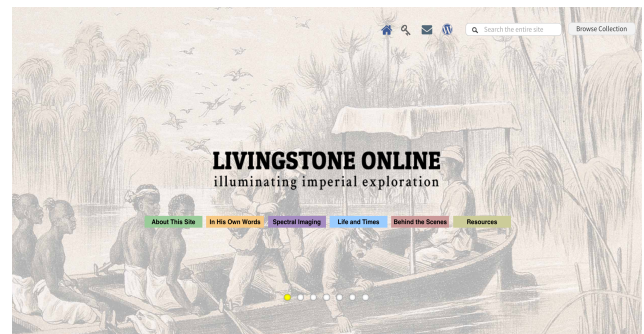
Figure 1. A processed spectral image of a two-page spread from the 10 March 1870 'Retrospect' (Livingstone 1870a:[3]). The kaleidoscopic colors foreground and differentiate the wide range of substances that have left traces on the manuscript's pages over its 145-year history. Copyright National Library of Scotland. Creative Commons Attribution-NonCommercial 3.0 Unported

### Future-Oriented

Alongside such reparative work, we also strive to design a project that looks toward the future. Livingstone Online makes our project documents available to an almost unprecedented degree in order to make our publicly-funded research fully accountable, to illuminate our work practices, and to

support future digital projects. Our extensive downloadable primary materials (including 12,000 images, 3000 metadata records, and hundreds of transcriptions) are supplemented by freely available project materials, images, and working documents – the things often hidden behind the public face of digital projects. We have curated access to over 600 project documents, including planning documents, spectral image processing information, and essay notes, in order to illuminate the long-term history of our project work. Likewise, access to our grant narratives and working documents de-mystifies funding processes and international, interdisciplinary collaboration in order to support the work of other scholars, especially junior or independent scholars and those new to DH.

In addition, our site is technically accessible in a range of ways. We have built the site with sustainable, community-supported, open-source technologies such as Drupal for our front end and Fedora for our back end, which means that others can access our underlying code (which is fully available from Github) to reuse and modify it for their own projects. To promote use of our site more broadly, we've also worked to make the site inviting to scholars and general users alike, using intuitive, visually-driven site design. Through our site design, open-source code, and transparent documentation, we hope to foster user-led interpretation over passive reception of authorized knowledge.



Figures 2,3. Livingstone Online's six section pages, two of which are pictured here, each rely on a diverse range of historical illustrations and contemporary images to complicate the notion of a definitive Livingstone.

As part of this effort, our site is also fully mobile accessible, including for complex functions such as the review and study of archival manuscripts and transcriptions. This opens up Livingstone's documents and our critical materials to the parts of the world where he worked and travelled; for many people on the African continent, for instance, mobile technology is the main access point to the internet. Likewise, just under a quarter of our collaborating archives are in Africa, and we are actively working on developing additional relationships with African-based archives, in the interests of not only bringing new Livingstone materials into our site, but also to encourage collaboration with African-based scholars and general audiences.

In these ways, we hope to initiate a conversation about the biases and assumptions inherent in the ways that technological advances shape our preservation of the past. We also hope to develop a nuanced practice of access that is embedded in our site design, spectral imaging processing, and transparent documentation, as well as made explicit in our critical materials. Thinking of access beyond openness means creating more historically-minded digital collections that also look to future knowledge creation by an array of populations, not all of them academic or based in the west.

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