





#### **Commissioned Reviews**

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#### **COMMISSIONED REVIEWS**

## DM Reviews - June 2018

These are three reviews for Digital Medievalist, published in order of acceptance.

In the first review, Eleonora Litta reviews Bodard, Gabriel and Matteo Romanello's (2016) Digital Classics outside the Echo-Chamber: Teaching, Knowledge Exchange and Public Engagement. Digital Classics Outside the Echo-Chamber is mainly addressed to Digital Humanists. It showcases exciting methodological examples of the application of digital tools to the Humanities, and demonstrates their impact on pedagogy and public outreach.

In the second review, Traianos Manos reviews the online database ALIM: Archivio della Latinità Italiana del Medioevo. The Archive of the Italian Latinity of the Middle Ages (http://en.alim.unisi.it/), which aims "to provide free online access to all the Latin texts produced in Italy during the Middle Ages". After presenting Archive's new website, the review discusses issues in editorial approach, usability, digital tools available and more. It concludes that the Archive, wherein there are still opportunities for further enhancements, is one of the most important digital libraries of medieval Latin texts that exist today.

For the final review, Lisa Fagin Davis reviews Codicology and Palaeography in the Digital Age 4. Codicology and Paleography in the Digital Age 4 (henceforth CPDA4) continues the series of volumes that began with the proceedings of a 2009 conference, in this case combining solicited contributions to the proceedings of the "Machines and Manuscripts" conference organized under the auspices of the eCodicology project and held in Trier, Karlsruhe and Darmstadt, 2014-2016. Contributions are by senior and junior digital scholars, working alone or in teams, presenting works both in-progress and complete. CPDA4 thus functions as a "state of the field," focusing more on case studies and methodology than theory, demonstrating how the theoretical approaches of the previous volumes can be put into action. The editors have chosen to divide the volume into two sections, "Digital Codicology" and "Digital Paleography." Contributions are in English or German, with abstracts in both languages. Each contribution is accompanied by a detailed bibliography listing both printed and online resources.

**Keywords:** Classics; Digital Humanities; Pedagogy; Public Outreach; Italian Latinity; Medieval Studies; Italian Middle Ages; Medieval Latin Literature; Digital Editing; Digital Paleography; Digital Codicology

Bodard, Gabriel and Matteo Romanello (eds.). (2016). Digital Classics outside the Echo-Chamber: Teaching, Knowledge Exchange and Public Engagement. London: Ubiquity Press. Pp. 234. ISBN 9781909188617. £34.99.

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*Digital Classics Outside the Echo-Chamber* is mainly addressed to Digital Humanists. It showcases exciting methodological examples of the application of digital tools to the Humanities, and demonstrates their impact on pedagogy and public outreach.

In the last two decades, Classics has grown to be one of the most technically advanced humanities fields. Developments in the archaeological sciences and ancient geography, the availability of 3D reconstructions, digitized textual corpora from epigraphs to papyri, treebanks, morphological analyzers, and POS taggers for Ancient Greek and Classical Latin all signal the field's technological advance. Increasing popularity and quality of its scholarly outputs has combined to confer proper disciplinary status to the Digital Classics. Indeed, it is now difficult to imagine new research in the fields of Classics without the employment of some well-tested methodology involving the use of digital tools.

The volume under review collects a number of excellent contributions that explore the potentials of Digital Classics outside their comfort zone (what editors Gabriel Bodard and Matteo Romanello call their "echo-chambers"), either by applying their techniques to different contexts, or, by importing techniques from the sciences and applying them to the Classics. The book's final section continues its "outside the echo-chamber" approach by closing with three chapters that deal with how to better engage the general public and adapt Classics resources to be more easily accessible for a non-academic user.

The editors open their book with a detailed discussion of its aims and an introduction to the portal http://www.digitalclassicist.org/, with which Bodard has

been involved since founding it in 2004. The Digital Classicist website has become an important discipline-wide resource, collecting information about most digital classics projects, and also hosting a blog and a discussion list. Bodard and Romanello are also the active force behind the successful Digital Classicist seminar series that has been staged in London and Berlin for several years. Indeed, some of the papers contained in this volume were originally presented as works in progress during those seminars.

In their introduction, Bodard and Romanello stress our collective responsibility as scholars of the classics to communicate to the wider public the importance of the outcomes of our work. In their view, classicists need to engage students in new and stimulating ways that keep pace with the rapid development of technologies offered by the world outside academia, urging that we must find ways of applying their techniques, even if seemingly distant from our subject, to resolve questions and problems that are still unanswered and unsolved. The book is divided into three main sections: 1) Teaching, 2) Knowledge Exchange, and 3) Public Engagement, each reflecting the editors' overarching theme of the need for open access to digital resources.

Section 1, *Teaching*, consists of five chapters stressing not only how digital projects have broadened our knowledge of the classics, but also how they have recast the role of students and other non-experts from being more or less passive recipients of that knowledge from their teachers into one in which they can now be part of the resource building process.

Chapter 1, "Learning by Doing: Learning to Implement the TEI Guidelines Through Digital Classics Publication" by Stella Dee, Maryam Foradi and Filip Šarić, focuses on how adult learners with existing knowledge in the humanities, specifically in the field of Classics, can approach and learn the TEI guidelines for the encoding of structured data in XML in a digital (online) environment. It includes a short digression on the history of learning methods, from 'chalk-to-talk,' to class discussion, and to more recent digital learning approaches for students of higher education. The chapter emphasizes that classicists need only to learn about TEI in relation to their particular activities or projects.

Chapter 2, "Open Education and Open Educational Resources for the Teaching of Classics in the UK" by Simon Mahony, explores lessons learned about the potentials of Open Educational Resources (OER) during the conduct of three projects aimed at the creation, use, and re-use of online educational resources for the teaching of Classics. This chapter dwells on the lack of OERs for Classics and regrets how the state of the art in this area is still palpably behind that of other disciplines.

Chapter 3, "Epigraphers and Encoders: Strategies for Teaching and Learning Digital Epigraphy" by Gabriel Bodard and Simona Stoyanova, contains a history of EpiDoc training that lays out how this practice evolved over time to include what is currently being taught in free EpiDoc training sessions. This narrative is accompanied by observations about how the teaching of EpiDoc and Epigraphy can be compared, where they overlap, and whether they indeed can be brought together in a unique teaching module keyed to future Epigraphy instruction.

Chapter 4, "An Open Tutorial for Beginning Ancient Greek" by Jeff Rydberg-Cox, describes an online tutorial of Ancient Greek targeted to non-specialists based on the digitization of a 19th century Ancient Greek reader into HTML. Users of this resource can follow their learning progress by taking a series of multiple-choice quizzes while their interest is stirred by a gamification environment. The author exposes data on the hits received by his website (15,178 visitors visited the website 58,137 times in 2014 alone), and argues that the popularity of his resource proves that people are still interested in Classical subjects. According to Rydberg-Cox, digitized material is useful for spreading information to audiences that would otherwise not be able to access Classical knowledge.

On the opposite spectrum of Ancient Greek and of language resources expertise, Chapter 5, "The Ancient Greek Dependency Treebank: Linguistic Annotation in a Teaching Environment" by Francesco Mambrini, argues that employing manual linguistic annotation in the classroom, specifically the Ancient Greek Dependency Treebank, can be very effective in the teaching of Ancient Greek syntax. Mambrini also argues that hands-on work helps students become familiar with Ancient Greek philology. He compares meticulous annotation in a controlled environment to a

form of close reading that helps students learn about Greek civilization, as well as morphology and syntax.

Section 2 of *Digital Classics outside the Echo-Chamber* focuses on *Knowledge Exchange*, which it defines as the practice of bringing together experts from different disciplines in order to advance science.

In Chapter 6, "Of Features and Models: A Reflexive Account of Interdisciplinarity across Image Processing, Papyrology, and Trauma Surgery", Ségolène Tarte discusses how intricacies and difficulties can be anticipated in multi-disciplinary projects. Drawing on her experience in applying image processing expertise to both papyrology and trauma surgery, Tarte underscores the value of a practitioner's full awareness of differences between fields, be they in the meaning of certain crucial words (e.g. feature, models...) or in field-specific epistemologies, while raising the crucial need for more effective communication strategies than those currently in place.

Chapter 7, "Cultural Heritage Destruction: Experiments with Parchment and Multispectral Imaging" by Alberto Campagnolo, Alejandro Giacometti, Lindsay MacDonald, Simon Mahony, Melissa Terras and Adam Gibson, deals with the benefits of multispectral imaging when handling degraded parchment. Campagnolo et al. describe a cultural heritage project involving three distinct disciplines (medical physics, image science, and manuscript conservation), wherein medical physics phantom images are used to model damage to manuscripts and multispectral imaging is applied to better understand this damage macroscopically. The authors point out how experience accrued during their project could be beneficial to other branches of conservation, thereby demonstrating again the value of looking outside the echo-chamber.

In Chapter 8, "Transparent, Multivocal, Cross-disciplinary: The Use of Linked Open Data and a Community-developed RDF Ontology to Document and Enrich 3D Visualization for Cultural Heritage," Valeria Vitale addresses the use of standardized methods like Linked Open Data (LOD) for the classification of 3D objects. 3D visualizations of cultural heritage comprise a field that still lacks common methods or standards. Vitale proposes an appropriate methodology

based on the use of Linked Open Data and a dedicated ontology developed by the community. She also advocates for more transparency in 3D outputs and for the need to connect 3D projects to other linked digital resources, making them searchable and indexable.

The scope of the chapters in Section 3 of Bodard and Romanello's book lies outside the echo-chamber. All three focus on *public engagement* and *crowdsourcing*, on strategies and implications of making knowledge of the Classics accessible to people outside academia, and on how to engage the public in creating content. All three contributions present big platforms that provide accessible content but that also require input from the public in the form of annotations, transcriptions, as well as other interactions.

Chapter 9, "The Perseids Platform: Scholarship for all!" by Bridget Almas and Marie-Claire Beaulieu, describes the collaborative editing platform Perseids, which gives all users the opportunity to contribute to the editing and annotating of ancient texts, and vets these crowdsourced contributions through a competent editorial board. The project is a successful and tested example of crowdsourcing for scholarship, and, like Chapter 5, demonstrates the value of using digital classics resources in the modern classroom.

In Chapter 10, "Engaging Greek: Ancient Lives", James Brusuelas describes the crowdsourcing website Ancient Lives, a collection of 1.5 million transcriptions of unedited Greek papyri. The website allows the simultaneous transcription of the same portion of text by different users and employs an algorithm modeled on DNA sequence alignment in bioinformatics to effectively "collate" different interpretations and create new editions of previously unread papyri.

The closing chapter of Bodard and Romanello's collection, "Ancient Inscriptions between Citizens and Scholars: The Double Soul of the EAGLE Project" by Silvia Orlandi, presents the EAGLE (Europeana network of Ancient Greek and Latin Epigraphy) project, which aims to make Ancient Greek and Latin inscriptions more accessible to academics, and the general public alike, through the use of two purpose-developed mobile applications. The chapter ends on a note that summarizes the message of the whole section: making information and interactive resources accessible to all

helps to spread knowledge even as it raises public awareness of the importance of preserving our cultural heritage.

All chapters include extensive bibliographies and color images. The book comes in an elegant hardback format or can be downloaded from the web for free at http://www.ubiquitypress.com/site/books/10.5334/bat/.

Digital Classics outside the Echo Chamber is dedicated to the memory of Sebastian Rahtz (1955–2016), "scholar, archaeologist, humanist, geek", whose premature demise left many in the field of Digital Humanities hungry for more of his genius.

# ALIM: Archivio della Latinità Italiana del Medioevo. Accessed October 20, 2017. http://en.alim.unisi.it/

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The Archive of the Italian Latinity of the Middle Ages (ALIM) was born in the 1990s as a digital database, wherein the material provided by the momentous dictionary Latinitatis Italicae Medii Aevi inde ab a. 476. usque ad a. 1022, edited by Francesco Arnaldi and Pasquale Smiraglia (2001), would be integrated, enriched and completed. But, as time passed, the project's desiderata went far beyond this initial goal to such an extent that, today, ALIM's basic aim is "to provide free online access to all the Latin texts produced in Italy during the Middle Ages" [emphasis added], from the 8th to the 15th century, according to the project's description. In other words, the Archive aspires to be the largest digital library of Latin texts of the Italian Middle Ages that has ever existed. Undoubtedly, this is an ambitious goal set by a highly promising project.

ALIM's importance lies in the fact that it does not only "include digitized editions of previously edited texts, but it also promotes and funds new digital-born [sic] editions and first transcriptions of unpublished texts, as well as works considered particularly relevant to the study of [the] Italian medieval Latin culture". This means that apart from being a digital library of already existing printed critical editions, the

*Archive* aspires to realize a digital paradigm and to become a continuous workshop on digital editing, in which new texts will be constantly edited, while, in parallel, new tools in digital humanities will be put into practice.

The project has been financed by various Italian entities and institutions, such as the National Research Council (CNR), the National Academic Union (UAN) and the Ministry of Education, Universities and Research, while six different Italian universities and 33 collaborators are currently working on it. It is supervised by six academics respectively and coordinated by one of them at the national level (professor Edoardo d'Angelo, from the University of Naples "Suor Orsola Benincasa", has held this position since 2017). A full list of the universities and collaborators involved, with contact information, is provided on the site. Due to its aims, it seems that there is an established, strict and more than expected connection between the ALIM and the aforementioned *Dictionary of Medieval Latin* (*Dizionario del Latino Medievale*), an ongoing project run by the National Academic Union of Italy; a strong "alliance" which also aspires to make a substantial contribution to the *Dictionary of Medieval Latin*, promoted by the International Union of Academies of Brussels, a collective work that will incorporate all the national homonymous dictionaries of Europe available (Union Académique Internationale, 2015).

ALIM's website, now hosted by the University of Siena, was totally renewed recently (previous version, known as ALIM1, is still online [http://www.alim.dfll.univr. it], but it is not being updated anymore); new features were added and the English language option is now available. Unfortunately, no publication or update dates are yet provided, while the new version is still accessible from two different urls, the old one (http://www.alim.dfll.univr.it), which seems to host the two different versions simultaneously, and the new one (http://en.alim.unisi.it/). Moreover, looking for the project on the web is a hard task, unless its Italian title is searched for (neither the English one, nor the abbreviation ALIM, nor keywords in English).

The decision of passing to ALIM2 was followed by a second important and future-proof decision regarding the markup language: the switch from HTML to XML. Additionally, ALIM2 uses Muruca framework (http://www.muruca.org/), composed by various models that permit data authentication and database management (Backend module, using Symphony and Doctrine), content publishing (CMS, using

WordPress), metadata processing and indexing (Solr), TEI-XML document conversion in html, pdf and txt formats (OxGarage) etc. Detailed information on ALIM's architecture can be found in the project description section, available only in Italian.

The new homepage is well presented, offering a simple, usable and efficient navigation structure, permitting the user to easily identify the principal scope of the project and the main access methods offered (**Figure 1**). Nevertheless, aesthetical enrichment of the interface and/or modernization would be highly

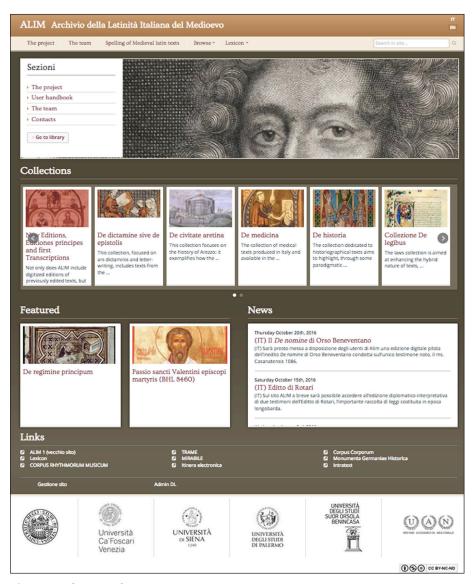


Figure 1: The ALIM homepage.

appreciated. The main navigation bar is placed across the top of the page, where text links concerning "The project", "The team" and the "Spelling of Medieval Latin texts" lead to detailed and important information: the first one leads to a short description of ALIM's history, context, aims and structure (details on the last one are available only in the Italian version), while the second provides a full list of all the collaborators involved in the project. The "Spelling of Medieval Latin texts" is a short and useful guide to the pronunciation, the phonetic and spelling variants, and the transcription of medieval Latin, given the non-standardized medieval spelling system and the various editorial practices represented in ALIM's printed sources. "Browse" and "Lexicon" options, which are detailed below, as well as the search box, have been positioned here too.

A second menu, vertically down on the left side of the page, follows, accompanied by an image rotator (which should be enriched, for it only displays a couple of images). Part of this second menu overlaps the main one, since links to "The project" and "The team" are positioned here as well. The "User handbook", the "Contacts" and the "Go to library" links complete this section. A slider in the middle of the page provides links to comprehensive descriptions of the nine different "Collections", in which a part of the available texts is categorized. A banner that presents texts of particular interest, rare or unpublished, indicated as "Featured", and a second one with scrolling "News" (the last entry dates back to October 2016) follow. A "Links" bar for related projects and a footer containing the project's partners (Basilicata's logo is missing) complete the ALIM's homepage. Between them, two text links can be found, the "Gestione sito" (Site Management) and the "Gestione digital library" (Digital Library Management), which, in addition to the "Manual for collaborators", available under "User handbook", seem to designate a probable transition from an open access to an open source model. If this assumption proves to be true, ALIM's team should give prominence to such a crucial constitutional alteration, for which no clear and direct reference is to be found on the page. In what follows, I will briefly refer to some of these features, focusing mainly on those I regard as the most important.

The "User handbook" provides basic information concerning the different parts of the ALIM and includes a "Manual for Collaborators", where guidelines for the

encoding of the texts to be incorporated into, or already included in, the database are given. ALIM's encoding in TEI-XML P5 (http://www.tei-c.org/Guidelines/ P5/) consists of three different levels, the basic, the middle and the advanced. The first one relates to the "structural encoding with a minimum amount of semantic elements", the second "includes a layer of semantic elements to be fixed (in particular: personal names, place names, dates, etc.), which will be added to the ALIM documents when deemed necessary", while the third "includes a layer of editorial elements (abbreviations, corrections, critical notes, etc.) to be added in the future when possible (i.e. in the case of editions whose copyright is in our possession or has expired). Apparently, these elements will be already present in critical editions produced ex novo". The manual, as a generic insight into the project's encoding principals, is quite helpful, but there is still much to be done to this direction, since a lot of methodological issues have not been thoroughly and decisively treated yet. (It should be noted here that, once again, the Italian version of this section, entitled "Documentazione", offers more data than the English one: namely, a TEI scheme in .rng and a TEI header template.)

Today (last visit: October 20, 2017), the database contains millions of different texts, available under a Creative Commons licence, divided in two main categories: literary sources and documentary sources. The texts of the former belong to various genres: comedy, epic poetry, historiography, lyric poetry, natural science, philosophy, rhetoric, theology etc. Works such as the *Africa* (Franciscus Petrarca), the *Annales Pisani* (Bernardus Marango), the *Ars brevis* (Raimundus Lullus), the *Chronicon* (Ryccardus de Sancto Germano), the *Diaffonus* (Iohannes de Virgilio), the *Dialogus* (Gerius Aretinus), the *Flores Rhetorici* (Albericus Casinensis), the *Introductiones prosaici dictaminis* (Bernandus Magister), the *Liber de temporibus et etatibus. Continuatio Regina et Cronica Imperatorum* (Albertus Miliolus), the *Vita scolastica* (Bonvesinus de Ripa), the *Ysagoge* (Boncompagnus de Signa) and dozens of works by Pier della Vigna are available online as a result of two decades of editorial work within ALIM. However, this significant collection lacks a description and/or a justification of the editors' choices, as far as text selection is concerned. In other words, it remains unclear whether there are specific, defined and strict criteria concerning the corpus

formation, which, at the same time, serve specific aims and indicate a methodological pathway to be followed, or the choice is made on the basis of easy access to the material.

The texts are reproduced following their critical printed edition, without any kind of modification on the part of the research group, or are directly digitally edited *ex novo*. According to the goals described in the "Manual for collaborators", the critical apparatus of the printed editions (when available) is reproduced too, when the author's rights have expired, while the born-digital editions are in any case accompanied by an apparatus. However, by performing a random search within the "Literary Sources" the results indicate that the available apparatuses will be very few or, most likely, none. Moreover, in the absence of guidelines for the new born-digital editions, it remains to be seen whether the users can give much credence to the *ex novo* edited texts. Consequently, a pithy note, where the editorial principles regarding the new born-digital editions are clearly explained, would not be, obviously, anything but unnecessary.

Many of the texts included in the database are grouped into nine categories, the main role of which is to offer a kind of an anthology to the user, by incorporating texts of the same theme and/or genre (a link to each text is provided in the banner entitled "The documents", on the right of the page). Due to its strong anthological character, this section could be of great importance as far as focused research or educational purposes are concerned. The nine categories are the following:

1. "New Editions, Editiones principes and first transcriptions", where every new important edition added to the database is presented. In my opinion, this is quite a problematic choice, since it is more a section where new editions of all genres and themes are presented rather than a particular, defined category. Moreover, no documents are available here yet. This category could reasonably be merged into the "Featured" banner of the homepage, or form a separate section. Texts such as the *Liber Inferni* of Dominicus Bandinus or the *Summula dictaminis* [...] of Guido Faba will be presented here;

- 2. "De dictamine sive de epistolis", which includes texts of the epistolary and rhetorical genres (the forth and the last link are broken). An "Epistola" by Peregrinus de Castello, the "Epistola ad Petrum Panormitanum ecclesie thesaurarium" by Hugo Falcandus and the "Epistola episcopi ad papam pro fidelitate imperatoris" by Gerardus episcopus Bononiensis are included in this category;
- 3. "De civitate aretina" is a collection of texts treating the history of the town of Arezzo, such as the *Liber mitis* by Guido Aretinus and an anonymous *Historia custodum Aretinorum*;
- 4. "De medicina" is a collection of medical texts, among which are the *De balneis puteolanis* by Petrus de Ebulo and an anonymous *De more medicorum*;
- "De historia", where important historiographical works, such as the *Annales Pisani* by Bernardus Marango, the anonymous *Chronicon novaliciense* and the *Rerum Sicularum libri* by Saba Malaspina are included;
- 6. "De legibus", in which law texts (in the broader sense of the word, as conceived in the Middle Ages) are presented. The *Tractatus positionum* attributed to Martinus de Fano, the *Costitutiones Romandiolae* by Iohannes de Appia and the anonymous *Assise regum regni Siciliae* are some of the texts in this collection;
- 7. "De natura rerum" is an anthology of texts regarding natural sciences, such as the work *Liber medicaminis* by Gerardus Falconarius;
- 8. "De itineribus", which includes texts related to the pilgrimage to holy sites and to the evangelical mission. The *Liber peregrinationis* by Iacobus Veronensis and the *Historia Mongalorum* by Iohannes de Plano Carpini are the two texts that comprise this category;
- 9. lastly, the "Documentary Sources" complement and supplement the Literary Sources available on the ALIM website. This section was created to present Medieval Latin in its many forms, and is the result of the link between the ALIM project and the *Lexicon Latinitatis Italiae*

Medii Aevii. Here, there are texts such as the Codex Diplomaticus Cavensis. Despite the justification of such a choice, it would be better if this section was not presented amongst the other categories, but as a potential — and rather useful — tool. The texts included here (incidentally, all of the links to the texts provided here are broken) do not belong to the general category of "Literary sources" (they may complement and supplement them, but without being an integral part of them), as the rest of the aforementioned "Collections" do. Moreover, the corpus of this last category is of great importance (to which prominence should be given), since it renders ALIM the richest digital library of both literary and documentary sources of Italian medieval Latinity.

Apart from the aforementioned categories, in which only a small part of the available texts is represented, ALIM's basic search tool is the "Browse" option, which provides the user with full access to all the available material, organized by author ("List of authors" at the "Browse" dropdown menu), work ("List of works"), or source type ("Literary sources" and "Documentary sources"). The first list, consisting of 4,007 records, contains all the authors (including anonymous ones) in alphabetical order, while the second, consisting of 738 records, does the same for all the works available. The last two sections offer a variety of search options through filters for author, title, type, period, genre and collection (for the first list) and corpus, period, place and collection (for the second list). The "Literary sources" (accessible also from the "Go to the library" link, positioned on the second menu of the homepage) consist, up to now, of 738 records, while the "Documentary sources" of 3,269. Moreover, in both of them, two different options are given to the user to search within the complete text corpus: the advanced search and the proximity search, where jolly characters and boolean operators can be used too. Once a text is chosen, the user can either browse it on the site or download it in txt, pdf, xml or html formats. Every single work is accompanied by a short bio-bibliographical note, where information concerning the text, the bibliographical references and the encoding level is given (Figures 2, 3 and 4).

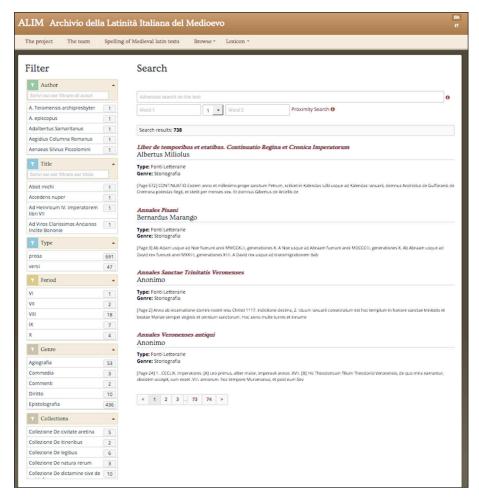


Figure 2: Browsing the Literary Sources.

A second valuable tool that the site offers to the user is the "Lexicon", a free-access software developed by Luigi Tessarolo (http://www.lexicon.unisi.it/public/index/index), which enables the creation of textual corpora and performs statistical linguistic analysis. By clicking on one of the five options in the drop-down menu of the "Lexicon" link, the user is given the possibility to lemmatize a text ("Lemmatize"), to create words or phrase frequency tables ("Frequencies"), to compare the vocabulary of two or more works ("Comparisons"), to "find groups of two words or lemmas recurring in the same text more than one time" ("Collocates") and to create concordances ("Concordances"). Each of these possibilities offer a wide range of extremely useful options, among which are the creation of grammatical tables, the

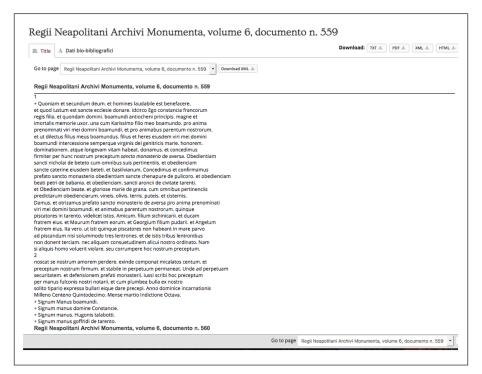
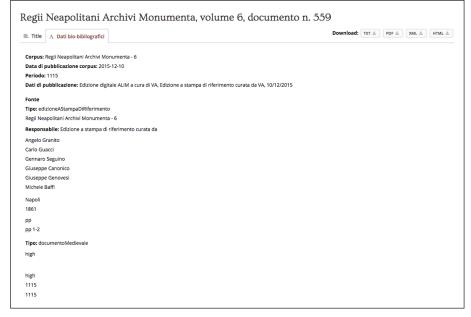
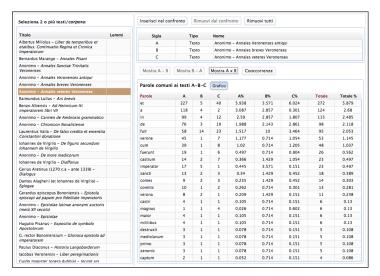


Figure 3: Regii Neapolitani Archivi Monumenta, v. 6, doc. n. 559, text.



**Figure 4:** Regii Neapolitani Archivi Monumenta, v. 6, doc. n. 559, bio-bibliographical note.

disambiguation of selected forms and the graphical representation of the outputs. Under both "Browse" and "Lexicon", useful, informative help texts are available (only in Italian) to the user (**Figures 5** and **6**).



**Figure 5:** A vocabulary comparison of three different texts.



**Figure 6:** The graph of the aforementioned (fig. 5) vocabulary comparison.

The number of the available works in association with the browsing options and the Lexicon tool makes ALIM one of the most important digital libraries of medieval Latin texts that exist today. However, there is still room for experimenting and further improvement. Apart from what has already been mentioned above:

- the few parts of the site still available only in Italian should be translated into English;
- the parts of the two main menus which overlap should be integrated;
- the "News" banner, where the last entry dates back to October 2016, giving an impression of abandonment, should definitely be updated regularly;
- if the reference to "all the Latin texts produced in Italy during the Middle Ages" [emphasis added], which the project aspires to incorporate and make available online, is not a mere rhetorical device, it should be explained to the user what this "all" could mean in numbers, based on which resources one can enumerate them (even approximately), and if such an established goal is a realistic one;
- · ALIM's editorial principles for the new born digital editions should be made available to the user;
- the bio-bibliographical note, which accompanies every text, should provide more information regarding the author (a brief biography, for example, would be rather useful), the text (diffusion, influence, codicological and/or paleographical data, etc.) and the relevant bibliography (editions, studies, etc.);
- · a blog and/or a consistent presence in social media could effectuate not only a much wider diffusion of the project to a wider audience, but also a much more intensive dialogue with the scientific community;
- the possibility, finally, to provide more images of the manuscripts, or, even better, to fully equip certain works with the complete manuscript's

images, should be seriously taken into consideration. All the more so, in view of the strict relationship between the *Archive* and EVT (Edition Visualization Technology, http://evt.labcd.unipi.it/), an open source software that creates web-based editions from XML-encoded texts, such a possibility would enable, for instance, a double screen view, with a reading text on the left and a manuscript image on the right of the screen, or the comparison between a diplomatic transcription, a normalized version and the manuscript. In spite of the fact that the development of EVT was sponsored by ALIM (at least according to the project's description), the latter has not taken advantage of this valuable tool yet.

There is no doubt that ALIM, this "digital incunabulum", accomplishes its original aim, making a significant contribution to the diffusion of the medieval Latin written culture and to the promotion of Digital Humanities. Due to its 20-year life, it could constitute an ideal case study of the history of Digital Humanities, while it could be used as a useful and easy-to-use tool for educational purposes as well. Having already presented its credentials and redefined its scopes, ALIM, always aiming to be compelling both to the specialist and the layman, should now strive "to provide free online access to all the Latin texts produced in Italy during the Middle Ages" in the best possible way.

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Kodikologie und Paläographie im digitalen Zeitalter 4/Codicology and Palaeography in the Digital Age 4. (2017). Schriften des Instituts für Dokumentologie und Editorik 11, edited by Hannah Busch, Franz Fischer, Patrick Sahle, in collaboration with Bernhard Assmann, Philipp Hegel, Celia Krause. Norderstedt: Books on Demand. ISBN 978-3-7448-3877-1. €39 at bookstores, electronic version [PDF] free at http://kups.ub.uni-koeln.de/7774/

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Codicology and Paleography in the Digital Age 4 (henceforth CPDA4) continues the series of volumes that began with the proceedings of a 2009 conference, in this case combining solicited contributions to the proceedings of the "Machines and Manuscripts" conference organized under the auspices of the eCodicology project and held in Trier, Karlsruhe and Darmstadt, 2014–2016. Contributions are by senior and junior digital scholars, working alone or in teams, presenting works both in-progress and complete. CPDA4 thus functions as a "state of the field," focusing more on case studies and methodology than theory, demonstrating how the theoretical approaches of the previous volumes can be put into action. The editors have chosen to divide the volume into two sections, "Digital Codicology" and "Digital Paleography." Contributions are in English or German, with abstracts in both languages. Each contribution is accompanied by a detailed bibliography listing both printed and online resources.

Introduction: The editors' introduction lays out the background and conceptual framework for the volume, enumerating several recurring themes: collections (of images or data); manuscript description (metadata or codicological visualization); character recognition (digital paleography and transcription); paleographical classification; dating and philology; and materiality. These themes intersect across multiple contributions, showing the complexity and layering of these digital disciplines (see pp. XI–XIII). Strands that cut across all contributions include issues

of visualization, coding, new annotation tools and technologies, discoverability, and the fundamental – and not entirely yet resolved –issue of date normalization.

Digital Codicology: The first section of the volume presents five projects that focus on the structure of books. "eCodicology: The Computer and the Mediaeval Library," by Hannah Busch and Swati Chandna, describes their ongoing efforts to apply image recognition to digital manuscript images in order to create datasets pertaining to layout and other codicological features. "Image and Text in Numbers: Layout Analysis for Hispanic and Spanish Modern Magazines," by Nanette Rißler-Pipka, applies similar methodologies to modern Hispanic and Spanish periodicals. "Bibliotheken im Buch: Die Erschließung von privaten Büchersammlungen der Frühneuzeit über Auktionskataloge," by Hartmut Beyer, Jörn Münkner, Katrin Schmidt, and Timo Steyer, presents a case study of bibliographic metadata and visualizations taken from a 1670 catalog of a private collection. "The Legendary Legacy: Crunching 600 Years of Saga Manuscript Data," by Matthew Driscoll, reports the results of a project that ran from 2011–2014, collecting data, creating TEI records, and running a comparative analysis of the entire thousand-manuscript corpus of a particular Icelandic saga (Fornaldarsögur Norðurlanda), using the data to study the transmission of the Saga (the data, images, and analysis are online here: http://www. fasnl.ku.dk/). The final piece in the first section is the only contribution that focuses on a tool, as opposed to a results-based project: "VisColl: A New Collation Tool for Manuscript Studies," by Dot Porter, Alberto Campagnolo, and Erin Connelly. VisColl is a tool that allows users to build visualizations of manuscript collations, combining images with collation statements and visualizing disbound bifolia (full disclosure: I have used VisColl in my own work and find it incredibly useful). The project is still in development, and the open source code is currently being adapted by the University of Toronto as part of their suite of "Digital Tools for Manuscript Study" (https:// digitaltoolsmss.library.utoronto.ca/).

Digital Paleography: The second section of the volume presents eight projects that focus on the script written on the page rather than on the page itself. As a group, these contributions are more aspirational than resultant. The first essay, "Advances in Handwritten Keyword Indexing and Search Technologies," by Enrique

Vidal, presents a case study using "computer-assisted transcription" to enable direct keyword searches of manuscript images, bypassing the intervening human effort of transcription. "Tracing: A Graphical-Digital Method for Restoring Damaged Manuscripts," by Dariya Rafiyenko, presents a method of manually re-tracing and re-drawing the contours of a script with a stylus on a touchscreen, with the tracing saved in its own layer. "Automatable Annotations - Image Processing and Machine Learning for Script in 3D and 2D with GigaMesh," by Bartosz Bogacz and Hubert Mara, presents a method of combining advanced image processing with machine training to recover an image-inscribed text on ceramics, tablets, and seals, by increasing the contrast between surface and inscribed (or raised) features and enabling – to some extent – machine-readability. "Automatic Dating of Historical Documents," by Vincent Christlein, Martin Gropp, and Andreas Maier, presents the results of an image-based analysis of script in a control group of Papal charters covering 150 years, using machine-learning to teach a computer to estimate a date of production. The article is fairly heavy on technical details and mathematical formulae and is not easily comprehensible for non-experts. The next article, "Some Roads to Script Classification: Via Taxonomy and Other Ways," by Torsten Schaßan, is more theoretical, initially presenting a very thorough survey of the development of paleographical terminology and taxonomy before laying out a proposal to use automated image analysis of particular script features to create a new method of taxonomic classification of script. "Phenetic Approach to Script Evolution," by Gábor Hosszú, is a rather astonishing application of phylogenetics to ancient scripts, demonstrating how ancient inscribed languages can be analyzed and relationships between them diagrammed using dendogrammatic visualizations. This strikes me as extremely important research that should be seen by other paleo-linguists and that, in the context of this volume, might not get the circulation it deserves. The next essay, "Prolegomena zu einer digitalen Paläographie des Hieratischen," by Svenja A. Gülden, Celia Krause, and Ursula Verhoeven, is more theoretical than practical, proposing ideas and directions for future digital analyses of hieratic characters and hieroglyphs. Finally, "MEI Kodierung der frühesten Notation in linienlosen Neuman," by Inga Behrendt, Jennifer Bain, and Kate Helsen, is a progress report on the Optical

Neume Recognition Project (essentially OCR for neumatic notation), using as a test case St. Gall's 10<sup>th</sup> c. Harker Antiphoner. The authors have developed an adaptation of TEI for neumatic notation that tags neume-type, octave, and note. Admittedly, the system is difficult to apply to unheightened St. Gall neumes, since they record relative pitch. The authors have encountered some of the same issues described by other contributors working with computerized image recognition: it is difficult for a computer to identify slightly variant neumes as representing the same series of relative notes, or vice versa.

The methodologies and results presented in the volume are of mixed success. Some are extremely novel and impressive (such as "Phenetic Approach to Script Evolution"), others are more low-tech (such as "Bibliotheken im Buch," which uses an Excel spreadsheet to create visualizations, and "Tracing," which relies on manual stylus-work). The advantage of these less breath-taking methodologies, of course, is that they are easily accessible and adaptable by other scholars, especially those without massive amounts of funding for research and development. The division into two sections on Codicology and Paleography is important and justifiable, but within those sections, the reader ricochets from contributions that are purely theoretical and aspirational to limited case studies and to demonstrably finished products, in no particular order.

Even though most readers will come to the volume to read about particular projects, it is worth reading CPDA4 straight through to glean the common themes that emerge. The most successful projects thus far are those that use a computer to take on tasks that humans simply can't do (such as quickly analyzing and visualizing massive amounts of data). Clearly, we have reached a point in digital humanities where we understand how to use a computer to supplement human ability. Many of the unfinished projects admit to – and are working to address – the difficulties encountered in teaching a computer to do something that humans already do well, such as transcribing medieval manuscripts, distinguishing between script types, or judging the date of a hand using paleographic analysis. What those tasks have in common is their imprecise nature. OCR is most successful, for example, when applied to modern typeface. Projects that apply modified OCR algorithms to hand-produced

glyphs, text, or musical notation continue to find themselves somewhat stymied by the chasm between a computer's fundamental need for precise mechanized input and the reality of imprecise human output. To push the metaphor, the bridge over that chasm is under construction, as several of these contributions demonstrate. It is to be hoped that the next volume of the series will present the demonstrated results of these efforts.

## **Competing Interests**

The authors have no competing interests to declare.

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