

The Leipzig Open Fragmentary Texts Series (LOFTS)

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Abstract

This paper presents a joint project of the Humboldt Chair of Digital Humanities at the University of Leipzig, the Perseus Digital Library at Tufts University, and the Harvard Center for Hellenic Studies to produce a new open series of Greek and Latin fragmentary authors. Such authors are lost and their works are preserved only through quotations and text reuses by later texts. The project is undertaking two tasks: 1) the digitization of paper editions of fragmentary works linking them to the source texts from which the fragments have been excerpted; 2) the production of born-digital editions of fragmentary works. The ultimate goals are the creation of open, linked, machine-actionable texts for the study and advancement of the Classical textual fragmentary heritage and the development of a collaborative environment for crowdsourced annotations.

The *Leipzig Open Fragmentary Texts Series* (LOFTS) is a new effort within the Open Philology Project of the Alexander von Humboldt Chair of Digital Humanities at the University of Leipzig.^[1] The project is developed in collaboration with the Perseus Digital Library at Tufts University and Harvard's Center for Hellenic Studies. The goal of LOFTS is to establish open editions of classical works that survive only through quotations and text reuses in later texts. The project is undertaking two tasks: digitize paper editions of fragmentary works and link them to the source texts from which the fragments have been collected, and produce new digital editions of fragmentary works. LOFTS has four interconnected subprojects: 1) a fragmentary texts editor within the Perseids platform, 2) the *Digital Fragmenta Historicorum Graecorum* (DFHG), 3) the *Digital Athenaeus*, and 4) the *Digital Marmor Parium*.

1

The Leipzig Open Fragmentary Texts Series (LOFTS)

In the field of textual evidence, fragments are not portions of an original larger whole, but the result of a work of interpretation conducted by scholars who extract and collect information pertaining to lost works embedded in other surviving texts. These fragments include a great variety of formats that range from verbatim quotations to vague allusions and translations, which are only a more or less shadowy image of the original according to their closer or further distance from a literal citation [Berti 2012] [Berti 2013].

2

Print editions of fragmentary works include excerpts extracted from their contexts and from the textual data about those contexts. The result is that they produce annotated indices in the sources that they cite.^[2] Moreover, editions of fragmentary works are fundamentally hypertexts and the goal of this project is to produce a dynamic infrastructure for a full representation of relationships between sources, citations, and annotations about them. In a true digital edition, fragments are not only linked directly to the source text from which they are drawn, but can also be precisely aligned to multiple editions [Berti et al. 2009]. Accordingly, digital fragments are contextualized annotations about reused authors and works [Almas-Berti 2013] [Berti et al. 2014-2015]. As new versions of (or scholarship on) the source text emerge in a standard, machine-actionable form, these new findings are automatically linked to the digital fragments.

3

LOFTS has two main goals: 1) digitize paper editions of fragmentary works and link them to source texts; 2) produce new digital editions of fragmentary authors. In order to achieve these goals, LOFTS editions primarily consist of:

4

- TEI XML versions of paper editions of fragmentary works. The project is currently encoding the five volumes of the *Fragmenta Historicorum Graecorum* by Karl Müller (1841-1870) and has been developing guidelines for marking up the text (see below).
- Dynamic excerpts from source texts. Digitized paper editions of fragmentary works are linked to the source texts that they cite and their metadata are annotated in the source texts. At the same time, when producing a new digital edition, quotations and text reuses are directly annotated in the source text in which they are preserved. In both cases, the result is the production of dynamic excerpts that can be extracted from source texts, thus allowing multiple searches and the creation of many different types of collections of fragmentary texts (by author, work, topic, etc.).
- Multiple alignments with multiple editions. Digitized paper editions of fragmentary works are aligned with the source editions they use and with other editions of the same source texts.
- Contextualized annotations about fragmentary authors and works. LOFTS editors of fragments directly annotate the source texts. These annotations mark all those elements of the source text that reveal the presence of a quotation or reuse of another text (e.g., names of fragmentary authors, titles or descriptions of the content of fragmentary works, *verba dicendi*, etc.).
- Standard textual annotations. These include not only variants in the source text but also morpho-syntactic analyses and named entities. Where these annotations are not already available for the source text, the fragmentary text provides them for the sections that it cites. Where these are available, the fragmentary text may suggest alternate interpretations (e.g., selecting a different reading, an alternate morpho-syntactic analysis or prosopographic judgment).
- Syntactic reuse analysis. Text reuse works not only at a word level, but also at a syntactic one, because reusing a text means not only quoting and readapting words in a new context, but also reproducing syntactic features. Treebank grammar techniques are used to annotate the syntactic structure of sources that preserve quotations of lost texts in order to detect possible syntactic reuses.^[3]
- Alignments with extant sources. Where one work quotes another existing work (e.g., Athenaeus quoting Homer), word-level alignments between the two sources are provided. Such alignments check reliability and precision of quotations produced by ancient authors. This model assumes also that a work that paraphrases, cites or quotes an existing work may preserve independent and superior data not available in the transmission of the quoted work. Arabic translations of Greek authors, for example, can depend, and shed light, upon lost versions of Greek surviving texts.
- Metadata on each word that is, or is judged to be, either a direct quotation from, or close paraphrase of, another work. Where a version of the original does not survive, these metadata include an estimate of the confidence that the surviving word was a direct quotation from the source text or a paraphrase.
- Translations of lost works. Where a text only survives because it has been translated into another language (e.g., a Greek text translated into Arabic) and where we have comparable translations (e.g., other Greek texts by the same author translated into Arabic), we use the translations of the surviving works to show what original words could lie behind the translation of the lost text. Syntactic annotations may also help reconstruct the syntax of the original lost text, as it happens in Arabic and Syriac sources that preserve the syntax of the original Greek text.^[4]
- Translation alignments. Translations of fragments published in digitized print editions are aligned to source texts and new translations in multiple languages are produced by new editors of fragments.

LOFTS uses both XML and RDF, and can be fully represented either as XML or RDF:

- LOFTS uses the EpiDoc subset of the Text Encoding Initiative as its XML tagset and contributes to the development of the EpiDoc guidelines.^[5]
- LOFTS uses the CTS/CITE Architecture developed by researchers at Harvard's Center for Hellenic Studies to extend the Functional Requirements for Bibliographic Records (FRBR) Data Model down to the word level.^[6] Use of the CTS/CITE Architecture allows LOFTS to represent every word in every version of every text with its own unique URN. LOFTS can thus be serialized in a format that is compatible with the

Europeana Data Model, with every distinctly citable word in LOFTS as an individual object with its own metadata (e.g., variants, morpho-syntactic analysis, and named entity alignment).

- LOFTS uses the Prov-O ontology to represent the provenance of each distinct statement.^[7] A statement may be a narrative discussion or a single annotation. Sources can include one or more human authors, an automated system (e.g., a syntactic analyzer) or combination (e.g., one or more humans reviewing and correcting automatically generated syntactic analyses) [Almas et al. 2013] [Berti et al. 2014-2015].
- LOFTS uses the Systematic Assertion Model (SAM) to identify the contingent aspect of the underlying resources as things which are subject to interpretation and which were in existence prior to their use as data in our analysis [Almas et al. 2013] [Berti et al. 2014-2015].^[8]
- LOFTS uses the Open Annotation (OA) data model to share concrete serializations of the analysis in the form of annotations [Almas-Berti 2013].^[9]
- LOFTS publications will include a snapshot representation of all content and linked data at the time of publication. This snapshot will be an HTML5 presentation of the publication that can stand on its own.^[10] This is not intended to duplicate or invalidate the use of URIs and linked data structures for the data being indexed by the publication, but instead as a mitigation against the possibility that those URIs may not remain permanently accessible.

All data in LOFTS is available under a Creative Commons Attribution-ShareAlike license.^[11] Because LOFTS is a meta-text – essentially an annotated index into existing editions – this implies that the source texts cited are also available under a Creative Commons license. LOFTS is based upon the following open corpora:

6

- Editions that are fully in the public domain. These are editions where the editors have died at least 70 years ago and all the contents of the edition – including introduction, textual notes, appendices, etc. – are in the public domain.^[12] The *Open Greek and Latin Project* (OGL) at the University of Leipzig has set out to provide at least one fully public domain edition of every major Greek and Latin work that survives through c. 600 CE and of critical later sources (e.g., the Suda, Scholia, etc.), expanding the amount of Greek and Latin available under a CC license in TEI XML from c. 20 million to 150 million words.^[13] OGL aims to provide (1) a TEI XML transcript of the reconstructed text, (2) a transcript of the textual notes with minimal TEI encoding, and (3) a page image of the original source text. All OGL texts are designed to be available as Linked Open Data, with CTS/CITE URNs for each word in each version of each text.
- Reconstructed texts that are in the public domain. German copyright law protects scholarly editions for 25 years after publication. The European Union recommended copyright protection of up to 30 years for scholarly editions. The argument has been made, however, that this limited copyright covers only the reconstructed text and that ancillary materials (such as textual notes on the bottom of the page) are distinct creative works protected by the life of the author + 70 year rule. In this case, OGL aims to provide (1) a TEI XML transcript of the reconstructed text, (2) an index of the variants cited on any given page of an edition (but not the textual notes themselves), (3) an image of that part of the original page with the reconstructed text but without the textual notes or other elements that are claimed not to fall under the scholarly editions category of limited copyright.
- Indices of reconstructed texts and accompanying textual notes to which European law provides copyright protection. Here OGL provides an index of significant differences between copyrighted texts and those texts that are open. The index allows readers to assess how, how often and where restricted texts differ from open texts. The index includes both editorial choices in the reconstructed texts and variants in the textual notes. The model in this case would be extensive reviews of new editions that set out to list their distinct editorial choices.

Where OGL has not yet provided the necessary textual data, LOFTS editors will provide the textual data that they feel is necessary. In practice, this may lead to editions that look, in sections, very much like traditional editions of fragmentary authors. The excerpts that LOFTS editors create are available as open data and as part of an extensible authoring environment, where others can extend the LOFTS beginning and develop comprehensive coverage for works or

7

editions not yet available under an open license.

1. Perseids Platform for Editing and Annotating Fragmentary Works

The Perseids Platform is being developed by the Perseus Project and supports collaborative editing, annotation, and publication of born-digital editions of source documents pertaining to the field of Classics. Perseids is not one single application but an integrated environment built from a loose coupling of heterogeneous tools and services from a variety of sources. The development of the Perseids Platform was inspired and motivated by the work of several pre-existing projects: the Tufts Miscellany Collection at Tufts University,^[14] the Homer Multitext Project at the Center for Hellenic Studies,^[15] and the Papyri.info project^[16] [Almas-Beaulieu 2013]. The Son of SUDA Online (SoSOL) application sits at the core of the Perseids platform. SoSOL is a Ruby on Rails application,^[17] originally developed by the Papyri.info project, that serves as front-end for a Git^[18] repository of documents, metadata, and annotations. It includes a workflow engine that enables documents and data of different types to pass through flexible review and approval processes. The SoSOL application includes user interfaces for editing XML documents, metadata, and annotations. While it does not include a fully-featured XML editor, it supports alternative text-based input of XML markup, and can enforce XML schema validation rules on the documents being edited.

8

A key goal behind the initial development of the platform was to enable original undergraduate research in the field of Classics.^[19] The workflows related to encoding of text reuses and lost authors represent core use cases for the current phase of work on the platform [Almas-Berti 2013].^[20] In developing features of the Perseids Platform to support encoding of text reuses and lost authors, we are focusing first and foremost on the data. We expect that techniques for visually representing digital editions will change rapidly with technology. So, while our work includes demonstration presentation formats, our first priority is to enable scholars to create data about the authors, texts and related commentaries, annotations, links, translations, etc. in a way that encourages and facilitates its preservation and reuse. To this end, we have identified the following core data requirements:

9

- The ability to represent the texts themselves, links between them, and annotations and commentaries on them in semantically and structurally meaningful ways that adhere to well-accepted and documented standard formats.
- Stable, resolvable identifiers for all relevant data points, including:
 - lost authors and their works;
 - authors and extant texts that preserve quotations and text reuses of the lost works;
 - different editions and translations of the lost and extant texts;
 - named entities (e.g., persons, places, author and work names, and events) mentioned within the texts;
 - commentaries and annotations on the texts, from ancient times to the present day.
- The ability to group any of the data points into collections representing different contextual views of the data.
- The ability to accurately represent provenance information for data and workflows.

2. Digital Fragmenta Historicorum Graecorum (DFHG)

As a first step within LOFTS, the Humboldt Chair of Digital Humanities at the University of Leipzig is developing the *Digital Fragmenta Historicorum Graecorum* (DFHG) Project, whose goal is to create a digital edition of the five volumes of Karl Müller's *Fragmenta Historicorum Graecorum* (FHG) (1841-1870).^[21]

10

Karl Müller's FHG consists of a survey of excerpts from many different sources pertaining to more than 600 fragmentary authors. Excluding the first volume, these authors are chronologically distributed and cover a very long period (from the 6th century BC down to the 7th century CE). Fragments are numbered sequentially and arranged according to works and book numbers (when such information is available). Every fragment is translated into Latin. The first volume includes also the text of the *Marmor Parium* – with Latin translation, chronological table, and commentary – and the

11

Greek text of the Rosetta Stone (*Rosettanum*) – with a French literal translation as well as a critical, historical and archaeological commentary. The fifth volume includes a section with fragments of Greek and Syriac historians preserved in Armenian sources (in French translation).

While produced two centuries ago and superseded by the monumental edition of Felix Jacoby (*Die Fragmente der griechischen Historiker*), Müller's FHG is still a fundamental contribution to Greek fragmentary historiography.^[22] In particular, it is very suitable for providing rapid, broad coverage and an extensive foundation upon which a new generation of born-digital editions of fragmentary texts can build.

Müller's five volumes have been transcribed into a simple text format and are being converted into a TEI XML edition, where the excerpts become machine-actionable quotations that can be automatically aligned not only to the original source editions from which Müller drew but also to any other open editions.

As part of LOFTS, the DFHG Project uses the EpiDoc subset of the Text Encoding Initiative as its XML tagset. The original pages of Müller's FHG will be displayed to visualize the original layout. Digital Edition Guidelines (1.0) are publicly available and are contributing to the development of the guidelines of the EpiDoc community.^[23] The DFHG uses also the CTS/CITE Architecture and all data in DFHG will be available under a Creative Commons Attribution-ShareAlike license.

A catalog of all the fragmentary authors edited by Müller is being provided with Perseus Catalog Record Canonical URIs and detailed information about the progress of the encoding work.^[24] The DFHG Project is producing a large amount of annotations of text reuses on surviving sources, concurrently building a big survey of fragmentary authors and works, which are part of the Perseus Catalog.^[25]

New encoded authors are progressively added to the GitHub repository of the DFHG project, so that it is possible to follow the actual state of the digitization process.^[26]

3. Digital Athenaeus

The *Digital Athenaeus* project is producing a digital edition of the *Deipnosophists* of Athenaeus of Naucratis with multiple versions of the work and translations in multiple languages.^[27]

The *Deipnosophists* (Δειπνοσοφισταί, or *Sophists at Dinner*, in fifteen books), written by Athenaeus of Naucratis in the early 3rd century CE, is the fictitious account of several banquet conversations on food, literature, and arts held in Rome by twenty-two learned men. This complex and fascinating work is not only an erudite and literary encyclopedia of a myriad of curiosities about classical antiquity, but also an invaluable collection of quotations of ancient authors, ranging from Homer to tragic and comic poets and lost historians. Since the large majority of the works cited by Athenaeus is lost, this compilation can be considered a reference tool for scholars of Greek theater, poetry, historiography, botany, zoology, and many other disciplines.

Despite the importance of the *Deipnosophists*, we still lack a comprehensive survey of Athenaeus' citations, and many classicists have expressed the need for such a resource [Zecchini 1989] [Braund-Wilkins 2000] [Canfora 2001] [Lenfant 2007] [Jacob 2013]. The results of this investigation will not only allow us to better understand the modes of transmission of ancient literature at the time of Athenaeus, but also to generate a comprehensive list of authors and works mentioned by him, concurrently drawing a complete collection of citation schemes adopted in the stratified and multiform architecture of the *Deipnosophists*.

The primary goal of this project is to analyze the quotations of the learned banqueters with a twofold purpose: 1) provide an inventory of all authors and works cited in the *Deipnosophists*; 2) build a repository of quotation schemes used by Athenaeus when alluding to his sources of information. To this end, the first step of the project is to edit and annotate the TEI XML version of the *Deipnosophists* already available in the Perseus Digital Library (ed. Kaibel).

Given that the *Deipnosophists* is a gold mine of citations (the exact number remains uncertain), the secondary aim of

this project is to provide a case study for drawing a spectrum of quoting habits of classical authors and their attitude to text reuse [Olson 2006]. Athenaeus, in fact, shapes a library of forgotten authors, which goes beyond the limits of a physical building and becomes an intellectual space of human knowledge. By doing so, he is both a witness of the Hellenistic bibliographical methods and a forerunner of the modern concept of hypertext, where sequential reading is substituted by hierarchical and logical connections among words and fragments of texts [Genette 1997] [Landow 1997] [Bolter 2001].

The quantity, variety, and precision of Athenaeus' citations make the *Deipnosophists* an excellent training ground for the development of a digital system of reference linking for primary sources. In this sense, this project is consistent with the work that is currently being developed by the CTS/CITE Architecture, which proposes a machine-actionable but technologically independent notation for citing texts [Smith 2009] [Smith-Blackwell 2012] [Tiepmar et al. 2014]. In particular, the project is experimenting with the development of citable analyses for the annotation of quotations and text reuses in the text of Athenaeus using the CTS/CITE Architecture. A first set of citable analyses has been conducted on Homeric reuses in the *Deipnosophists* in collaboration with scholars and students at Furman University.^[28]

22

Athenaeus' standard citation includes (a) the name of the author with additional information like ethnic origin and literary category, (b) the title of the work, and (c) the book number (e.g., *Deipn.* 2.71b). He often remembers the number of papyrus scrolls of monumental works (e.g., 6.229d-e; 6.249a), while distinguishing various editions of the same comedy (e.g., 1.29a; 4.171c; 6.247c; 7.299b; 9.367f) and different titles of the same work (e.g., 1.4e). He also adds biographical information to identify homonymous authors and to classify them according to literary genres, intellectual disciplines as well as schools (e.g., 1.13b; 6.234f; 9.387b). He provides chronological and historical pointers, which help to date authors (e.g., 10.453c; 13.599c), and he often copies the first lines of a work following a method that probably dates back to the *Pinakes* of Callimachus (e.g., 1.4e; 3.85f; 8.342d; 5.209f; 13.573f-574a).

23

Last but not least, the study of Athenaeus' "citation system" is also a great methodological contribution to the domain of fragmentary literature, since one of the main concerns in this field is the relation between the fragment and its context of transmission. With this goal in mind, the textual analysis of the *Deipnosophists* will make it possible to enumerate a series of recurring patterns, including a wide typology of textual reproductions and linguistic features, which are instrumental to the identification and classification of hidden quotations of lost authors.

24

The work on the *Digital Athenaeus* is therefore focusing on:

25

- editing the TEI XML file of the *Deipnosophists*;^[29]
- annotating and conducting a systematic survey of the citations preserved in the fifteen books of Athenaeus' *Deipnosophists*;^[30]
- building a fully comprehensive repository of quotation schemes used by Athenaeus when alluding to his sources;
- providing linguistic annotations of the text of Athenaeus;^[31]
- running OCR on different editions of Athenaeus' *Deipnosophists*.^[32]

4. Digital Marmor Parium

This project is producing a new digital edition of the so called *Marmor Parium* (Parian Marble), which is a Hellenistic chronicle on a marble slab coming from the Greek island of Paros.^[33] The importance of the document is due to the fact that it preserves a Greek chronology (1581/80-299/98 BC) with a list of kings and archons accompanied by short references to historical events mainly based on the Athenian history. The project team is producing a new XML edition of the text according to the EpiDoc Guidelines, is encoding all the named entities mentioned in the inscription, including the place names, and is producing a timeline visualization of the chronological information preserved on the stone [Berti-Stoyanova 2014].

26

The *Marmor Parium* is the earliest example of this kind of document and it is a very valuable piece of evidence under many respects. It is not only a chronological record of Greek history, but it is also the result of a selection of events

27

made by its compiler, whose name is unfortunately lost (ll. 1-3). The importance of the text from a historiographical point of view is shown by the fact that the document is part of the *Fragmenta Historicorum Graecorum* by Karl Müller (FHG 1, 533-590) and of *Die Fragmente der Griechischen Historiker* by Felix Jacoby (FGrHist 239; Jacoby, 1904). In this sense, this evidence is a perfect example of a fragmentary author whose work is not preserved through quotations in later texts, but in a fragmented original form. Accordingly, the *Digital Marmor Parium* is part of the *Digital Fragmenta Historicorum Graecorum* (DFHG) project developed by the Humboldt Chair of Digital Humanities at the University of Leipzig.

Conclusion

LOFTS aims not only at producing an open series of Greek and Latin fragmentary authors, but also at building a new model for representing quotations and text reuses of lost works in a digital world [Berti et al. 2014-2015]. The ultimate goal is to produce dynamic excerpts from source texts and build an environment where fragments become multi-layered annotations of information concerning fragmentary authors and reuses of their lost works. These dynamic excerpts contribute to the production of a real multitext, where each version of the same text embodies a different step in its transmission and a reconstruction of philological conjectures [Blackwell-Crane 2009], and to the development of a collaborative environment for crowdsourced annotations that involve both scholars and students.

28

Notes

[1] <http://www.dh.uni-leipzig.de/wo/lofts/>

[2] For an overview on characteristics, advantages, and limits of print editions of fragmentary authors, see <http://demo.fragmentarytexts.org/en/istros.html> (with examples from [Berti 2009]).

[3] On the Ancient Greek and Latin Dependency Treebank 2.0, see <http://www.dh.uni-leipzig.de/wo/projects/ancient-greek-and-latin-dependency-treebank-2-0/>.

[4] An interesting example is offered by the Syriac collection of the so called laments of the philosophers at the tomb of Alexander. In this case the Greek text is lost, but the Syriac translation still preserves the Greek syntax of the original text [Brock 1970]. Monica Berti and Ute Pietruschka have been working on the Syriac text producing syntactic annotations of the laments and trying to reconstruct the Greek original text. A preliminary report of the work has been presented at the *4ème Colloque International Aliento. Énoncés sapientiels brefs, traductions, traducteurs et contextes culturels et historiques du Xe siècle au XVe siècle: les textes transmis à l'Occident*, (MSH Lorraine) - Paris (INALCO), 6-8 novembre 2012.

[5] <http://www.stoa.org/epidoc/gl/latest/>

[6] <http://www.homermultitext.org/hmt-doc/cite/index.html>

[7] <http://www.w3.org/TR/prov-o/>

[8] <http://hdl.handle.net/2142/30470>

[9] <http://www.openannotation.org/spec/core/>

[10] <http://www.w3.org/TR/html5/>

[11] <http://creativecommons.org/licenses/by-sa/4.0/>

[12] As far as concerns copyright terms in different countries, see http://en.wikipedia.org/wiki/List_of_countries%27_copyright_lengths

[13] <http://www.dh.uni-leipzig.de/wo/projects/open-greek-and-latin-project/>

[14] http://www.library.tufts.edu/tisch/ematlocalstorage/miscellany_collection/home.html

[15] <http://www.homermultitext.org/>

[16] <http://www.papyri.info/>

[17] <http://rubyonrails.org/>

[18] <http://git-scm.com/>

[19] This work was supported by grants from Tufts University, the National Endowment for the Humanities [grant HD-51548-12], and the Institute from Museum and Library Services. Funding from the Mellon Foundation is now allowing to expand the platform to support classroom-based collaboration on digital editions, beginning-to-end scholarly workflows, and the development of dynamic syllabi using the resources managed by the platform.

[20] For the fragmentary texts editor within Perseids, see http://perseids.org/sites/berti_demo/index.html. The source code is available in GitHub: <https://github.com/PerseusDL/lci-demo>. For the prototype functionality used by students of the Digital Philology course at the University of Leipzig in the Fall 2013, see <http://sites.tufts.edu/perseids/workflows/fragmentary-author-workflows/fragmentary-text-prototype-fall-2013/>.

[21] <http://www.dh.uni-leipzig.de/wo/dfhg/>

[22] On the collection edited by Felix Jacoby, see http://de.wikipedia.org/wiki/Die_Fragmente_der_griechischen_Historiker.

[23] The link is available at <http://www.dh.uni-leipzig.de/wo/dfhg/>

[24] The link is available at <http://www.dh.uni-leipzig.de/wo/dfhg/>

[25] <http://catalog.perseus.org/>

[26] <http://opengreekandlatin.github.io/dfhg-dev/>

[27] <http://www.dh.uni-leipzig.de/wo/digital-athenaeus/>

[28] See <http://digitalathenaeus.github.io/>. Citable analyses of the text of Athenaeus are collected in the GitHub repository of the project: <https://github.com/DigitalAthenaeus>.

[29] Regarding specific needs of Athenaeus' text see <http://www.fragmentarytexts.org/athenaeus/practical-problems-with-athenaeus-names/>.

[30] Work is currently being done on the surviving sources quoted by Athenaeus and this is a joint project with the Department of Classics and Religious Studies at the University of Nebraska-Lincoln.

[31] This is a joint project with the Department of Classics and Religious Studies at the University of Nebraska-Lincoln.

[32] This is a joint project with LACE Greek OCR Project at Mount Allison University: <http://heml.mta.ca/lace/>.

[33] <http://www.dh.uni-leipzig.de/wo/dmp/>

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