Review of *Livingstone Online*

Abstract

   Livingstone Online is a digital museum and library built around the work and legacy of David Livingstone, a doctor, missionary and explorer who lived during the Victorian Age. The team of *Livingstone Online* reunited and made available all his manuscripts for the very first time, collecting them as high-resolution images and critically edited transcriptions. The project, which started in 2004 and is still ongoing, embodies the concept of digital edition as a potentially endless process, becoming a leading academic resource for the study of African history, the British Empire, nineteenth-century intercultural encounters, and digital humanities practice.

   The aim of this review is to verify whether this heterogeneous and complex site can be classified as a *Scholarly Digital Edition* (SDE). The review will be carried out by analysing the site contents, features and purposes, with special attention devoted to the theoretical aspects of an SDE.

Introduction

   David Livingstone (Blantyre, 19 May 1813 – Bangweulu Lake, 1 May 1873) was a Scottish doctor, physician, pioneer Christian missionary and explorer who lived during the Victorian Age. He soon turned into a British hero, due to several reasons. After "disappearing" and dying in Africa, he was regarded as a missionary martyr. As one of the first Europeans to travel across Africa and after discovering the Victoria Falls, among others, he was also considered a scientific explorer. Additionally, he was considered an anti-slavery activist and an advocate of commercial and colonial expansion. However, his figure was exploited for political reasons during the establishment of colonial rule in Africa, since his concept of colony did not involve slavery. *Livingstone Online* tries to solve some contradictions present in his narrative by aiming at providing a complete and unbiased presentation of Livingstone.

Although this project focuses on Livingstone's legacy, it should not be regarded as a simple attempt to restore or condemn his controversial figure. The critical editing of his works is so beautifully enriched with new contents that it becomes a tool for the final user to rethink some social and political events of the nineteenth-century.

1. Opening the review

1.1 Bibliographic identification

The information about the identification of the resource could be easily collected. The banner at the bottom of the home page details the main collaborating institutions: University of Nebraska-Lincoln, David Livingstone Trust, National Endowment for the Humanities, National Library of Scotland and University of Maryland Libraries.

Fig. 1: Screenshot of the homepage

While exploring any sections of the site, basic information can be found at the very bottom of the different pages, including the following:

- the project lifespan: 2004-2019;
- the names of the editors and the institutions in charge: Adrian S. Wisnicki (director), Megan Ward (co-director), Nigel Banks (system administrator); So You Start (hosting site), University of Maryland Libraries (for the new version which had two different editions published in 2015 and 2016; University College London (for the original version 2006-2015).

All cited names are linked to a specific page.

1.2 General parameters

Beyond the names mentioned in par. 1.1, many others worked on the project since 2004. In that year, the project was initially conceived as a digitally grounded publishing by some scholars at the Wellcome Trust Centre for the History of Medicine at University College London, one that could reflect on the relation between medicine progress and nationalist aims through the letters of Livingstone.

The interest in the project grew stronger in the following years, and the pilot project was extended to a three-year project following a grant provided by Wellcome Trust (2007-2009). The team worked hard to increase the amount of materials available on the site, by adding further manuscripts, transcriptions, images and essays, and also to strengthen more technical aspects, such as the website database.

The current director joined the team in 2010, and shared the team's interest in publishing a particularly damaged diary, *Livingstone's 1871 Field Diary*. The research on this diary led to an initiative called the *Livingstone Spectral Imaging Project* (2010-present)[1]. This is a major Livingstone Online-affiliated initiative funded by the National Endowment for the Humanities (USA) and the British Academy.

In 2012 the team applied and successfully qualified for the NEH Humanities Collections and Reference Resources Grant (HCRR), and launched the four-year initiative called LEAP (*Livingstone Online Enrichment and Access Project*, 2013-17), whose main accomplishment was to create several critical editions of Livingstone's manuscripts.

In 2015 the project was moved from the UCLA Digital Library to the University of Maryland Libraries, with the subsequent release of the alpha, beta, first, and second editions of the new version of the *Livingstone Online* site. At present, the *Livingstone Online* site is hosted on the low-cost So You Start commercial server.

1.3 Transparency

The general parameters are easily accessible, and complete information about the story, the people and the grants that contributed to the development of the site are provided in the subsections named *About this site* (centre banner in the homepage or top banner of every page): *A Brief History of Livingstone Online (2004-2013)*, *LEAP (2013-2017): A Project History, Part I* and *Part II*. Further information related to credits, permissions and collaborating institutions are to be found in the *Behind the scenes* subsections.

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[1] The spectral imaging is a technology first pioneered by NASA to study manuscripts that are illegible to the naked-eye due to creation or preservation reasons.

2. Subject and content of the edition

2.1 Selection

It is not relevant to discuss a selection activity for this particular edition, because the site gathers all existing Livingstone's manuscripts, "[...] – which otherwise hide from view in libraries and archives around the world – for the first time ever." (*Livingstone Online: An Introduction*). The project is still ongoing, and further additions are expected to be made as it progresses.

2.2 Contents

This website has published a digital collection of various literary (letters, essays, diaries) and material items, either produced by Livingstone or related to him, each represented with a digital image and followed by an accurate description. The numbers are remarkable:

> "Currently our published digital collection spans over 1,100 items consisting of 15,000 curated digital images (including 3,000 spectral images) and 780 edited and encoded transcriptions."[2]

This review will focus only the manuscripts that are part of the collection. They were made available as high-quality images enriched with transcription and full textual apparatus, but from a structural point of view they were handled in two different ways: some have been individually added to the digital archive, some others have been collected together into so called "critical editions"[3], provided with additional material such as critical essays. Anyway, there are some inconsistencies in the definition of "critical edition" and they will be examined in par. 3.4.

The most considerable thing to notice about this website is that some editions are dated to the current year (e.g. *Livingstone's Missionary Travels Manuscript (1857)*): the team reached impressive results during the years but never stopped editing, keeping faith to their intentions and to the concept of digital edition as a continuous work-in progress and not an eternal achievement.

2.3 Previous editions

It is clear that the present resource has been re-edited throughout the years within the same project. Reading through the several introductory and explanatory texts of the manuscripts, it is possible to find the main printed references for each of them.

For example, the main references for *Livingstone's 1871 Field Diary* are the original *1871 Field Diary*, the *Unyanyembe Journal (1866-72)* (a revised copy that Livingstone made from his own field diaries) and the *Last Journals (1874)* (edited by Horace Waller after Livingstone's death), and it is possible to consult them in a comparative view (see par. 4.2). Finally, it seems like this project was the very first attempt to reunite the entirety of Livingstone's manuscripts (and not just some from specific periods) in a structured way and therefore no previous comparable edition or projects are available.

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[2] From the section *The Livingstone Online Digital Collection.*

[3] There are 6 main editions defined "critical" inside the site: *Livingstone's Final Manuscripts (1865-1873)*, *Livingstone's Manuscripts in South Africa (1843-1872)*, *Livingstone's Missionary Travels Manuscript (1857)*, *Livingstone's 1871 Field Diary*, *Livingstone's Letter from Bambarre* and *Livingstone's 1870 Field Diary*.

3. Aims and methods

3.1 Documentation

The project's full documentation is thoroughly accessible to users, with an easily navigable interface. The documents can be mainly found in the following sections:

- *The Theory Behind Livingstone Online* on the theoretical model followed
- *The Design of Livingstone Online* on the design
- *Why Should We Read Livingstone's Manuscripts?* on the choice of David Livingstone as spokesperson of lost narratives of the nineteenth-century history
- *Behind the scenes* mainly dedicated to the "authorized personnel", which provides complete information about *Practices, Standards, and Arrangements*.

3.2 Scholarly objectives

This edition is meant for a wide audience, as explained in *Who is Livingstone Online's Audience?*, and the materials are provided in different forms to suit the users' interests.

At a scholarly level, this edition is firstly dedicated to researchers whose fields of study are exploration, travel writing, colonial and post-colonial studies and Victorian literature and culture. The *Spectral Imaging Project* could also be of great inspiration for studies in codicology (the scientific study of manuscripts in their physical aspect).

It should be noted that the site is also designed for teachers and schools: the *Livingstone Online Outreach Program* is a web-based educational resource that

> "provides materials [which consists in eleven freely downloadable worksheets] for teachers to guide students aged 9 to 13 in learning about the life and work of David Livingstone."[4]

It should be also noted that the site has been built keeping digital humanists in mind:

> "Our emphasis on transparency, knowledge transfer, and documentation means that anyone can look "behind the scenes" of our project and learn, in detail, what we did, how we did it, and even how they might do it better."[5]

3.3 Goals and mission

As explained in *Livingstone Online: An Introduction*, the main goals of the project were:

- to encourage the study and the discussion of Livingstone's ideas and the key aspects of the nineteenth century global history;
- to create very high quality materials useful for research at scholarly level;

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[4] From the section *Livingstone Online Outreach Program.*
[5] From the section *Who is Livingstone Online's Audience?*

- to enrich the study of the nineteenth century travel manuscripts by applying spectral imaging technology;
- to keep the site design simple and intuitive.

To this date, we can say that these goals have been achieved; the reasoning will be given in the following chapters.

The *ethos* of the work (as per the *The Livingstone Online Code*) was also to provide cross-cultural awareness, since Livingstone's figure was depicted differently depending on the place of reception and there was the need not to replicate prejudices in the website. This challenging goal was successfully achieved through the site contents and design. Through contents, by enriching the primary sources with critical essays and annotations that could give the reader a full and unbiased understanding of the themes; through design, by taking advantage of digital technologies. A significant example is the grid layout of the section pages (used also in other website levels), for it supports a non-hierarchical organization of the contents:

> "We hope the layout promotes individual meaning making as users assemble their own archive of information about Livingstone's life and work."[6]
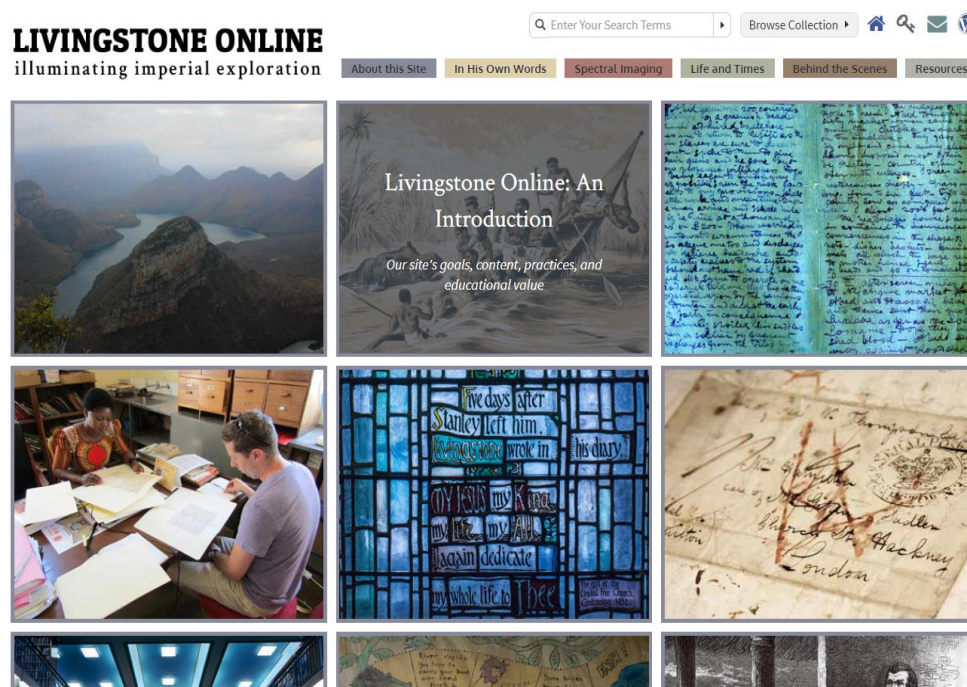
Fig. 2: *About this site* section page

Furthermore, the team highly valued collaboration. Since much support was given pro bono, the collaborators were thanked wherever possible in the site, as a way to give recognition to their contributions. Transparency and accountability were provided through extensive documentation at all levels of work (see par. 1.4), as to

> "[...] enable funders to support our work with confidence and [...] allow users to learn about our work in depth, in the best spirit of knowledge transfer."[7]

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[6] From the section *The Design of Livingstone Online*.
[7] From the section *The Livingstone Online Code*.

The team project showed great commitment to long-term sustainability and declares that

> "We have also designed our site carefully so that it caters to modern internet sensibilities
> and so that it promotes not just access but sustained use of all our materials".

Finally, it supports open access and use, since all of the data on the website is freely available to the public and, wherever possible, released under Creative Commons so that it can be reused.

3.4 Method and representation of documents

Despite the project team was careful about providing accurate documentation of the editing standards (see section *Practices, Standards, and Arrangements*), there is an issue that is worth analysing related to the definition of the editions available in this website. Some manuscripts were defined in their own sections "critical editions" but are actually describing different editing practices from a textual-critic point of view.

A traditional definition considers a critical edition to be the direct product of textual criticism: when having more than one source (witness) of a text, making the edition means trying to give back to the reader the original (archetype), or the version of the text that the editors hypothesised to be the most true between the many available.

However, in this website different situations are described with the same terms, as it can be seen comparing the two editions *1871 Field Diary* and *Letter from Bambarre*.

1871 Field Diary has three different sources: the original *1871 Field Diary*, the *Unyanyembe Journal (1866-72)* and the *Last Journals (1874)*, therefore it could support the definition of "critical edition"; *Letter from Bambarre* relies on just one source manuscript, therefore the edition product should be called, for example, diplomatic or documentary. Instead, both editions are referred to as "critical editions".

The only way to reconcile this inconsistency is to assume a fully digital editing perspective. As Patrick Sahle points out in *What is a Scholarly Digital Edition?*[8], when talking about SDEs it is the case to assume a wider notion of "critical" as

> "a container for all those activities that apply scholarly knowledge and reasoning
> to the process of reproducing documents and transforming a document or text into
> an edition"[9];

this explanation is needed to cover the variety of possible critical digital editions that have been and will be edited. So the editions in the *Livingstone Online* website can absolutely be defined "critical", but only in the previously explained form.

On the other side, from a textual-critics point of view, each manuscript in this website is given: a facsimile edition, since it reproduces the source as an high-quality digital image; and a diplomatic edition, since it is based on a single source and it aims to reproduce it in the most accurate way. The transcription is formally diplomatic, which means that it reproduces the text as it is in the source. However, it is also interpretative since an editorial interpretation

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[8]Section 1, Chapter 2 in, *Driscoll, M. J. and Pierazzo, E., OpenBookPublisher, 2016,*
https://www.openbookpublishers.com/reader/483#page/1/mode/2up

[9] From *Digital Scholarly Editing. Theories and practices*, pp. 19-39

is added through annotation: when the user hovers over certain words, some text related to correction suggestions or extra-information appears (Fig. 3).
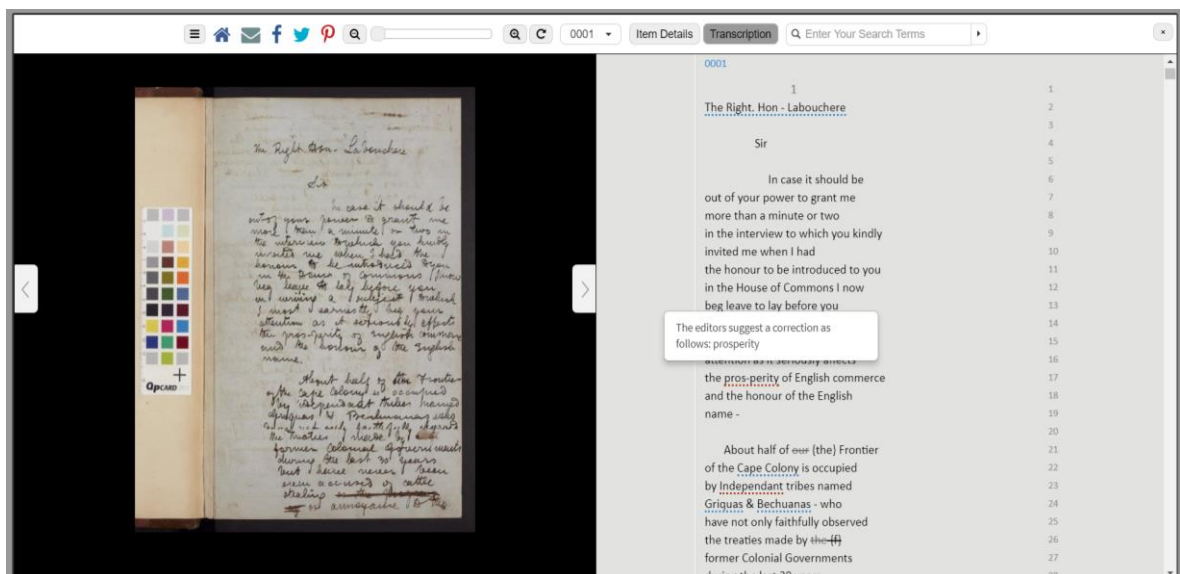

Fig. 3: An example of critical annotation for *Missionary Travels and Researches in South Africa (Part I)*

3.5 Data modelling

The team project decided to encode the transcribed manuscripts of David Livingstone following customized Text Encoding Initiative (TEI) P5 guidelines. These customized guidelines are entirely documented in the website section *Livingstone Online TEI P5 Encoding Guidelines*, where it is possible to check every single encoding decision made by the team with clear explanations and examples.

The decisions concerned the TEI elements, the attributes and attribute values to use in the encoding. It was very important to mark authorial composition practices:
- textual colors were represented with @*rend* attribute
- line breaks with <seg> and *type* attribute hypen or other types of marks
- four different situations of textual directions were encountered and managed, as well as text with no clear relationship with the surrounding text
- additions and deletions were carefully described with <add> and <del> elements and attributes for the place in the page, the type of mark, the hand that made the change, the extent of the change

A specific section of the guidelines is committed to the management of authorial mistakes (grammatical, typographical, and other mistakes), suggesting a combination of the <choice> element and both the <sic> (apparent error) and <corr> (correction) elements. It was also important to define how to mark valid alternate readings of a single word or textual passage, using the <app> element plus at least two or more instances of the <rdg> element. Another section is about how to mark important nouns such as animals, people, ethnic groups, medical terms. The team suggests a range of attribute types for each category.

The decision of sharing the entire customized TEI is admirable and definitely useful for any other project involved with the same kind of raw materials (travel journals, letters) and topics.

4. Publication and presentation

The website consists of five levels:

1) home page;
2) six section pages;
3) content pages of each section;
4) manuscript viewer;
5) four digital collection browse and search pages.

There are some permanent objects at the very top of each page: a search bar, a tool to browse the collection, and meaningful symbols for the *Homepage*, *Site guide*, *Email* and *Blog*. The navigation is user friendly thanks to an intuitive design concept, and the editions can be visited online or downloaded as archival packets. More information on the accessibility will be provided in the following chapters by using the multispectral critical edition of *Livingstone's 1871 Field Diary* as an example.

4.1 Search and browse: an example

All the manuscripts on the website can be accessed by following two different paths, namely the *Search* or the *Browse by* tools located at top of each page; by reading the descriptions and the essays provided in the edition that will lead to the desired manuscript viewer through interactive links.
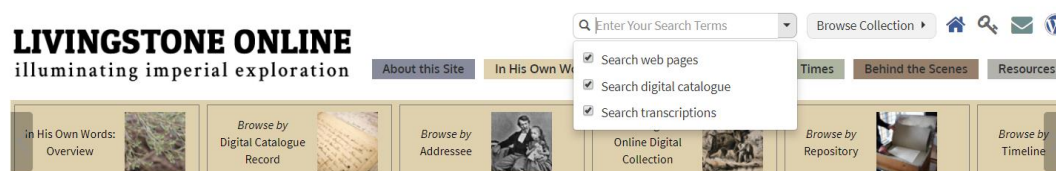
Fig. 4: *Search* tool
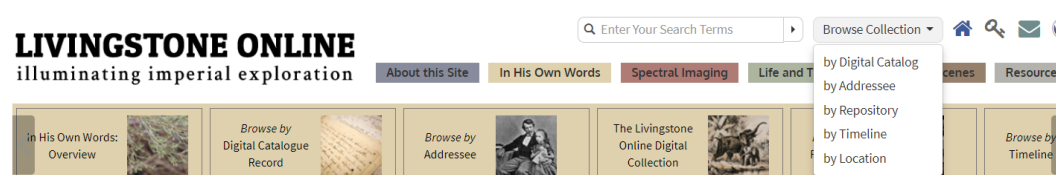
Fig. 5: *Browse by* tool

As it can be seen in the screenshots, the *Search* (Fig. 4) can be refined by *web pages*, *digital catalogue* or *transcriptions*. The *Search transcriptions* is the most significant, since the user is given the option to perform a word search of all manuscripts, a function that could not be performed in printed editions and frequently unavailable in most digital editions. The *Browse by* (Fig. 5) function was also conceived in a very smart way, since the user can browse the items by *Digital Catalog*, *Addressee*, *Repository*, *Timeline* and *Location* according to their needs. It is worth noticing that each browsing option is graphically different (for example, the *Browse by Timeline* is visually represented with a timeline).

After querying a search and regardless of the path they have decided to follow, the user will get to a page similar to Fig. 6 or Fig. 7. From this point, they will be able to move to the manuscript viewer.

Fig. 6: possible *Search* result

Fig. 7: Possible *Browse by* result. A note on the icons in the *Access* column: the camera icon is to view an image, the flash icon to view a spectral image and the bottom arrow icon to download content.

After choosing an item from the table as in Fig.7, the user can experience the manuscript and all the materials related to it by following the guide of a specific interactive index (Fig. 8) where all the contents included in the edition are listed (images, transcriptions, critical essays and other supporting materials).

Fig. 8: Table of contents of the critical edition

4.2 Manuscript viewer

In this chapter we shall analyse the main functionalities of the manuscript viewer, namely:

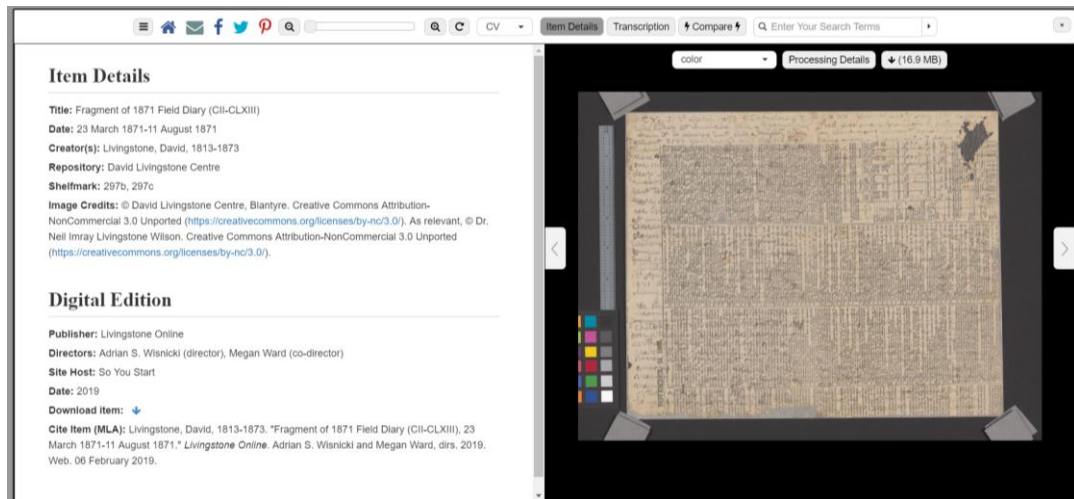1) *Item Details*: a full description of the item shown and its identification in the digital edition are provided;

Fig. 9: *Item Details* view

2) *Transcription*: the user is provided with both diplomatic and interpretative transcription, for the corrections are just suggested hovering over words. The enlarged screenshots provided below show how some typical issues are handled:
   - data has been usually enriched with metadata (Fig. 10a);
   - the editor added notes on the physical status of the manuscript, when necessary (Fig. 10b);
   - unclear words were handled with transparency (Fig. 10c);
   - deletion (line 14 of fig. 10) was used for representing the original author's deletion.
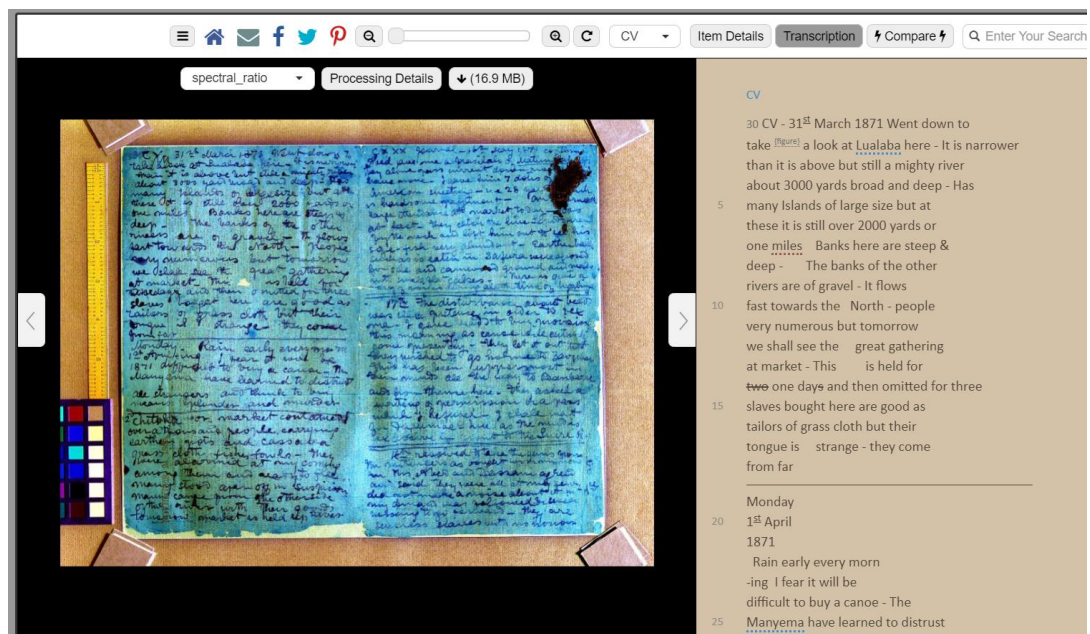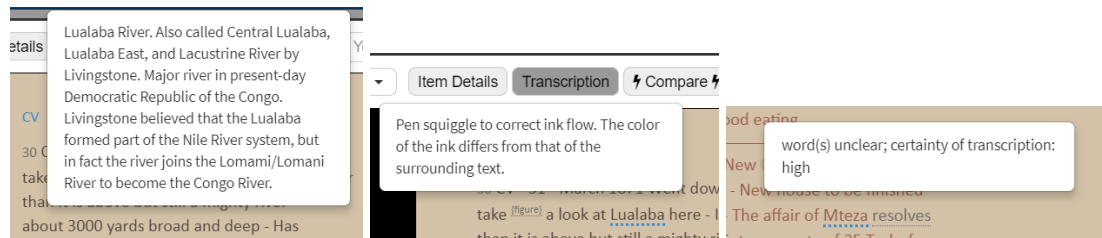

Fig. 10: *Transcription* view

Fig. 10a: Metadata for "Lualaba"   Fig. 10b: Note on the ink stain   Fig. 10c: Unclear word: "resolves"

3) *Compare*: the user can compare different kinds of renderings of the manuscript image, in this case a colour image with the spectral image.
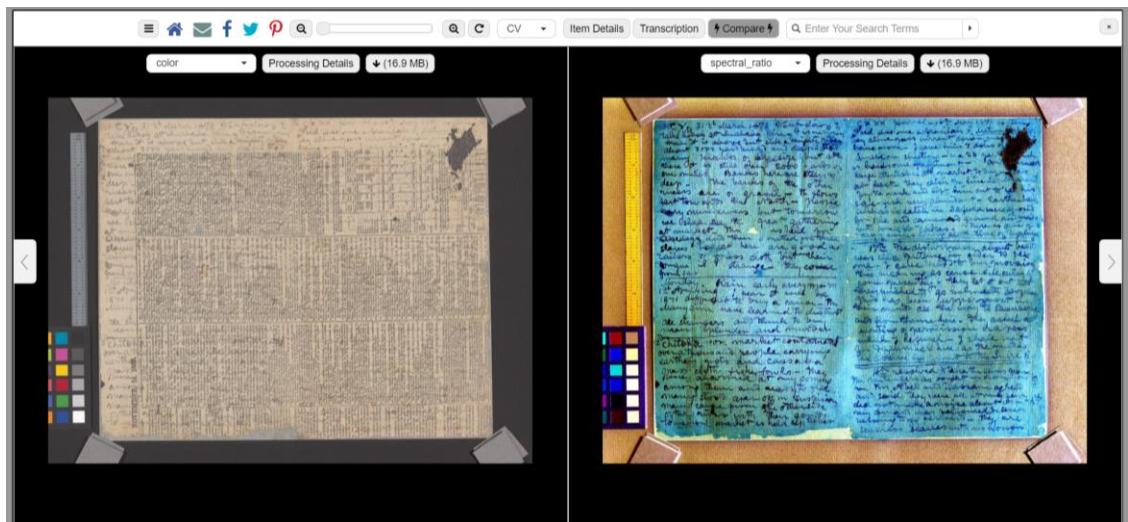

Fig. 11: *Compare* view

4) *Additional viewer*: the user can make a comparative study of three versions (Fig. 12) of the 1871 Field Diary: the original 1871 Field Diary, the revised version in the Unyanyembe Journal (1866-72), and the posthumously edited and published version in the Last Journals (1874). The user can access this viewer from the *Table of contents*. Anyway, the problem is that it is not clear the relationship between these three manuscripts.
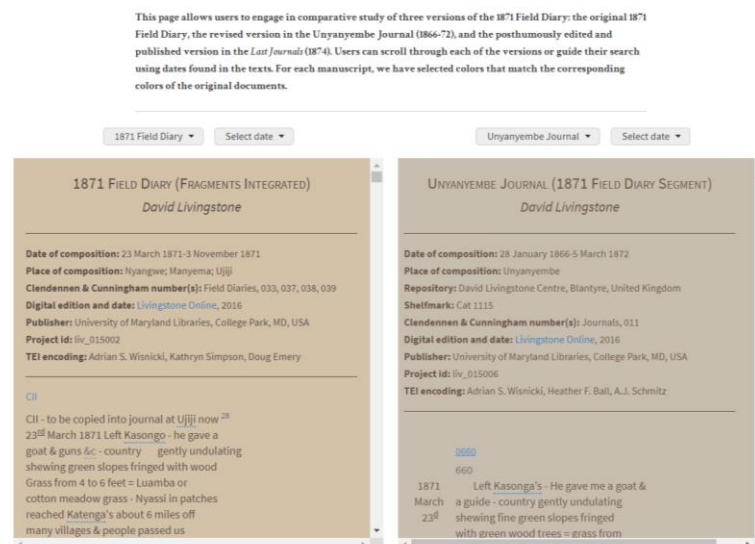

Fig. 12: comparative view of three versions of the diary

4.3 Social integration

The website owns *The Blog for Livingstone* on Wordpress. It is useful for informing users about recent updates and general news about the project. However, a section dedicated to share discussions about the different topics related to the project is missing from the website.

4.4 Export formats and raw data

A considerable part of the items of Livingstone Online is freely downloadable in the form of archival packets containing both edited material and raw data, as accurately described in the readme file.
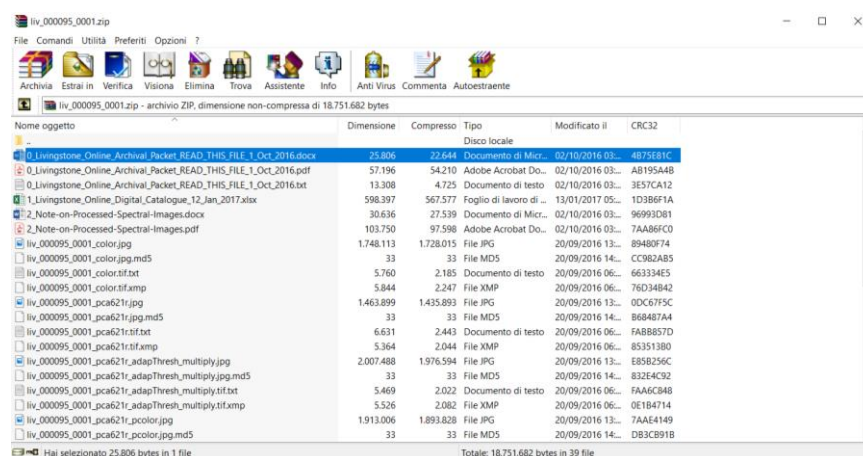

Fig. 13: example of one of the downloadable manuscript packets

In each packet there are:

- the read-me file;
- the images in JPEG;
- a reading copy;
- MODS XML metadata;
- TEI P5 XML transcription (when available);
- other TXT files with further notes about the materials.

Additional information is provided in *Practices, Standards, and Arrangements*.

5. Conclusion

Livingstone Online defines itself as a digital museum and library, but this description can be enriched thanks to the analysis drawn in these chapters.

The editions that are included in the website are definitely to be considered SDEs, since they are critical representations of historical documents made following a fully digital paradigm, as pointed out by Patrick Sahle in *Digital Scholarly Editing. Theories and practices*. About the site, it also should be considered an SDE itself and not a simple "container" for the editions, recognizing the editorial effort of systematization and collection of the single manuscripts editions.

Livingstone Online fulfils all the requirements mentioned in the criteria suggested from Patrick Sahle in *Criteria for Reviewing Scholarly Digital Editions*[10]. The edition is sufficiently documented and easily citable, it is reliable as a scholarly resource for the quality of the materials and could therefore be of great use to researchers.

In particular, the strength of this project is the application of a fully digital paradigm. The team realized that a digital medium allows for the representation of a large number of documents in a potentially limitless number of ways, whilst giving the reader a real functionality in interactivity (general and complex searches, control over behavior and appearance, source materials download, etc.) and by maximizing their experience of the texts.

6. Bibliography

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7. Sitography

- http://www.livingstoneonline.org/ last visited: 10 Feb 2019

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[10] Criteria for Reviewing Scholarly Digital Editions, version 1.1. Patrick Sahle; in collaboration with Georg Vogeler and the members of the IDE; Version 1.1, June 2014 (Version 1.0, September 2012 – January 2014; German version 1.1: http://www.i-d-e.de/publikationen/weitereschriften/kriterien-version-1-1/