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*The Coptic Book: Codicological Features,
Places of Production, Intellectual Trends*



Morcelliana

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1. Contributi

1.1 Sezioni monografiche

1.1.1 The Coptic Book: Codicological Features, Places of Production, Intellectual Trends

Introduction

by
Paola Buzi

The theme section of this issue of *Adamantius* collects the proceedings of the international conference *The Coptic book between the 6th and the 8th centuries: codicological features, places of production, intellectual trends* (Rome, “Sapienza” Università di Roma – Academia Belgica, 21-22 September 2017)¹, organized within the scientific activities of the ERC project “PATHs - Tracking Papyrus and Parchment Paths: An Archaeological Atlas of Coptic Literature. Literary Texts in their Geographical Context: Production, Copying, Usage, Dissemination and Storage”, plus two more contributions – respectively dedicated to the Coptic version of the letter of Athanasius to the monk Dracontius, transmitted by a horizontal roll, and to the Coptic tradition of John Chrysostom’s homilies on the Epistle to the Hebrews – that, although exceeding the chronological limits dealt with the conference, are extremely relevant for the reconstruction of the development of the Christian Egyptian book and literary tradition.

It is important to stress that the term ‘book’ is meant here both as a material object – with its specific codicological and palaeographic features –² and as a carrier of texts and intellectual products. Moreover, it must be clear that the adjective “Coptic” is used in this context to refer to the entire Late Antique Christian Egyptian book production, therefore written also in Greek, and not only to books that transmit texts in the Coptic language.

The choice of dedicating a conference – the first of the “PATHs” project – to the book production between the 6th and the 8th centuries was not fortuitous: despite the important recent progresses made in the understanding of this period of the history of the Coptic book³ – and of the book in general, since Egypt can be considered a real laboratory of the physical features of codices, in terms of formats, quire systems, bookbindings, combination and arrangement of texts –, much remains to be clarified and explored, such as the nature of

¹ ERC Advanced Grant (2015) project n° 687567, hosted by “Sapienza” Università di Roma (paths.uniroma1.it; <https://atlas.paths-erc.eu>). See P. BUZI, *Tracking Papyrus and Parchment Paths: An Archaeological Atlas of Coptic Literature: Literary Texts in Their Geographical Context; Production, Copying, Usage, Dissemination and Storage (PATHs)*, *Early Christianity* 8 (2017), 507-516; P. BUZI – J. BOGDANI – N. CARLIG – M. GIORDA – A. SOLDATI, “*Tracking Papyrus and Parchment Paths*”: A New International project on Coptic Literature, *Rivista del Museo Egizio* 1 (2017) [<https://rivista.museoegizio.it/>]; P. BUZI – F. BERNO – J. BOGDANI, *The ‘PATHs’ Project: an Effort to Represent the Physical Dimension of Coptic Literary Production (Third–Eleventh centuries)*, *Comparative Oriental Manuscripts Studies Bulletin* 4.1 (???) 39-58.

² More and more specialists of manuscripts and early printed books, of various cultural areas and disciplines, are now studying the textual/cultural aspects of books in strict relation with their physical features, internal and external. See for instance B.J. FLEMING, *The Materiality of South Asian Manuscripts from the University of Pennsylvania MS Coll. 390 and the Rāmamālā Library in Bangladesh*, *Manuscript Studies* 1.1 (Spring 2017) 3-26, and B. WAGNER, M. REED (eds.), *Early Printed Books as Material Objects. Proceeding of the Conference Organized by the IFLA Rare Books and Manuscripts Section Munich, 19-21 August 2009*, Berlin-Munich 2010.

³ For the case of Thebes see A. BOUD’HORS, *À la recherche des manuscrits coptes de la région thébaine*, in *From Gnostics to Monastics. Studies in Coptic and Early Christianity in Honor of Bentley Layton*, ed. D. BRAKKE - S.J. DAVIS - S. EMMEL, Leuven - Paris, Bristol (CT) 2017, 175-212; EAD., *Copie et circulation des livres dans la région thébaine (VII^e-VIII^e siècles)*, in *“Et maintenant ce ne sont plus que village...” Thèbes et sa région aux époques hellénistique, romain et byzantine*, ed. A. DELATTRE, P. HEILPORN, Brussels 2008, 149-161; EAD., *Copyist and Scribe: Two Professions for a Single Man? Palaeographical and Linguistic Observations on Some Practices of the Theban Region According to Coptic Texts from the Seventh and Eighth Centuries*, in *Scribal Repertoires in Egypt from the New Kingdom to the Early Islamic Period*, ed. J. CROMWELL - E. GROSSMAN, Oxford 2017, 274-295.

libraries and their criteria of selection, the tastes and the interests that were behind their formation, but also the evolution in the making of the codex and the professional competences involved⁴. The scant information concerning all these aspects that are provided by well-known 9th-11th-century libraries in fact is even poorer for previous periods.

A better knowledge of this phase of the Coptic book production will contribute to the definitive abandonment of the misleading praxis for using the most famous mediaeval libraries – White Monastery, Monastery of the Archangel Michael (Hamūli), Monastery of Macarius (Scetis) – as a model and a meter on which to measure the entire history of Coptic manuscript tradition.

Moreover, also thanks to recent discoveries due to active archaeological excavations, it appears clearer and clearer that it is possible to talk about a “regionality of the book production”, being the area of Thebes one of the most generous in providing new finds consisting of books, in all possible forms and writing supports, that shed light on the cultural trainings and literary tastes of the inhabitants of urban settlements (such as Jeme) and of a constellation of different forms of ‘monasteries’ (from essential and remote hermitages to well-organized *topoi*).

Whenever possible, therefore, it becomes essential to take into consideration the place(s) where a text was copied and a book was manufactured and stored and has circulated. In this way, cultural orientations and literary tastes in specific areas of Egypt will be singled out, while changes in the manufacture of codices will emerge, in a manuscript tradition that offers the oldest witnesses for the use of codex.

The theme section is articulated in three parts. The first – *Literary culture(s), and book production in Egypt between the 4th and the 10th centuries* – that aims at analyzing different libraries and regional milieus of Late Antique and early Mediaeval Egypt, is opened by an article of Gianfranco Agosti, which deals with the common ground of Greek and Coptic *paideia*, comparing the Late Antique Greek learned poetry with the contemporary Coptic hagiographic production. Then Sofía Torallas Tovar discusses one of the most important bibliographical discoveries of the last years, a papyrus roll containing Athanasius of Alexandria’s *Letter to Dracontius* in Coptic version, that much adds to our knowledge of the cultural activities of early Egyptian Church institutions. The section continues with a contribution of Paola Buzi dedicated to the ancient library of the cathedral of This, consisting of a number of Coptic codices dating to the end of the 7th century or the beginning of the 8th, preserved in the Egyptian Museum, Turin, and now the object of a complete re-examination within the activities of the “PATHs” project, with particular attention to ancient restorations and re-writings and the codicological features. The criteria of selection and arrangement of the works of two important Christian libraries of early mediaeval Egypt, that of the Monastery of Apa Shenoute and that of the Monastery of Macarius, which represent different manners of preservation of the Coptic literary tradition, are the object of Tito Orlandi’s contribution. Lastly, the section offers an accurate *status quaestionis* of the reception of John Chrysostom’s homilies dedicated to the Epistle to the Hebrews (Francesco Berno).

The second section – *Coptic Books from the Theban region* – takes its inspiration from the discovery of the three Theban Coptic books of the so-called pit MMA 1152 by Tomasz Górecki and his team⁵, whose provenance is archaeologically well documented, a fact of great importance for a project like “PATHs”, that aims at analysing the Coptic book in strict relation to the geo-archaeological context. The section, however, is opened by a more general and at the same time very accurate overview of the literary manuscripts, in Greek and Coptic, found in Thebes, with a particular attention to their archaeological contexts (Elisabeth R. O’Connell). This is followed by a contribution on one of the most interesting multiple-text manuscripts of the Theban area, *P. Bodmer 58*, as far as the content and the physical aspects are concerned (Anne Boud’hors).

⁴ In this respect, the contribution of A. MARAVELA, *Monastic book production in Christian Egypt*, in *Spätantike Bibliotheken. Leben und Lesen in den frühen Klöstern Ägyptens*, ed. H. FROSCHAUER, C.E. RÖMER, Wien 2008, 25-38 is very useful.

⁵ T. GÓRECKI, *Sheikh Abd el-Gurna (Hermitage in Tomb 1152). Preliminary Report, 2005*, *Polish Archaeological Mission 22* (2017) 263-274; ID., *Sheikh Abd el-Gurna*, in A. MAJEWSKA, *Seventy Years of Polish Archaeology in Egypt. Catalogue of the Exhibition. Egyptian Museum in Cairo, 21 October - 21 November 2007*, Warsaw 2017, 176-181; ID., ‘It might come in useful’: *Scavening among the Monks from the Hermitage in MMA 1152*, *Étude et Travaux 27* (2014) 129-150.

Most of the contributions of this section are, therefore dedicated, to the archaeological context of discovery (this is the case of the article written by Tomasz Górecki† and Ewa Wipszycka), to the texts that are transmitted by the codices (Renate Dekker, Alberto Camplani with the collaboration of Federico Contardi, Przemysław Piwowarczyk), to their codicological features (Nathan Carlig), to the liturgical aspects of the historical contexts (Agnes Mihálykó), and to scribal subscriptions (Agostino Soldati).

Lastly, the third sections contain an article by Julian Bogdani that aims at showing how digital humanities, with their broad and diversified tools and methodologies, can contribute to a better knowledge of Late Antiquity, notably of Christian Egyptian manuscript and literary production in its geographical context.

A few days before the conference, we received the sad news of the passing of Mons. Paul Canart, an inspirer and guide for several of the authors of this theme section. He had been invited to take part in the conference as discussant and therefore I find it appropriate and dutiful to celebrate his memory with a brief *ricordo* of his human and scientific qualities by Marilena Maniaci. It is our way to thank him for his extraordinary teachings in the fields of codicology and palaeography.

Paola Buzi

ERC Advanced Grant 2015 Principal Investigator:

«PATHs - Tracking Papyrus and Parchment Paths: an Archaeological Atlas of Coptic Literature.

Literary Texts in their Geographical Context.

Production, Copying, Usage, Dissemination and Storage»

Linking Coptic Literary Manuscripts to the Archaeological Context by Means of Digital Humanities: The Case of 'PATHs' project

by

Julian Bogdani

1. INTRODUCTION

The main focus of this paper is the methodological background that has determined all the solutions embraced in this first year of the activities of the PATHs project, funded by the European Research Council and hosted at Sapienza University of Rome (Dept. of History, Anthropology, Religions, Arts and Performing Arts)¹. We believe that our *in fieri* experience could be fruitfully adopted by others in similar disciplines, and this is the main reason for the full presentation of our philosophy and methodology in this journal. Technical elements, such as a thorough database description, are omitted here, because this information is going to be published soon in detailed and complete form, following a more appropriate editorial plan². At present, some aspects of the project have already been discussed at international conferences and round tables focused on both archaeological and textual topics, some of them recently published³. This paper pays greater attention to the still-lacking description of the all-embracing framework of what has been accomplished so far.

The most peculiar trait of the PATHs project is its ambition to be a multi-disciplinary project. Application of information technology to humanities studies is by no means an innovative approach⁴, but the combination of literary, textual, religious and historical studies with archaeological research, using information technology as a common sharing and working platform, certainly is⁵. The historical background and scope of this common research is the Late Antique and Medieval Egypt. PATHs' main aim is, in fact, to sketch a diachronic geography of Coptic literary production by extensively combining philology, archaeology and digital humanities, in order to explore the process of production, copying, dissemination, usage, transmission and preservation of Coptic literary works in a close relationship with the tangible geographical contexts of provenance of both texts and related writing supports⁶.

The Egyptian landscape is far from being unknown: almost everybody is aware of the wealth of extraordinarily preserved archaeological and textual material its sands have offered up in the past and still continue to offer in the present⁷. Yet, the attention of scholars has been attracted in the past by the most

¹ ERC Advanced (2015) "PATHs – Tracking Papyrus and Parchment Paths: An Archaeological Atlas of Coptic Literature. Literary Texts in their Geographical Context. Production, Copying, Usage, Dissemination and Storage" directed by Paola Buzi and hosted by Sapienza University of Rome (project number 687567).

² The working draft of the technical documentation is maintained on PATHs' repository on Github and published at <https://docs.paths-erc.eu>. It contains at present the definition of the database schema and the detailed descriptive protocol for manuscripts and places (see below). This documentation is continuously and constantly being updated and enhanced as long as the project advances, also introducing new encoding schemes for textual and graphical documents.

³ P. BUZI – J. BOGDANI – N. CARLIG – M.C. GIORDA – A. SOLDATI, "Tracking Papyrus and Parchment Paths": A New International Project on Coptic Literature, *Rivista del Museo Egizio* 1 (2017), DOI: <https://doi.org/10.29353/rime.2017.656>. J. BOGDANI, *The archaeological atlas of Coptic literature. A question of method*, *Vicino Oriente* 21 (2017) 59–69.

⁴ For a difficult history of humanities computing, cf. S. HOCKEY, *The History of Humanities Computing*, in *A Companion to Digital Humanities*, ed. S. SCHREIBMAN, R. SIEMENS, J. UNSWORTH, Oxford 2004, 3–19. It is worth noting that pioneering work in digital techniques applied to humanities and literature studies has been conducted by Italian scholar Roberto A. Busa and his *Index Thomisticus* (R.A. BUSA, *Index Thomisticus*, Stuttgart 1974).

⁵ For an updated and well documented state of art on the fruitful application of Information Technology on text-oriented studies, specifically epigraphy, cf. *Digital and Traditional Epigraphy in Context. Proceedings of the EAGLE 2016 International Conference*, ed. S. ORLANDI – F. MAMBRINI – P. LIUZZO (Collana Convegni 36), Roma 2017.

⁶ "PATHs project", <http://paths.uniroma1.it>, accessed 22/01/2018.

⁷ For an extraordinary and recent example of the discovery of three books written in Coptic during archaeological

monumental pharaonic periods and, secondly, by the well-documented Greek and Roman phases. Late Antiquity and the Mediaeval period, marked by the birth and growth of the Coptic language and Coptic literature, mostly of religious content⁸, were somehow underestimated during the golden age of the Egyptian explorations.

2. THE INFORMATION SYSTEM

Since PATHs is a multifaceted project, dealing with information from different sources, a rather complex structure had to be conceived for the information system. This structure is both able to facilitate the specific work of each specialist within his field and, at the same time, to permit a closer collaboration between different disciplines, defining a very detailed network of links and associations, capable of reestablishing the lost unity of the archaeological and literary data. The information that is currently collected, managed and elaborated has been categorized into seven domains, which can (and will soon) be increased in the future. These domains concern: manuscripts, collections, works, titles, colophons, authors and places, strictly connected through a rather complicated relation network. Right from the outset, the information system was designed with the prospect of first-hand use of the most important digital source of Coptic literary texts currently available, the *Corpus dei Manoscritti Copti Letterari* (CMCL) by Tito Orlandi⁹.

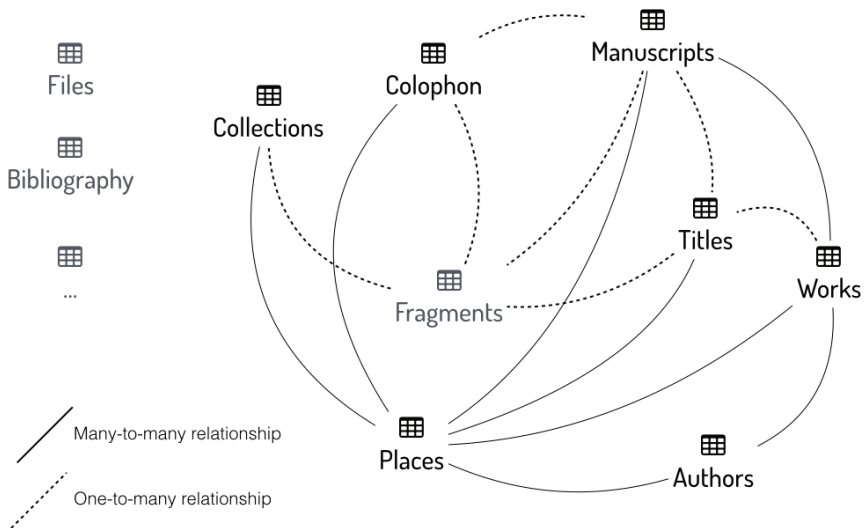


Fig. 1. Simplified diagram of PATHs' Information system

excavations, cf. T. GÓRECKI, *Sheikh Abd el-Gurna*, in *Seventy Years of Polish Archaeology in Egypt*, ed. A. MAJEWSKA, E. LASKOWSKA-KUSZTAŁ, Warsaw 2007, 183–190; A. THOMMÉE, *The Gurna Manuscripts (hermitage in MMA 1152), conservation report, 2010*, *Polish Archaeology in the Mediterranean* 22 (2012) 199–208 and the paper by Ewa Wipszycka in this section.

⁸ P. BUZI *et al.*, *Tracking Papyrus and Parchment Paths*, cit. par. 1.

⁹ Available at <http://www.cmcl.it/> [accessed 2018/01/27]. See also T. ORLANDI, *Modeling the Coptic Literature. The*

This database, partly available for free and partly through a subscription plan, is a stratified gold mine of digitized resources about Coptic literary tradition and manuscripts. It is also the *de facto* authority file for the classification of Coptic literary works, thanks to the use of a unique identifier called *Clavis Patrum Coptiorum* or *Clavis Coptica* (CC)¹⁰.

2.1. Manuscripts

The *Manuscripts* domain is aimed at creating an ordered list of Coptic *codicological units* of literary contents and providing each element with a unique new identifier made up of the acronym CLM (Coptic Literary Manuscript) followed by a unique progressive number. A codicological unit «corresponds to what in the more lucky traditions are simply and rightly called “the codices”, i.e., the books in their original form»¹¹. As T. Orlandi has pointed out, the Coptic manuscript tradition has endured a long history of dismemberment and often what once used to be part of a single codex is now preserved in leaves and fragments scattered in several library and archive collections¹². *Manuscripts* therefore tries to recover all the information that can possibly be obtained from these *disiecta membra* of the original codex (or roll) they belonged to. Particular attention is paid to a very detailed and careful physical (i.e. codicological) description of the fragments, a very important step in the attempt to find similarities between different manuscript fragments and, finally, try to group them into clusters, referable to original codicological units. For each fragment considered, precise coordinates of where it is preserved (collection and shelf number) are provided, in order to easily locate and verify all the information provided. A huge amount of information has been inherited by the above mentioned CMCL database, in which about 710 codicological units had already been recorded, identified by a *siglum* made up of a prefix of four letters identifying the provenance of the manuscripts¹³ and a progressive suffix of two letters, forming a classification system based on the 24 letters of the alphabet¹⁴. For each codicological unit qualified relationships with the archaeological context (be it the production, storage or discovery context), when available and/or recoverable, are being registered. The detailed listing and the geographical representation of production, storage and discovery places of manuscript fragments containing literary texts is certainly an important focus of the project.

2.2. Collections

A new mapping of all library and archive collections where manuscripts and manuscript fragments are currently stored was a fundamental prerequisite for the work undertaken on codicological units. For this reason, a complete census of library collections was started and has almost been completed, containing not only European and American collections, but also Egyptian ones and, most importantly, provisional and more or less stable storehouses of various papyrological and archaeological missions active in the region, that have discovered literary texts written in Coptic. This step is of great importance not only

“*Corpus Dei Manoscritti Copti Letterari*,” in *I&E 2002: Proceedings of the XIV Table Ronde Informatique et Égyptologie*, Pisa 2003. For a complete list of T. Orlandi’s contributions on the topic of Digital Humanities, cf. T. ORLANDI, *Pubblicazioni di Tito Orlandi relative all’Informatica umanistica*, in <http://www.cmcl.it/~orlandi/pubinf.html>.

¹⁰ The *Clavis Coptica*, a «list of the authors and works of the Coptic literature with information on manuscripts, content, and critical problems» (T. ORLANDI, <http://www.cmcl.it/> [accessed 2018/01/27]) is a list of four-digit identification numbers, that can be quoted as ccNNNN, e.g.: cc0001. The list has been modeled on the *Clavis Patrum Graecorum*, by Maurice Geerard, cf. T. ORLANDI, *Coptic texts relating to the Virgin Mary. An Overview*, Roma 2008, 12.

¹¹ T. ORLANDI, *Coptic texts relating to the Virgin Mary*, cit., 8.

¹² This dismemberment is the main reason why the PAThs project inherited and adopted the methodological and terminological framework set up by Tito Orlandi, cf. T. ORLANDI, *Coptic texts relating to the Virgin Mary*, cit., 7–11.

¹³ DISH: ‘Dishna papers’, GIOV: Library of the church of This, now in the Museum of Turin, MACA: Library of the Monastery of St. Macarius, Sketis, MERC: Library of the Monastery of St. Mercurius at Tbo (Apollonopolis Magna, Edfu), MICH: Library of the Monastery of St. Michael at Sopheh (Fayum), MONB: Library of the Monastery of St. Shenute at Atripe, NHAM: Codices found at Nag Hammadi. Manuscripts with unknown provenance have been identified by prefix CMCL.

¹⁴ To each CMCL manuscript *siglum* corresponds thus a CML identifier, e.g.: codicological unit from so called White Monastery at Atripe MONB.BF = CLM292. The reference to the provenance library is not maintained anymore in the new identifier in order to keep the identification separated and independent from any (possibly varying) metadata.



Fig. 2. A detailed description of the many-to-many qualified relationship between Manuscripts and Places

for the identification and location of the written fragments, but also for their further exploration and exploitation, e.g.: photographic documentation, archeological contextualization (e.g. through antiquarian documentation), sampling or laboratory analysis.

2.3. Works and Authors

The study of the literary works contained in manuscripts has, for many years, been one of the main aims of the CMCL database, and the creation of the *Clavis Coptica* (see above) is one of the most important results, but it is far from my competence to offer an adequate description of the main issues involving Coptic literary production. As far as the identification, description and serialization of Coptic translations of Greek works—or of works conceived originally in Coptic—is concerned, PATHs is currently relying mainly on the results of the CMCL. T. Orlandi's *Clavis Coptica* continues to be the only reliable system of unique identification of literary works and 'textual units'; it is continuously being updated, also due to the reprisal of the research by the PATHs team with the addition of new records or with a more detailed and congruent description of the works. Yet this authority list, widely adopted by international scholarship, is not planned to be replaced by a newly created identification system.

Much more articulated are the issues related to the authorship of these works. In Orlandi's CMCL, each work has been attributed, when possible, to an author, reported in Italian form, e.g. Giovanni di Shmun. In the PATHs database, the list has been translated in English and for each name the Coptic and Greek forms are provided. Furthermore, the one-to-many relationship between *Authors* and *Works* adopted by Tito Orlandi in his CMCL has been further developed, towards a more articulated many-to-many relationship: one author can be connected to more than one works and one work can, in turn, be connected to many authors. These links are being labeled to exhaustively qualify the connection type: a Work can therefore have a *stated* Author¹⁵ or a Work can have a well definite Author, labeled in this case as *creator*; in

¹⁵ Paratexts, typically titles, can sometimes claim a false authorship of the text they accompany; this is done, usually, to enhance the text's reputation and authority. This information, although fictitious, is stored in the database. It is the case, for instance, of cc0081 (*Quod Deus non est auctor malorum*) attributed by a title (paths.titles.103 / ccT0049-I) to John Chrysostom (paths.authors.53), but in fact created by Basil of Caesarea (paths.authors.26).

few exceptional cases the Coptic Work might be a free adaption (or translation) of other works of known authors; in these case the *author(s) of the master work* from which the current one was adapted are being recorded¹⁶. In the most fortunate cases, many of these relationships can be filed for a single Work, while in other cases we are forced to make do with uncertainty and lack of information.

Finally, each author is being linked to the Virtual International Authority File (VIAF)¹⁷ by means of unique stable identifiers, in order to comply with internationally shared library standards.

2.4. Titles and Colophons

Paratexts, such as *Titles and Colophons*¹⁸, are currently being catalogued as separate entities, distinguished from supports (i.e. manuscripts) where they have been written and from text they accompany. A unique identifier has been assigned to each paratext and they are linked both to the pertinent original manuscripts and to actual fragments where they are currently preserved. Titles are also connected to the works they accompany. All texts are being transcribed and translated in English and detailed information about layout, paleography, and some linguistic features is provided.

2.5. Places

Places is the domain responsible for the archaeological description of relevant sites and for the geographical representation of the whole dataset, therefore it is a fundamental part of the entire information system in the creation of the archaeological Atlas. Its core is a cataloguing and descriptive protocol of Egyptian archaeological sites, of different sizes and types, which had a documented activity in Late Antiquity and the Mediaeval period, in other words between the 3rd and 11th century CE. Once again, full advantage has been taken from previous or parallel projects, mainly Trismegistos Places¹⁹ and, most importantly, the Pleiades gazetteer²⁰, currently the most important international project focused on the geographical representation of ancient Mediterranean places. Besides, data from these open access databases must be reworked, further analyzed and studied to fit the needs of the PATHs project. For each site, three different geographical contextualizations are provided, one referred to current administrative geography, a second referred to ancient geography (province, *nomos*, and *meris* in the case of the Fayyum region) and a third referred to the religious administrative organization (references to episcopal sees, important monasteries, etc.). The main focus of the project is on the period between the 3rd and 11th century CE, but previous and sometimes successive phases can (and should) not be ignored. Coptic geography is the dynamic result of important changes that transformed, sometimes utterly and definitively, the previous landscape²¹. This is

¹⁶ It is the case of work cc0689 contained in codex VI of Nag Hammadi library (CLM 667; CMCL: NHAM.06). It is notoriously a «redactional (gnosticizing) transformation of» Plato, *Resp.* IX (T. ORLANDI, *Nag Hammadi Texts and the Coptic Literature*, in *Évangile selon Thomas et les textes de Nag Hammadi. Traditions et convergences*, ed. L. PAINCHAUD, P.-H. POIRER, Louvain-Paris 2007, 323-334). *The Republic* is assumed to be the master work from which cc0689 was created and Plato its author; the creator of the Coptic work cc0689 remains anonymous.

¹⁷ “The VIAF® (Virtual International Authority File) combines multiple name authority files into a single OCLC-hosted name authority service. The goal of the service is to lower the cost and increase the utility of library authority files by matching and linking widely-used authority files and making that information available on the Web.”, <http://viaf.org/> [accessed 2018-01-27].

¹⁸ P. BUZI, *Titoli e colofoni: riflessioni sugli elementi paratestuali dei manoscritti copti saidici*, in *Colofoni armeni a confronto: le sottoscrizioni nei manoscritti in ambito armeno e nelle altre tradizioni scritte del mondo mediterraneo: atti del colloquio internazionale*, Bologna, 12-13 ottobre 2012, ed. A. SRINIAN, P. BUZI, G. SHURGAIA, Roma 2016, 203–217.

¹⁹ Trismegistos Places is based on the foundations of the Fayum Project (Graeco-Roman Egypt) of the KU Leuven and the project Multilingualism and Multiculturalism in Graeco-Roman Egypt of Cologne University; these data were fully reworked before their current publication on the website, cf. H. VERRETH, *A survey of toponyms in Egypt in the Graeco-Roman period*. Trismegistos Online Publications, 2, Leuven, <http://www.trismegistos.org/geo/index.php> [accessed 2018-01-27].

²⁰ T. ELLIOTT – SEAN GILLIES, *Digital Geography and Classics*, Digital Humanities Quarterly 003 (1) 2009. For the reuse of this data in a Linked and Open Data (LOD) oriented project, cf. R. SIMON – L. ISAKSEN – E. BARKER – P. DE SOTO CAÑAMARES, *The Pleiades Gazetteer and the Pelagios Project*, in *Placing Names: Enriching and Integrating Gazetteers* edited by M. LEX BERMAN, R. MOSTERN, H. SOUTHALL, Bloomington 2016, 97–109.

²¹ For an incomplete and superficial but significant example, the case of Western Thebes can be considered

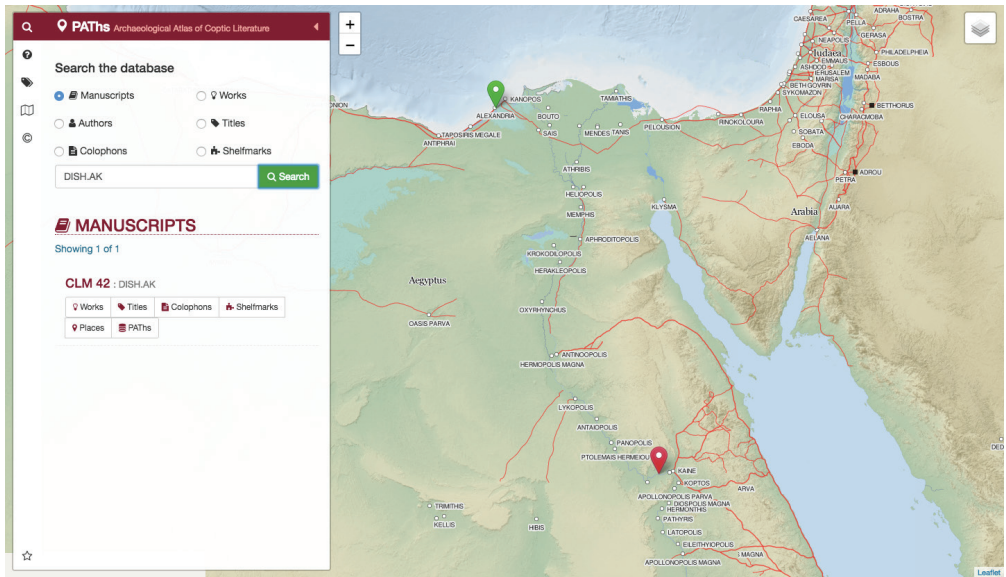


Fig. 3. Partial view of the descriptive protocol of *Places*: The site of Bakchias (paths.places.105), its different toponyms over time and links to external gazetteers (Trismagistos GeoID and Pleiades).

the main reason why a synthetic but complete description of each phase is also provided, with no claim to be complete, but with the hope of providing a meaningful background and a first bibliographic tool that can be used for further detailed studies.

At this initial stage of the project, the *Barrington Atlas of the Greek and Roman World*²², in the digital version elaborated at the Ancient World Mapping Center²³, and the previously mentioned *Pleiades* gazetteer²⁴ are the primary sources for geographic coordinates. These solid data providers offer a trusted base to build new research upon, yet further improvement is necessary, because of the different scale of interest

(E.R. O'CONNELL, *Excavating Christian Western Thebes: A History*, in *Christianity and Monasticism in Upper Egypt, Volume 2: Nag Hammadi—Esna*, edited by G. GABRA, H.N. TAKLA, Cairo 2010, 253–270 and the contribution by the same author to this volume): what used to be a vast necropolis in the Dynastic, Hellenistic and Roman period was transformed in this later period into a rather densely populated region, scattered with monasteries and cells of monks. This landscape cannot be comprehended and explained if the previous necropolis and sacred geography is excluded from the reference framework. The case of Western Thebes is of particular interest and this is the main reason it was chosen to be the first destination of PATHs *in loco* archaeological and topographical surveys (cf. *infra* note 25).

²² *Barrington Atlas of the Greek and Roman World*, ed. R.J.A. TALBERT – R.S. BAGNALL, Princeton (NJ) 2000.

²³ <http://awmc.unc.edu> [accessed 2018-01-27].

²⁴ <https://pleiades.stoa.org/> [accessed 2018-01-27].

of PATHs project. New places, not present in the above mentioned gazetteers are being mapped and a very detailed description is being provided for each place. Bibliography based information is currently being greatly extended with new data, collected during specifically programmed on-field campaigns²⁵.

The Places domain has, on one hand, a meaning *per se*, providing the basis for any archaeological consideration. On the other hand, it has a pivotal and strategic position in the entire information system, inasmuch as it represents the main hub where all other domains meet. Every manuscript can be related to one or more places, be it a production, storage or discovery place. Collections where these manuscripts are stored today are also referred to geographical places. The same is true for works: their attestation, diffusion and circulation can be traced and represented by referencing these to actual places.

2.6. The underlying GIS platform

The places domain is supported by a dedicated desktop GIS platform, responsible for the organization and storage of all geographical data. At present, the implementation of the GIS is still in the early stages, since the first year of activity was spent mainly on the analysis of manuscripts and fragments and their present location. The GIS is being built with a double function in mind: to provide a high precision repository for geographical (and georeferenceable) vector and raster data²⁶ and as a base for further analysis and study,

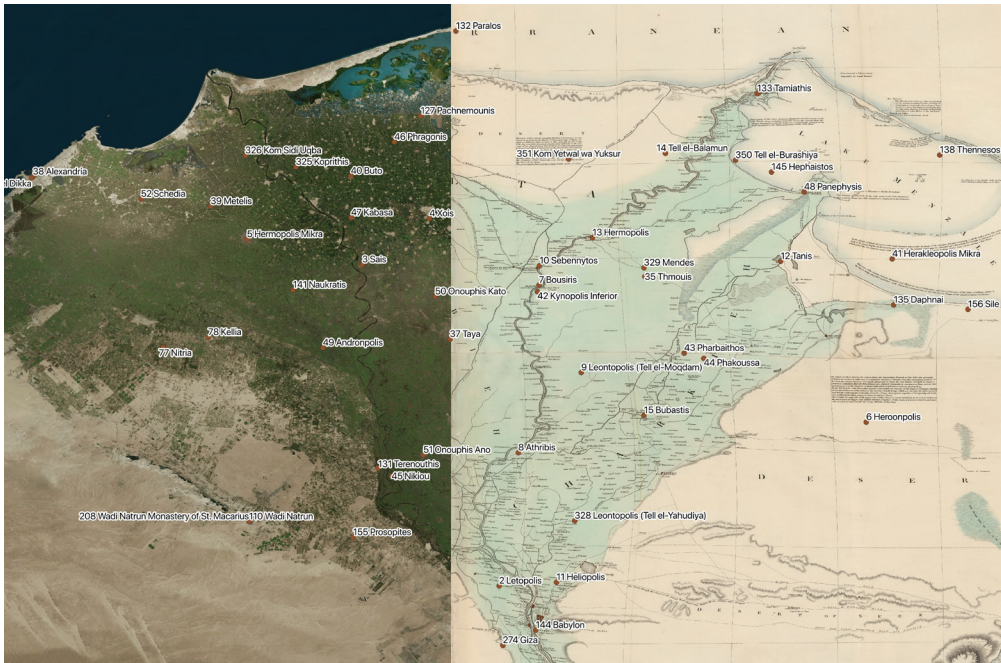


Fig. 4. Desktop GIS project showing the overlay of Places on current satellite imagery and on georeferenced historical cartography (A Map of Lower Egypt from Various Surveys communicated by Major Bryce and other Officers. Drawn by A. Arrowsmith 1807. London, Published A. Arrowsmith, No.10 Soho Square, 10th November, 1807, source David Rumsey Historical Map Collection, <https://www.davidrumsey.com/>).

²⁵ The first on-field campaign, aimed at a closer awareness of the topography and archaeology of the Theban area, was completed in January 2018. A very rich photographic documentation and an important update of our knowledge of the state of preservation of Coptic remains in this area are two important results. The identification of new certain and possible sites and the better contextualization and description of other poorly documented remains are a key aspect of the archaeological part of the project.

²⁶ Many high-quality base layers and vector data are provided free of charge on the Ancient World Mapping Center website (<http://awmc.unc.edu/wordpress/map-files/> [last visited 2018-01-21]). Simultaneously, many maps, sketches and site plans in publicly available bibliographic entries are being digitized, georeferenced, vectorized and uploaded

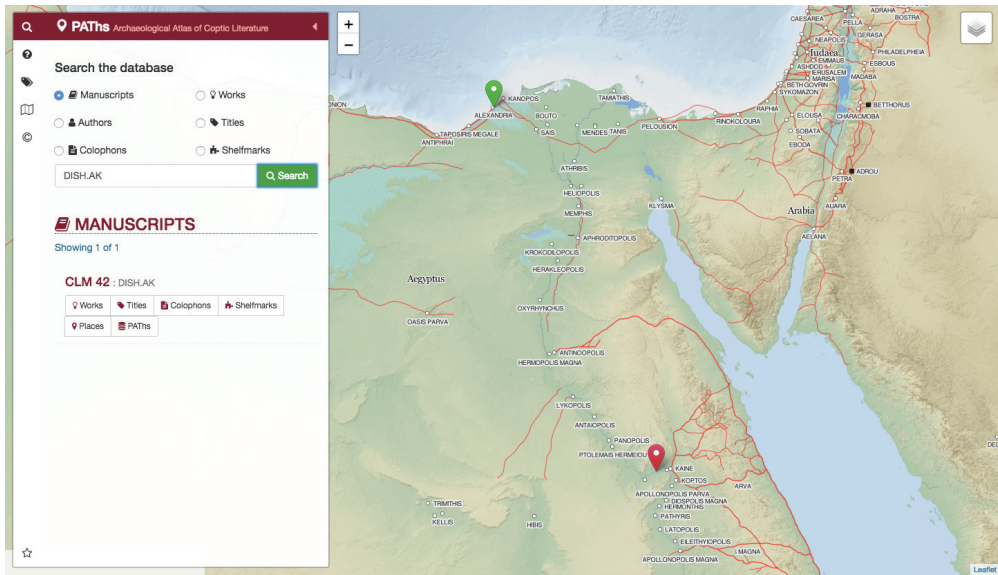


Fig. 5. Proof of concept on the online database: a simple search using CMCL's siglum for codicological units returns the correspondent CLM identifier. Both production (in green) and discovery (in red) are shown on the map. Basemap by Digital Atlas of the Roman Empire (DARE) project (<http://dare.ht.lu.se>)

in an attempt to better refine the positioning of uncertain or unlocalized places and to better contextualize the manuscripts and create a meaningful link between texts and archaeological contexts. The work is still just beginning, but the goal is to be able, in the final stages, to easily build dynamic maps capable of effectively displaying specific themes, like the creation centers of a given literary work, the most common circulation paths, etc. By accomplishing a very detailed description of manuscripts and places of storage and discovery, it will be possible through GIS analysis to intersect the data and possibly infer knowledge for manuscripts of unknown provenance.

Thematic layers created for internal use will be finally published on the Internet and made available to the broader scientific community using permissive licenses, in order to incentivize the reuse of the created data and possibly their further enhancement by a wider active public²⁷.

3. PHILOSOPHY AND KEY ASPECTS

The last considerations offer the opportunity to introduce a few methodological key aspects that arose as fundamental during the conception and first realization of the PATHs information system. These might appear very technical at first glance, and essentially they are technical, but their consideration and examination has deep implications on the daily activities of the various scholars and contributors of PATHs as well as in the final results of the project.

onto the main platform. These resources are now being used for the archaeological study; in the future, all copyright-free material will be re-published and made freely available on PATHs' website and in PATHs' public data repositories.

²⁷ Different IT tools are being created and made available by PATHs' team, both for internal and external use, along other textual resources and documentation. All this material is made available at PATHs' repository on GitHub (<https://github.com/paths-erc>) with permissive MIT (<https://opensource.org/licenses/MIT>) and Creative Commons (<https://creativecommons.org/>), in order to encourage use and contribution by other projects or individuals. Cf. also note 34 for a recent bibliographic assessment on the usage of open data in the archaeological domain.

3.1. Scalability

As stressed many times before so far, PATHs sits on the shoulders of other important projects for many reasons. An important dataset with fundamental information on manuscripts, fragments, literary classification, etc., has been imported from the CMCL database. Also, the core set of geographical data is being imported from and linked to Pleiades or the Ancient World Mapping Center. Yet, these data represent only a part of the Atlas' dataset and need to be further enriched and extended, with a detailed study to match the expectations of the project²⁸. For this reason, the information system should be able to contain and process the current data, and also be able to grow with them in the future. The expected growth is both horizontal, e.g. with the addition of new study domains²⁹, and vertical, i.e. the ideal expanding to infinity of the number of items in each domain, without losing performance or interrupting the search and visualization experience.

3.2. Interoperability

Since the outset, the PATHs project has found strong foundations in important open access databases and it is a moral obligation for us to share our results with the scientific community in a similar manner. Furthermore, providing one or many links for virtually every resource that PATHs deals with, to other identical or similar entries of external open data providers, can greatly help the better identification and definition of the study object, offering our database to a wider audience. A few simplified examples can further explain this point: pairing each PATHs' CLM identifier with identifiers of other databases that record (among other things) Coptic rolls and codices, such as Trismegistos texts or the Leuven Database of Ancient Books (LDAB), will surely help users of these well-known databases easily find corresponding records in the PATHs database and vice-versa. Outwards links have already been implemented and in the future, specific planned agreements will produce inward (towards PATHs) connections. Furthermore, since each database is aimed at different purposes and is therefore differently structured, end-users can easily put together different types of descriptive protocols and information using these easy to follow hard-links. Not to mention the opportunity of automated data migration from one platform to another, filling the gaps that each research project might have, without having to review previous work accomplished by peers³⁰.

The same can be true for less strictly matching spheres, such as the history of literature: providing each *Clavis Coptica* with the corresponding *Clavis Patrum Graecorum*³¹, without making a very strong assumption about the level of relevance, can greatly help scholars of religious studies of different cultural *milieus* put together rich folders of documentation. Links can be easily edited, added or removed if further detailed studies highlight slight inconsistencies due to obvious differences between different literary traditions. Finally, no better example can be proposed than the one related to the *Places* domain: each place—be it a region, a *nomós* or a very specific location—is provided with a Trismegistos GeoID or Pleiades place iden-

²⁸ Just to offer a rough example of the differences between PATHs' and other databases, of the 6.144 codicological units recorded at present (January 2018) in the PATHs' manuscripts database, only 541 are present in Trismegistos and the Leuven Data Base of Ancient Books (LDAB), initially used as sources of information. Again, the 2-3 sites documented by Pleiades in the Western Theban area correspond to dozens of archaeological sites in the PATHs' database. This difference is not due to the carelessness of other datasets, but to the different geographical scale of study and/or to a different chronological focus.

²⁹ Such as, for example, the chemical analysis of writing supports and inks, which was not envisaged since the beginning, but has been recently started. Also a deeper and analytical study of the book bindings of the Coptic manuscripts is being considered. Another domain that is going to be implemented in the near future is the one dedicated to *Persons related to manuscripts*, be them scribes or customers who financed the manuscript creation, etc; a georeferenced network of scribes is in fact one of the main PATHs expected outputs. The database will be adapted to accommodate the information that can possibly provide important clues to further cluster manuscript fragments of unknown provenance.

³⁰ The PATHs' database system is also provided with an RESTful Application Programming Interface (API) endpoint for fully automated access by third-party automated services. This is an essential step for the correct alignment of stable identifiers and the automated migration of metadata between different initiatives and projects.

³¹ CPG, but also links to the *Clavis Apocryphorum Novi Testamenti* (CANT), *Clavis Apocryphorum Veteris Testamenti* (CAVT), *Bibliotheca Hagiographica Orientalis* (BHO), *Bibliotheca Hagiographica Graeca* (BHG), *Bibliotheca Hagiographica Latina* (BHL) and *Clavis Aethiopica* (CaE), when available, are being stored.

tification³². This is a very important point as far as a later publication in an interconnected framework, like the one provided by Pelagios for instance, or any other Linked and Open Data Platform is concerned³³.

3.3. Sustainability

Leading the legacy of the CMCL to a new stage of development by enriching its already precious dataset with new information about codicological description, archaeological context, geographical data and richer links to external identifiers is certainly an important aim of the PATHs project. The creation of a new information system entails, on the other hand, the responsibility for creating an IT platform which is sustainable in the medium to long-term future, both from the technological and economic point of view. This is the reason why only open sourced software and libraries are being used and all measures are being taken in order to make all database content freely available with open data licenses, in order to encourage dissemination and further (re)usage³⁴.

The information system that is being created should be easily maintained in the future, without fees and licensing issues by third-party software houses or service providers. While the World Wide Web is swiftly becoming overcrowded with high quality software-as-a-service platforms, capable of managing large amounts of linked data efficiently and effortlessly, it seemed reasonable not to link the destiny of the PATHs project to that of a third-party service provider, at the cost of possibly renouncing or postponing cutting-edge features.

3.4. Technical specifications

As a result of the above-mentioned methodological premises, some incomplete technical specifications can be listed. The core functionality of the Information system is provided by an SQL-based database, a platform-agnostic database engine based either on MySQL/MariaDB or SQLite software. BraDypUS, an open-source licensed RDBM system³⁵, has been chosen as the principal graphical user interface, for its long term usage in archaeological (and more broadly Cultural Heritage) related projects, scattered from the Mediterranean to Central Asia and its efficient employment³⁶. It is written in PHP and JavaScript, but the most important feature is that it does not impose a specific database schema but conforms to

³² The scale of the PATHs project is generally bigger than that of larger projects like Trismegistos or Pleiades, consequently more PATHs' places can be located in a certain area where one or few Pleiades/Trismagisos places are documented. This is the main reason for introducing an independent naming system, along with the fact that our specific period of interest requires a specific gazetteer.

³³ The "mantra" of the Pelagios project is *Connectivity through Common Reference* (R. SIMON *et al.*, *The Pleiades Gazetteer and the Pelagios Project*, cit.) and this connectivity is entrusted mainly to geographical places identified by stable URIs. Referring back to these URIs will permit the PATHs database to be linked, queried and referred from Pelagios or other similar linked data browser portals. See also R. SIMON – E. BARKER – L. ISAKSEN, *Exploring Pelagios: a visual browser for geo-tagged datasets*, in *International Workshop on Supporting Users' Exploration of Digital Libraries, 23-27 September 2012, Paphos, Cyprus*, Paphos 2012; R. SIMON – L. ISAKSEN – E. BARKER – P. DE SOTO CAÑAMARES, *Pelagios and the Emerging Graph of Ancient World Data*, in *ACM Web Science Conference, WebSci '14, Bloomington, IN, USA, June 23-26, 2014*, Bloomington (IN) 2014, 197-201.

³⁴ In the last years the community of archaeological scholarship is becoming increasingly aware of the urgency of opening the archaeological dataset to general use and reuse, cf. M. ARIZZA – V. BOI – A. CARVALE – A. PALOMBINI – A. PIERGROSSI, *I Dati Archeologici. Accessibilità, Proprietà, Disseminazione* (Roma, CNR, 23 Maggio 2017), Firenze 2018; M. PREVITALI – R. VALENTE, *Archaeological Documentation and Data Sharing: Digital Surveying and Open Data Approach Applied to Archaeological Fieldworks*, *Virtual Archaeology Review* 10 (20) (2019) 17–27.

³⁵ Available at <https://github.com/jbogdani/BraDypUS>.

³⁶ J. BOGDANI, *Un archivio digitale multidisciplinare per la gestione e la conservazione di un patrimonio culturale a rischio: il progetto Ghazni (Afghanistan)*, *Archeologia e Calcolatori. Supplement* (2016) 236–245; J. BOGDANI – E. VECCHIETTI, *Network solutions for the management and dissemination of the archaeological data*, in *Open source, free software e open format nei processi della ricerca archeologica. Atti del III workshop (Padova, 8-9 maggio 2008)*, ed. by L. BEZZI *et al.* 2012; I. BALDINI LIPPOLIS – J. BOGDANI – E. VECCHIETTI, *Il progetto Jic, archivi in rete: verso una forma aperta di conoscenza, in Oreficeria in Emilia Romagna. Archeologia e storia tra età romana e medioevo*, ed. by I. BALDINI LIPPOLIS, A. LINA MORELLI, Bologna 2010, 7–25; J. BOGDANI – E. VECCHIETTI, *Nuove soluzioni in rete per la gestione e la divulgazione del dato archeologico*, *Ocnus* 16 (2008) 59–68.

the user-defined data model. Ultimately, it can easily be replaced at any time with other graphical user interfaces (GUI), with no need to reshape the data model or the dataset. This means that, in any case, the PATHs data-structure, data encoding format and in general its information system is not bound to any software or platform and is easily transportable if necessary.

CONCLUSIONS

PATHs is a multidisciplinary and complex project that brings together different specialists and expertise in the effort of restoring, for the very first time, the reconstruction of the Late Antique and Mediaeval Egyptian landscape from a quite unusual point of view: Coptic literary production and dissemination in its actual geographical and archaeological context. Besides, technical or domain-specific issues, some more general methodological considerations resurface, the main one regarding the kind of landscape we are about to reconstruct. The landscape that can be built by archaeological means can be quite different from that imagined from the philological or literary point of view. A third possible reconstruction can also be introduced, the landscape as can be presumed from the contents of the literary production, quite fictional but, in some cases, much more representative of the antique point of view than any archaeological evidence. It is rather slippery ground but nevertheless very interesting and full of stimulating challenges³⁷. This is not the place to tackle the details of these issues, and we are not sure that the project itself will be able to offer a clear answer. Yet it is a challenge worth taking, because despite its possibility of success, it offers the certainty of a fruitful *path* of knowledge, based on the reciprocal enrichment of different points of view and educational and training backgrounds. The information system and the IT solutions adopted to build, publish and visualize such a complex network are not only an unaware technical tool but a solid backbone upon which knowledge is built, represented, shared, and finally communicated.

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Abstract. Philological and literary studies on Coptic language and literature have faced a growing interest in recent years. As well, a more careful and sensitive reconsideration of archives and newly collected archaeological data allow today a more detailed reconstruction of the Egyptian Late Antique and Medieval landscape. The ultimate goal of PATHs project is to build new bridges between these two disciplines by creating an online atlas able to represent Coptic literature in its archaeological context, testing methodological frameworks and building IT tools based on network technologies. We believe that information technology, widely used since long time by both disciplines, can provide a common ground for experimentation and fruitful collaboration: PATHs information system discussed in this paper has proven to be an important test bench for the development of new methodologies and the improvement of the studies.

Keywords. Coptic literature. Digital Humanities. Network technologies. Digital Archaeology. GIS.

³⁷ For a methodological approach of this problem, cf. D.L. BROOKS HEDSTROM, *Reconsidering the Emerging Monastic Desertscape*, in *Copts in Context. Negotiating Identity, Tradition, and Modernity*, ed. by V.N. DOORN-HARDER, Columbia (SC) 2017, 205–217. The “imagined” geography of the Coptic literature is not PATHs’ main objective, yet some efforts are being spend in this direction. Few texts are being semantically annotated using a simplified TEI based scheme, as described in details by the paper of M.C. Giorda in this volume. For some interesting methodological notes on putting together Corpus linguistics and GIS based analysis and data visualization (called *Visual GISing*) cf. I.N. GREGORY – A. HARDIE, *Visual GISing: bringing together corpus linguistics and Geographical Information Systems*, *Literary and Linguistic Computing* 26,3 (2011) 297–314. Doi: <https://doi.org/10.1093/lc/fqr022>.