

**ELECTRONIC RESOURCES FOR
GRAECO-ROMAN AND CHRISTIAN EGYPT:
A REVIEW OF THE STATE OF THE NET
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Traditionally, in this journal, post-pharaonic Egypt has been divided into Graeco-Roman and Christian parts; however, both fields have in common the use of Greek texts as one of their main sources of information, and one which defines them as different from classical Egyptology. As a consequence, they share many electronic resources, so that presenting each separately would result in repetition of information: therefore we will treat them together, though we will try to address some specifics of each period.

Without claiming to be exhaustive, we want to present here useful resources containing bibliographical information on the periods we are considering, or providing access to the texts themselves — whether Demotic, Greek, Latin, Coptic or Arabic. Considering papyri, ostraca, etc. are also archaeological objects, we did not want to appear to neglect archaeology, though our experience is that there are very few electronic resources for this field that would be specific to Graeco-Roman and Christian Egypt, so that much might be discussed elsewhere in this volume: our emphasis will have to be on textual sources, and on resources that increasingly tend to make them easily, and often freely, available to anyone around the world.

We hope that this paper will be of some use for readers both in and outside our fields; therefore, we have included even information that will look obvious to many users, and not only to the most seasoned ones. We have tried to work from our personal experience not only as users but also as collaborators with varying levels of involvement in some of the resources discussed here.¹⁾ The present contribution reflects the state of the art as we were aware of it by March 2014.

1. GETTING BASIC INFORMATION

The web abounds not only in resources, but also in pages offering links to them or between them. This is certainly true for Graeco-Roman and Christian Egypt, as many learned societies and research institutions active in our fields — not

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¹⁾ Both of us are assistant-editors of the *Bibliographie Papyrologique* (see col. 311) and members of the editorial board of the *PN* (see col. 313). Alain Delattre is the author of the *BCD* (see col. 316), which is also moving towards becoming part of *PN*; he was also a member of the *TM* team (see col. 314) for a couple of years. Paul Heilporn was, for a few years (1997-2000), the main cataloguer for the Michigan part of the *APIS* project (now part of *PN*) and is now responsible for the online catalogue of Strasbourg papyri; earlier, he had prepared a bibliographical database on Greek and Latin inscriptions from Egypt (*JGLE*; see col. 319).

to mention individual initiatives²⁾ — have made sure to be present on the web and taken the opportunity to offer help to interested users. To name just a few useful examples, one could start with the pages of links offered by the international societies for the different subfields — some very complete, such as that of the *Association internationale de Papyrologues* (*AIP*, mostly for Greek and Latin papyrology: <http://www.ulb.ac.be/assoc/aip/liens.htm>); others aiming rather only at what is most useful, such as those of the *International Association of Egyptologists* (*IAE*)³⁾, of the *International Association for Coptic Studies* (*IACS*)⁴⁾ and of the *International Society for Arabic Papyrology* (*ISAP*)⁵⁾. For Demotic and Coptic, there is also much information to be found through the Italian portal for ancient writing systems, *Mnamon*.⁶⁾ More general resource pages for antiquity might also be useful: the virtual library of the ancient world, *Propylaeum*,⁷⁾ has for instance a specific website for the ancient Near East and Egypt, *Sisyphos*,⁸⁾ where resources can be browsed, among others, by time period. The *Abzu* page of the *Electronic Tools and Ancient Near East Archives* (*ETANA*) allows to search for any kind of open access data — websites, but also individual books or articles freely available on the web — about the Ancient Near East and the Ancient Mediterranean world: <http://www.etana.org/abzubib>; while the results are simply alphabetized and their number can be overwhelming for less experienced users, the ability to search by keyword, subject, title, author, type of resource, or any combination of the above, makes it a powerful tool to start navigating the web. Finally, some pioneering pages should be mentioned too, even if only *in memoriam*, as they have not been updated for a long time and contain many broken links, such as J. Muccigrosso's *Papyrology page*⁹⁾ for Greek, and A.A. O'Brien's *Demotic texts published on the World Wide Web*, still available through the Oriental Institute Research Archives.¹⁰⁾ This highlights a problem common to many such pages, as keeping them up to date not only by adding new websites, but also by correcting or deleting broken links remains a time-consuming challenge.

2. STAYING INFORMED

Among the many blogs and other information sources devoted to ancient history, a good point to start with is a general feed aggregator, which automatically collects new posts on as many blogs devoted to antiquity as possible: <http://planet.atlantides.org/maia/>; this is one of several aggregators set up by T. Elliott to help users discover and follow

²⁾ See for instance the very recent and up-to-date resources page by B.C. Jones: <http://bricecjohnes.weebly.com/papyrological-resources.html>.

³⁾ <http://www.iae-egyptology.org/services.php?site=links>.

⁴⁾ <http://rmcisadu.let.uniroma1.it/~iacs/>.

⁵⁾ <http://www.naher-osten.uni-muenchen.de/isap/index.html>.

⁶⁾ <http://lila.sns.it/mnamon/index.php?page=Risors&id=6&lang=en> and <http://lila.sns.it/mnamon/index.php?page=Risors&id=5&lang=en>.

⁷⁾ <http://www.propylaeum.de/>.

⁸⁾ <http://www.ub.uni-heidelberg.de/helios/sisyphos/>.

⁹⁾ <http://www.users.drew.edu/~jmuccigr/papyrology/>. See also A.D. Philippidis' *House of Ptolemy*, housing many links to other resources, but hardly updated for a few years: <http://www.houseofptolemy.org/>.

¹⁰⁾ http://oi.uchicago.edu/OI/DEPT/RA/ABZU/DEMOTIC_WWW.HTML.

such blogs.¹¹⁾ In the same spirit, C.E. Jones's *Ancient World Online (AWOL)* is extremely useful for keeping up to date with open access resources related to antiquity, whether new journal volumes or other resources: <http://ancientworldonline.blogspot.com>. Of course, neither is specific to Graeco-Roman and Byzantine Egypt; for this, interested users can refer to the mailing list for papyrologists, founded some 20 years ago by A. Bülow-Jacobsen (*PAPY*: <http://lists.hum.ku.dk/cgi-bin/mailman/listinfo/pap>)¹²⁾ and/or to the Newsletter of the International Association of Coptic Studies, edited by S. Emmel,¹³⁾ as well as to the *Notiziario Italiano di Antichistica* published by the Accademia Fiorentina di Papirologia e di Studi sul Mondo Antico¹⁴⁾ and to the Papirologia page on <http://www.archaeogate.org> — though the latter, at the time of writing, had been unavailable for some time.

Bloggng about *What's New in Papyrology*, G. Schwendner offers another useful source of up-to-date information, with new publications, events and so on: <http://papyrology.blogspot.com/>. The same can be said for A. Suci's blog on *Patristics, Apocrypha, Coptic Literature and Manuscripts*.¹⁵⁾ Other, more thematic websites, will sometimes give information related to Graeco-Roman and/or Christian Egypt, such as the *Hellenistic Poetry News*,¹⁶⁾ *Anathema* (on Hellenistic religions),¹⁷⁾ P. Dilley's *Digital Resources for Religion in Late Antiquity*¹⁸⁾ — for later religion, and in particular gnosticism, see also A. De Coninck's¹⁹⁾ and A. Van den Kerchove's blogs.²⁰⁾ Bloggers can also have a slightly different purpose, using this media mostly to present their own work in progress and other thoughts on their field, such as, e.g., R. Mazza²¹⁾ or B.C. Jones;²²⁾ more people in our field should perhaps publicize their work in such a way. Finally, we should mention several blogs related to some of the projects we will be discussing below: they aim to inform users about important updates, but also, sometimes, to answer questions about how to use them.²³⁾ In a similar way, the University of Michigan papyrology collection has a very active Facebook page.²⁴⁾

While information from the aforementioned websites is sometimes repeated on Twitter and some events can be announced on Facebook, we do not know of any information source on either that would be specific to Graeco-Roman and

Byzantine Egypt.²⁵⁾ Nor has any colloquium in our field been live-tweeted so far. Another social media might be mentioned here, though it provides a different kind of information: Flickr is an invaluable source for images of archaeological sites today.²⁶⁾

3. FURTHERING THE SEARCH FOR INFORMATION: ENCYCLOPEDIAS AND BIBLIOGRAPHICAL TOOLS

Graeco-Roman and Christian Egypt is of course present, to a certain point, in the online encyclopedia *par excellence*, *Wikipedia*.²⁷⁾ However, several scholarly encyclopedias, originally published in print, are now available online too, through the websites of their respective publishers, though they often require a subscription or purchase. Such is the case, e.g., of the *Neue Pauly* and of its English translation²⁸⁾ and of several Oxford encyclopedias;²⁹⁾ among these, it is worth mentioning that the online version of Wiley's *Encyclopedia of Ancient History*³⁰⁾ is meant to have articles regularly added and/or revised. A somewhat older work, the *Coptic Encyclopedia* (1991) is an exception, as it is freely available online on the Claremont Colleges website;³¹⁾ this is also true of the still very partial *UCLA Encyclopedia of Egyptology*,³²⁾ and of even older works, such as large parts of the *Paulys Realencyclopädie der classischen Altertumswissenschaft (RE)*³³⁾ and the *Dictionnaire d'Archéologie Chrétienne et de Liturgie (DACL)*.³⁴⁾

As Egypt, in the period we are dealing with, was a meeting point of several of the most important and most studied ancient civilizations, it finds its place in the main bibliographical tools both for Egypt and for the Graeco-Roman worlds, both available online through subscription.³⁵⁾ The *Online Egyptological Bibliography (OEB)*³⁶⁾ has succeeded the *Annual Egyptological Bibliography (AEB, 1947-2001)*, but includes now also records from the *Bibliographie Altägypten* (1822-1946) as well as from the *Aigyptos* database, for a total of more than 112 000 records as of March 2014; while it provides many references for Graeco-Roman and

¹¹⁾ For the other, more specific aggregators, see <http://planet.atlantides.org/>; of particular interest to our readers might be the ones devoted respectively to excavation blogs (<http://planet.atlantides.org/taygete/>) and to digital humanities in relation to the ancient world (<http://planet.atlantides.org/electra/>).

¹²⁾ Partially archived: <http://lists.hum.ku.dk/pipermail/papy/>. Similar mail lists exist also for Egyptology and Arabic studies: <http://www.egyptologyforum.org/> and <http://listserv3.auburn.edu/cgi-bin/mailman/listinfo/isap>, which both can be useful for people interested in our subject.

¹³⁾ <http://rmcisadu.let.uniroma1.it/~iacs/nlindx.htm>.

¹⁴⁾ http://www.accademiafiorentina.it/notiziario_italiano_di_antichistica.html.

¹⁵⁾ <http://alinsuciu.com/>.

¹⁶⁾ <http://hellpoet.hypotheses.org/>.

¹⁷⁾ <http://anathema.hypotheses.org/>.

¹⁸⁾ <http://hieroiologi.org/author/pdilley/>.

¹⁹⁾ <http://forbiddengospels.blogspot.com/>.

²⁰⁾ <http://hermagnos.hypotheses.org/>.

²¹⁾ <http://facesandvoices.wordpress.com/>.

²²⁾ <http://bricecjones.weebly.com/>.

²³⁾ <http://digitalpapyrology.blogspot.fr/>; <https://blogs.library.duke.edu/dctthree/>; <http://blog.ancientlives.org/>.

²⁴⁾ <https://www.facebook.com/pages/The-University-of-Michigan-Papyrology-Collection/275678525787973>.

²⁵⁾ The closest probably comes, on both media, from the University of Michigan Papyrology accounts, respectively: <https://twitter.com/UMPapyrology>; <https://www.facebook.com/pages/The-University-of-Michigan-Papyrology-Collection/275678525787973>.

²⁶⁾ See e.g. the images posted by the group "Papyrology Winterschool 2012": <https://www.flickr.com/groups/2136666@N23/pool/with/8196278930/>.

²⁷⁾ See e.g. <http://de.wikipedia.org/wiki/Papyrologie> (with more information than its English counter-part); http://en.wikipedia.org/wiki/Zeno_of_Caunus; http://en.wikipedia.org/wiki/Roman_Egypt; http://it.wikipedia.org/wiki/Dioscoro_di_Afrodito; http://en.wikipedia.org/wiki/Coptic_language.

²⁸⁾ Both on <http://brillonline.nl/>.

²⁹⁾ <http://www.oxfordreference.com/>.

³⁰⁾ <http://onlinelibrary.wiley.com/>.

³¹⁾ <http://ccdlib.libraries.claremont.edu/cdm/landingpage/collection/cce>.

³²⁾ http://escholarship.org/uc/nelc_uee.

³³⁾ http://de.wikisource.org/wiki/Paulys_Realencyclop%C3%A4die_der_classischen_Altertumswissenschaft.

³⁴⁾ <http://archive.org/search.php?query=Dictionnaire%20d'arch%C3%A9ologie%20chr%C3%A9tienne%20et%20de%20liturgie>.

³⁵⁾ For those interested in the later part of the period under consideration, some material will also find its way in a similar database for the Islamic world, Brill's *Index Islamicus Online*: <http://bibliographies.brillonline.com/browse/index-islamicus>.

³⁶⁾ <http://oeb.griffith.ox.ac.uk/> (for this tool, see also the contribution of W. Claes and E. Van Keer in this volume).

Christian Egypt, it leaves aside some parts of the field which are typically less Egyptian, such as Greek and Latin literary papyrology. The *Année Philologique* (*Aph*),³⁷ which was founded in 1926 by J. Marouzeau, produces more than 10 000 records each year, about nearly everything related to the Greek and Roman world; this, again, means that it has to set aside some specifically Egyptian aspects of the fields we are considering, e.g. Demotic texts. This is of course also true for other databases dealing with specific fields of the Graeco-Roman world, such as the *Bulletin analytique d'Histoire romaine* (*BAHR*).³⁸ In a similar way, the *Corpus dei Manoscritti Copti Letterari*³⁹ offers to subscribers a Coptic Bibliography, mostly devoted to literature and manuscripts, but open to other aspects of Coptic studies, such as archaeology and linguistics.

The *Bibliographie Papyrologique* (*BP*), which was founded by Marcel Hombert in 1932 and for which both of us are co-editors, offers a specific bibliographical database not only for papyrology itself (whether documentary or literary), but for the society and history of Graeco-Roman and Christian Egypt in general; it has been gradually extended to include information about texts in other languages than Greek and Latin, a change that was formalized in 2012, as documents in Demotic, Coptic and Arabic are now systematically included if they fall in the large chronological frame of Greek and Coptic (from Alexander's conquest to 11th cent. A.D.).⁴⁰ It is distributed four times a year to subscribers as a FileMaker Pro file, but its nearly 50 000 records are now freely available and fully searchable online, except for a moving wall of a bit more than a year (so that all records distributed in 2014 will be made available online on Jan. 1, 2015): <http://papyri.info/bibliosearch>. Running since 1971 in Enchoria, and now also published on Trismegistos, the *Demotistische Literaturübersicht* offers a similar tool, though of course limited to Demotic texts: <http://www.trismegistos.org/dl/index.php>.

Smaller, more specific bibliographies can also be found on the web, such as the ones created by the CEDOPAL team for e.g. Latin papyri, intellectual life in Alexandria, or medicine in Graeco-Roman Egypt (for its main project, the Mertens-Pack³, see below),⁴¹ and bibliographies specific to some database projects.⁴² Keynote speeches at international congresses and other scientific gatherings often are opportunities to sum up recent developments of more or less specific subjects, and to generate bibliographies which can be made available online.⁴³

Finding Scholarly Works Online

Most readers will be aware that many journals are now available online, though with various policies about access. Open access is not limited to the large number of journals

more or less recently founded,⁴⁴ as some well-established ones are now available online with but a short moving wall, such as *BASP*⁴⁵ and *BIFAO*.⁴⁶ C.E. Jones regularly updates his list of open access journals and other resources, which offers a nice one-stop place to find them all.⁴⁷ Most other in-print journals are available by subscription, either through the websites of their publisher (such as *BiOr* itself,⁴⁸ or through larger portals (such as *JSTOR*).⁴⁹ Furthermore, many scholars have put some or all of their articles — either published or in preparation — on <http://www.academia.edu/>, where more than 1 400 people so far have expressed interest for the subject “Graeco-Roman Egypt” and more than 700 for Coptic studies.

Some book collections can also be downloaded: e.g. the *Oriental Institute Publications*,⁵⁰ the *Trismegistos Online Publications*,⁵¹ or *IBAES*.⁵² Earlier volumes have been scanned and made available on <http://www.archive.org>,⁵³ or other sources, including the *Description de l'Égypte*;⁵⁴ many can also be found in the *Ancient World Digital Library* of the New York University ISAW.⁵⁵ More recent ones can sometimes be partially previewed on <http://books.google.com/>, which can be a useful way not only to get a first taste of new books, but also for scholars without access to a library. For Coptic studies, P. Cherix has brought together a very large list of (mostly older) works available online.⁵⁶

One final bibliographical tool should be mentioned here, as anybody knows who has been faced with papyrologists' more-or-less cryptic, abbreviated references to papyrological corpora: the *Checklist of Editions of Greek, Latin, Demotic, and Coptic Papyri, Ostraca and Tablets*, originally published in *BASP*,⁵⁷ can now be accessed on the web, with the latest updates;⁵⁸ these abbreviations are also used in the online tools presented in the following paragraphs, so this is a precious resource for anyone unfamiliar with them. A similar list of all corpora exists for Arabic papyri.⁵⁹

4. READING THE DOCUMENTS OF GRAECO-ROMAN AND CHRISTIAN EGYPT

It is in dealing with the huge amount of texts preserved for Graeco-Roman and Christian Egypt that the availability of electronic resources has paved the way for a radical change

⁴⁴ E.g. *BMSAES*: http://www.britishmuseum.org/research/publications/online_journals/bmsaes.aspx; *ENiM*: <http://www.enim-egyptologie.fr/>.

⁴⁵ <http://quod.lib.umich.edu/b/basp?page=home>. Partial open access, with a larger moving wall for *ZPE*: <http://www.habelt.de/index.php?id=33>.

⁴⁶ <http://www.ifao.egnet.net/bifao/>.

⁴⁷ Current version: <http://ancientworldonline.blogspot.com/2012/07/alphabetical-list-of-open-access.html>.

⁴⁸ http://poj.peeters-leuven.be/content.php?url=journal&journal_code=BIOR.

⁴⁹ <http://www.jstor.org/>.

⁵⁰ <http://oi.uchicago.edu/research/pubs/catalog/oip/>.

⁵¹ <http://www.trismegistos.org/top.php>.

⁵² <http://www.ibaes.de>.

⁵³ For French volumes, try also <http://gallica.bnf.fr/>.

⁵⁴ <http://descegy.bibalex.org/index1.html>.

⁵⁵ <http://dlib.nyu.edu/awdl/>.

⁵⁶ <http://www.coptica.ch/>.

⁵⁷ First edition: J.F. Oates, R.S. Bagnall & W.H. Willis, *Checklist of Editions of Greek Papyri and Ostraca, BASP 11* (1974) p. 1-35.

⁵⁸ It is currently being moved from <http://scriptorium.lib.duke.edu/papyrus/texts/clist.html> to <http://www.papyri.info/docs/checklist/>.

⁵⁹ http://www.naher-osten.uni-muenchen.de/isap/isap_checklist/index.html.

³⁷ <http://www.annee-philologique.com/>.

³⁸ <http://archimede.unistra.fr/services-dappui-a-la-recherche/bulletin-analytique-dhistoire-romaine-bahr/>.

³⁹ <http://cmcl.aai.uni-hamburg.de/>.

⁴⁰ See A. Delattre & P. Heilporn, *Nouveaux développements de la Bibliographie Papyrologique, CE 88* (2013) p. 295-298. More information on the *BP*: <http://www.ulb.ac.be/philolo/cepg/bp.htm>.

⁴¹ <http://web.philo.ulg.ac.be/cedopal/>.

⁴² Such as the bibliographies for *TM*: <http://www.trismegistos.org/genbib/index.php>; and for *APD*: <http://www.naher-osten.uni-muenchen.de/forschung/papyrologie/apb/index.html>.

⁴³ E.g. <http://www.copticcongress2012.uniroma1.it/>.

in the way we work — in some cases, as early as 30 years ago already; of course, one of the preliminary steps necessary for this to happen was the near-universal generalization of Unicode fonts, which offer a common ground stable enough for sharing texts though allowing specific developments to occur that address the needs of a particular research field.⁶⁰) Launched in 1982, the *Duke Databank of Documentary Papyri (DDBDP)*⁶¹) started a process that basically brings to an end the time-consuming task of sifting through indexes and lexica in the search for parallels, by making the text of every Greek or Latin documentary papyrus or ostrakon available, and searchable in a few clicks — first on CD-Rom, later on the web. The *Advanced Papyrological Information System (APIS)*,⁶²) created 20 years ago by several of the main American collections of papyri, is another key element in this transformation, as the number of digital images available online has kept growing all around the world since then, allowing researchers to avoid relying only on printed editions and to check readings as often as they would like to. The recent integration of both these resources, as well as several metadata providers (*TM*, *HGV*, *BCD*, *BP*), into one and the same platform, the *Papyrological Navigator (PN)*: <http://www.papyri.info> is the next major step in providing scholars with an environment where they have quick access to the texts themselves, to the images, and to everything they might need to know about them. Of course, this is a process which will take many years, and the current state of affairs can be quite different from one text to the other, depending on the type of text considered (documentary papyri and ostraca, literary papyri, epigraphical texts), on the language it is written in, on the collection it belongs to, and

so on — this can be linked either to the history of the field they belong to, or to specific needs and problems — such as the inherent difficulty of reading and understanding Demotic, or setting standards for its transliteration. There are therefore several layers of information, which we will go through one by one.

The Way to Find One's Way about Texts — Metadata Resources

Metadata means information about the data themselves, i.e. the texts; this can include information about inventory numbers and acquisition history, about editions and re-editions of texts, about provenance and date, or keywords to the contents of the texts themselves. These are important signposts to help users get around the texts, when not searching for a precise word or expression.

Among such resources, the main database of the *Trismegistos* project (*TM*) lies at the very heart of many recent developments in the field, as it gives a unique numeric identifier for every single text from Egypt and the Nile valley, whatever its language or support, whether literary or documentary, as long as it dates from between 800 B.C. and A.D. 800: <http://www.trismegistos.org/index2.php>. The *TM* number plays a key role in allowing different resources developed around the world to understand when they are speaking about one and the same text, as well as when several texts belong to the same archaeological object. It can also be used to draw a better picture of how many texts we have in each language on each support or for each century, as shown respectively on Table 1 and on Figure 1.

	Papyri	Pottery Ostraca	Stone (except ostraca)	Wood	Stone Ostraca	Pottery (except ostraca)	Parchment	Others ⁶³)	All	%
Greek	44 364	18 692	10 470	3 042	53	1 878	989	399	79 897	65,7
Hieroglyphic	996	7	3 356	981	3	32	0	582	5 957	4,9
Hieratic ⁶⁴)	1 638	1 677	379	64	1 816	40	1?	951	6 565	5,4
Demotic	4 016	6 168	3 247	1 458	106	110	1?	263	15 368	12,6
Coptic ⁶⁵)	4 193	4 619	1 391	103	941	34	784	187	12 252	10,1
<i>All 4 Egyptian scripts</i>									40 142	33
Arabic	1 311	5	23	2	2	0	67	359	1 769	1,5
Latin	644	103	678	38	0	157	66	22	1 708	1,4
Other languages ⁶⁶)	728	459	724	40	1	128	520	78	2 678	2,2
Others ⁶⁷)	276	28	70	6	0	1	10	3	394	0,3
Total	56 262	30 563	19 859	4 621	2 900	2 357	2 330	2 772	121 664	⁶⁸)
%	46,2	25,1	16,3	3,8	2,4	1,9	1,9	2,3		⁶⁹)

Table 1 Current distribution of texts in *Trismegistos* by language and support

⁶⁰) Among the many Unicode fonts available, each with its own advantage, see in particular the fonts freely distributed by the IFAO: <http://www.ifao.egnet.net/publications/outils/polices/>; a keyboard specific to a papyrologist's needs can be downloaded for free on J.-L. Fournet's website (<http://fournet.monsite-orange.fr/>). For Coptic, see also the Antinoou font, supported by the IACS: <http://www.evertype.com/fonts/coptic/>.

⁶¹) <http://papyri.info/docs/ddbdp/>.

⁶²) <http://papyri.info/docs/apis/>.

⁶³) Includes linen, metal, paper and a few other things.

⁶⁴) Including Abnormal Hieratic.

⁶⁵) Including Old Coptic.

⁶⁶) Includes some 18 languages, from Aramaic, Syriac, Meroitic, down to Etruscan and Gothic.

⁶⁷) Includes unidentified languages, objects with drawing only and un-inscribed objects.

⁶⁸) The difference between the total number of records (121 664) and the sum of the totals for each language (126 588) is to be explained by the number of objects bearing texts in more than one language; 4 570 records in this set are marked as "bilingual", but some (such as the Rosetta stone) can bear 3 or more writings.

⁶⁹) All percentages have been rounded up or down to the nearest decimal point.

Table 1 underlines the predominance of Greek (nearly two-thirds of the records) against Egyptian (one-third of the records, for all its forms together), while the impact of other languages remains largely anecdotal until the development of Arabic; note also the avoidance of stone ostraca by Greek scribes.⁷⁰ The chronological distribution of texts was already presented in graph form for Greek texts by W. Habermann, using *HGV* data sets,⁷¹ and for Demotic ones by M. Depauw, using *DAHT (TM)* information,⁷² but to our knowledge, no graph for all the main languages together has been published so far, though B. Van Beek and M. Depauw have discussed graphs for the whole documentation included in *TM*;⁷³ though we want to acknowledge the importance of their method for weighing dates for best scientific results, we chose here to simply search how many texts the database found for each language in each century to produce Figure 1,⁷⁴ first because we think it is a good example of its ease of use and still gives a general picture that is globally correct, secondly because we wanted to compare, for each language, the numbers of texts certainly assigned to a century (using the “strict” search for dates on <http://www.trismegistos.org/tm/search.php>) to those including texts possibly assigned to a century (unchecking the “strict” button on the same page): we believe this illustrates what could be treated as minimal (in darker tones, at the front) and maximal (in lighter tones, at the back) numbers in the chronological distribution of texts. Characteristically, the pattern of distribution remains very similar for most languages, through the whole period under consideration, with the exception of Coptic, where the vast majority of documents do not contain any firm date and where many editors did not always give even a palaeographical date. Generally speaking, the *TM* database is limited to minimal metadata information, as its designers preferred to avoid duplication of work and refer users to other, more complete partner databases for this. Another way to use it is to search for a particular inventory number in a collection, and to move from *TM* to specific resources, then eventually to the text itself and its image(s).

For documentary papyri (and other supports), the oldest and largest of these specific resources, the *Heidelberger Gesamtverzeichnis der griechischen Papyrusurkunden*

⁷⁰ Table 1 was compiled by us in April 2014, using data from *TM*; the results are limited to Egypt (the “limited to Egypt” box was selected, and “Egypt” was written in the provenance field); the chronological limits are those of *TM*, from 800 B.C. to A.D. 800. See already, but for the whole *TM* database (i.e. without the limitation to Egypt), the more complete table presented by H. Verreth, *The Provenance of Egyptian Documents from the 8th century BC till the 8th century AD* = TOP 3 (Köln - Leuven, 2009) p. 15-17.

⁷¹ W. Habermann, *Zur chronologischen Verteilung der papyrologischen Zeugnisse*, *ZPE* 122 (1998) in part. p. 147.

⁷² M. Depauw, *A Chronological Survey of Precisely Dated Demotic and Abnormal Hieratic Sources* = TOP 1 (Köln - Leuven, 2007) p. xiii.

⁷³ B. Van Beek & M. Depauw, *Quantifying Imprecisely Dated Sources. A New Inclusive Method for Charting Diachronic Change in Graeco-Roman Egypt*, *Ancient Society* 43 (2013) p. 101-114.

⁷⁴ Figure 1 was compiled by us in April 2014, using data from *TM*; the results are limited to Egypt (the “limited to Egypt” box was selected, and “Egypt” was written in the provenance field). The impact of the languages not included in this graph is weaker than that of bilingual texts, so that the total number of texts for each century (marked as T under each column) is usually somewhat smaller than the sum of the number of texts for each of the main languages in the same century, though the general impression given by the height of the columns in the graph remains, to our eyes, essentially correct.

Ägyptens (HGV),⁷⁵ is devoted to Greek and Latin texts and includes now more than 60 000 regularly updated records, with information about date,⁷⁶ provenance, publications, corrections, translations, images (whether online or in print), as well as a summary and keywords for each text; these data form also one of the cornerstones of the *Papyrological Navigator*, next to the text itself. For Greek contracts from the Roman period, a more specific metadata website — displaying the text from the *PN* — is *Synallagma. Greek Contracts in Context* by U. Yiftach and others.⁷⁷

A database similar to *HGV* for Coptic documentary papyri, the *Brussels Coptic Database (BCD, ca 8 500 records)*⁷⁸ is currently being added to the *Navigator*, while cooperation with the *Arabic Papyrology Database (APD, ca 1 600 records with both metadata and texts)*⁷⁹ is in discussion. The *Demotic and Abnormal Hieratic Texts* database at *Trismegistos (DAHT, more than 15 000 records)*⁸⁰ has the same purpose, though perhaps somewhat less information is provided, and it is not yet linked to any project to make texts available online; M. Depauw and his team used it to complete a *Chronological Survey of Precisely Dated Demotic and Abnormal Hieratic Sources*, published as a .pdf file.⁸¹ Demotic texts form also the main corpus dealt with in the *Agriculture in Graeco-Roman Egypt* database (*AGRE*),⁸² which is meant to extend to all sources containing information about agriculture and land use.

Though this is marginal to our subject, it is worth mentioning that the Department of Papyrology at the University of Warsaw has built a *Database of Medieval Nubian Texts (DBMNT)*, which covers many different languages and a large variety of texts and supports like *Trismegistos*, in which they are a partner.⁸³

In Table 2, we have tried to compare the distribution of texts by type in Greek (and Latin), Demotic (and Abnormal Hieratic) and Coptic papyrological documents, on the basis of the data from, respectively, *HGV*, *DAHT* and *BCD*. This proved a somewhat difficult task, which might need some refinement in the future. We should first stress that the three databases cover different time periods, with *DAHT* starting before what we are trying to cover here, and *BCD* continuing well into the medieval times: these are three different corpora coming from different realities, and we are perfectly aware they should not be considered completely aligned and comparable. Another point is that these three databases were written by different (teams of) scholars, over several years: this means there might be a lack of consistency in the choice of words used to describe the contents of texts, even inside

⁷⁵ <http://aquila.papy.uni-heidelberg.de/gvzFM.html>.

⁷⁶ Chronology was the original purpose of this database; dates are systematically checked, and this has brought the *HGV* team to publish several lists of corrections, starting with J.M.S. Cowey, *Remarks on Various Papyri. I*, *ZPE* 84 (1990) p. 75-78.

⁷⁷ <http://hudd.huji.ac.il/ArtlidHomepage.aspx>. Information about marriage and divorce papyri of all languages (4th cent. B.C. - A.D. 4th cent.) is also to be found on D. Instone-Brewer's website, though it has not been updated since 2000: <http://www.tyndalearchive.com/Brewer/MarriagePapyri/Index.html>.

⁷⁸ <http://dev.ulb.ac.be/philo/bad/copte/base.php?page=accueil.php>.

⁷⁹ <http://orientw.uzh.ch:8080/apd/project.jsp>.

⁸⁰ <http://www.trismegistos.org/daht/index.php>.

⁸¹ <http://www.trismegistos.org/dl.php?id=4>.

⁸² <http://www.agre.uni-tuebingen.de/>.

⁸³ <http://www.dbmnt.uw.edu.pl/>. See also G. Ochała, *Chronological Systems of Christian Nubia* = JJP. Suppl. 16 (Warsaw, 2011).

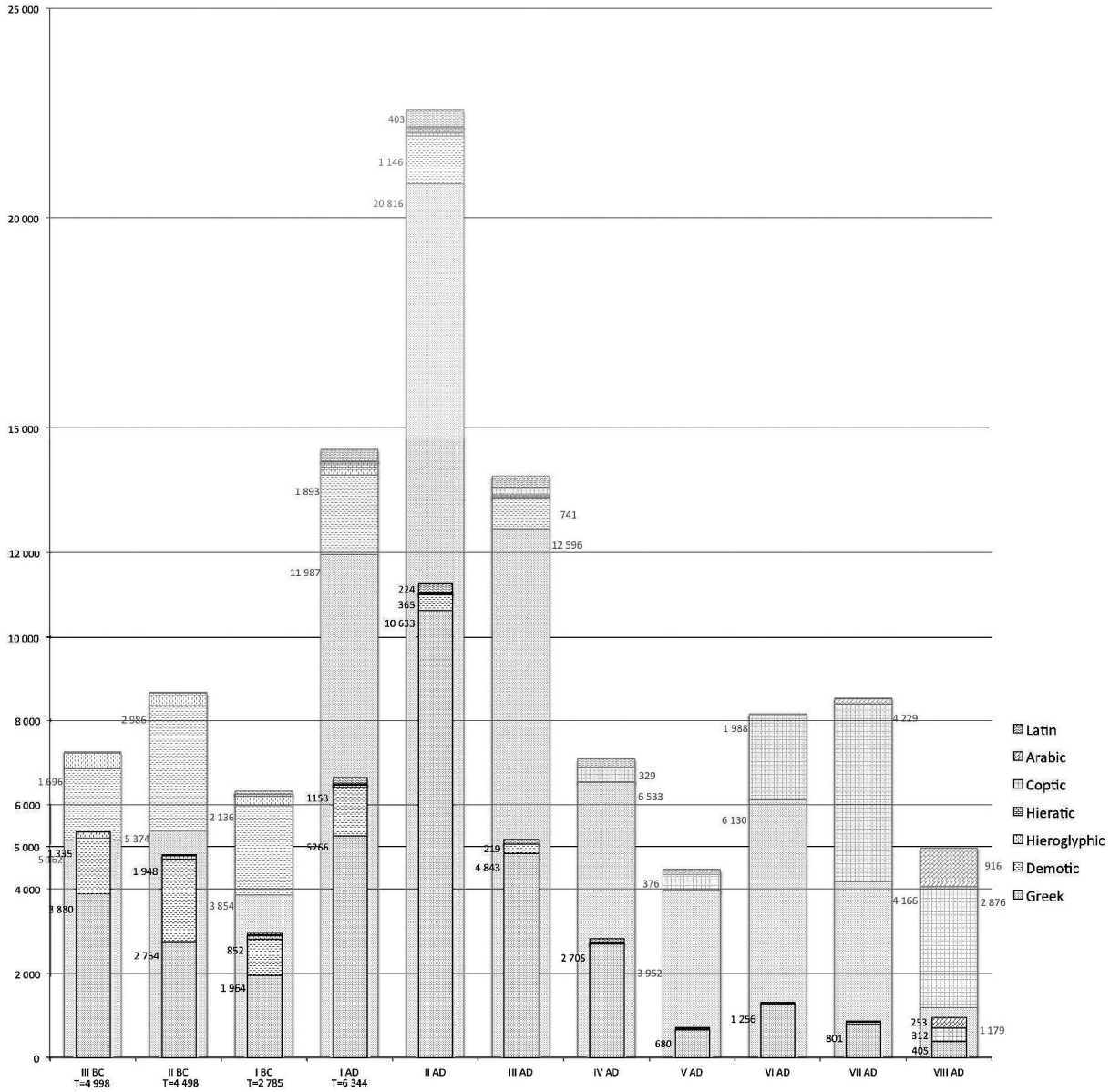


Figure 1 Current distribution of texts in *TM* by language and century, with minimal numbers at the front, and maximal numbers faded at the back

each of them. Furthermore, each has been completed in a different modern language, each with its own definition of sometimes similar, but maybe not overlapping concepts: if we are to move towards further integration of the different papyrological fields, this might be a good opportunity to plead for the main authors of these three databases — and anyone else interested — to get together and see how they can cooperate further to define common typological standards for our texts, respectful of the properties of all the main working languages of our fields, and to search for ways to implement more consistency both inside each database and

between them: can we hope, in a near future, to be able to search, through each corpus and for each period, for every text related to census or taxation, or every contract written in Hermopolis? In the meantime, and even if we are aware of the aforementioned problems, we hope that Table 2 gives a correct, even if imperfect, picture of the types of texts to be found respectively in Greek, Demotic, and Coptic.⁸⁴⁾

⁸⁴⁾ Latin and Abnormal Hieratic texts are few enough that we have not tried to exclude them from the numbers, respectively, of *HGV* and *DAHT*.

Types of texts	HGV	%	DAHT	%	BCD	%	Together	%
All	60 212	100	11 160 ⁸⁵⁾	100	7 802	100	79 174	100
Receipts	17 130	28,4	3 021	27,1	750	9,6	20 901	26,4
Letters	9 416	15,6	848	7,6	3 775	48,4	14 039	17,7
Contracts	8 676	14,4	1 604	14,4	919	11,8	11 199	14,1
Accounts	4 398	7,3	1 303	11,7	524	6,7	6 225	7,9
Lists	5 084	8,4	550	4,9	436	5,6	6 070	7,7
(Mummy) labels	2 308	3,8	1 553	13,9	0	0,0	3 861	4,9
Orders	3 089	5,1	60	0,5	538	6,9	3 687	4,7
Document (of uncertain nature)	152	0,3	1238	11,1	778	10,0	2 168	2,7
Reports	1 562	2,6	33	0,3	99	1,3	1 694	2,1
Oaths	659	1,1	781	7,0	38	0,5	1 478	1,9
Memoranda	1 005	1,7	37	0,3	4	0,1	1 046	1,3
Registers	941	1,6	15	0,1	14	0,2	970	1,2
Proceedings or minutes	686	1,1	4	0,0	3	0,0	689	0,9
Wills	265	0,4	6	0,1	37	0,5	308	0,4
Certificates	281	0,5	4	0,0	0	0,0	285	0,4
Decrees	210	0,3	24	0,2	2	0,0	236	0,3
Drafts	198	0,3	32	0,3	2	0,0	232	0,3
Registration	27	0,0	161	1,4	0	0,0	188	0,2
Oracular questions	81	0,1	86	0,8	not included		169	0,2
Extracts	145	0,2	3	0,0	1	0,0	149	0,2
Invitations	72	0,1	0	0,0	3	0,0	75	0,1

Table 2 Current distribution by type of documentary texts in Greek (and Latin), Demotic (and Abnormal Hieratic) and Coptic, according to data from HGV, DAHT and BCD.

Some bibliographical information about Greek inscriptions can be found on the *CLAROS* concordance created for the *Diccionario Griego-Español*,⁸⁶⁾ until P. Heilporn and A. Martin can update and complete their project about *Inscriptions grecques et latines d'Égypte (IGLE)*, currently unavailable online, but used by *TM*.

For literary papyri, the *Leuven Database of Ancient Books (LDAB)*,⁸⁷⁾ holds nearly 15 000 records, including pieces from out of Egypt, such as the Herculaneum papyri; now part of *Trismegistos*, it collects basic information about every literary text preserved on papyri and other objects and dating from the 4th cent. B.C. to A.D. 800, whatever the language they are written in. The graphs it allows one to create⁸⁸⁾ are very useful too, for pedagogical purposes, to show which

authors were most read in Antiquity, or the development of the use of the *codex* form and of the parchment, at the expense of, respectively, the *volumen* and the papyrus. Greek and Latin papyri and ostraca that contain classical literature are also recorded, with somewhat more precise and complete information, in the Mertens-Pack³ file (MP³), maintained by the CEDOPAL team.⁸⁹⁾ Both resources allow us to have a clearer picture of which authors and books were most read in Graeco-Roman and Christian Egypt (see Table 3, with numbers from the MP³, except for the Greek Christian papyri, for which they derive from the *LDAB*). For New Testament papyri, W. Willker⁹⁰⁾ provides a list of Greek witnesses, as the *SMR* database does for Coptic,⁹¹⁾ while the *New Testament Virtual Manuscript Room*⁹²⁾ offers a work environment with images and Greek transcriptions side by side, as well as a discussion forum. Finally, metadata for religious, ritual,

⁸⁵⁾ Of the 15 436 records in *DAHT*, we had to exclude the epigraphical material (in part. 3 248 pieces on stone); we have treated as papyrological the 4 078 marked as written on papyrus, the 6 275 on ostrakon and the 1 462 on wood, for a total of 11 815, from which we remove the 655 literary Demotic papyri and ostraca recorded in the *LDAB*.

⁸⁶⁾ <http://www.dge.filol.csic.es/claros/cnc/cnc.htm>.

⁸⁷⁾ <http://www.trismegistos.org/ldab/>. The *Trismegistos* team is currently in the process of replacing the *LDAB* with a new tool, called *Authors*: <http://www.trismegistos.org/authors/beta.php>.

⁸⁸⁾ <http://www.trismegistos.org/ldab/graphs.php>. This allows to make two graphs, to compare e.g. the use of papyrus vs. parchment: http://www.trismegistos.org/ldab/graphpage.php?graphcount=twograph&graphwhat=dates&type=bar&together=on&graph1_filter_field1=material&graph1_field_value1=papyr&graph1_filter_field2=&graph1_field_value2=&graph1_filter_field3=&graph1_field_value3=&graph2_filter_field1=material&graph2_

[field_value1=parch&graph2_filter_field2=&graph2_field_value2=&graph2_filter_field3=&graph2_field_value3=&button=Make+Graph](http://www.trismegistos.org/ldab/graphpage.php?graphcount=twograph&graphwhat=dates&type=bar&together=on&graph1_filter_field1=bookform&graph1_field_value1=code&graph1_filter_field2=&graph1_field_value2=&graph1_filter_field3=&graph1_field_value3=&graph2_filter_field1=bookform&graph2_field_value1=roll&graph2_filter_field2=&graph2_field_value2=&graph2_filter_field3=&graph2_field_value3=&button=Make+Graph); or of roll vs. codex: http://www.trismegistos.org/ldab/graphpage.php?graphcount=twograph&graphwhat=dates&type=bar&together=on&graph1_filter_field1=bookform&graph1_field_value1=code&graph1_filter_field2=&graph1_field_value2=&graph1_filter_field3=&graph1_field_value3=&graph2_filter_field1=bookform&graph2_field_value1=roll&graph2_filter_field2=&graph2_field_value2=&graph2_filter_field3=&graph2_field_value3=&button=Make+Graph.

⁸⁹⁾ <http://web.philo.ulg.ac.be/cedopal/>.

⁹⁰⁾ <http://www-user.uni-bremen.de/~wie/texte/Papyri-list.html>.

⁹¹⁾ <http://intf.uni-muenster.de/smr/>.

⁹²⁾ <http://ntvmr.uni-muenster.de/home>.

Greek lit. pap. (MP³)	7 119	Xenophon	46	Euphorion	10
<i>Iliad</i>	1 570	Dioscorus of Aphrodito	42		
<i>Odyssey</i>	287	Sophocles	36	Latin lit. pap. (MP³)	201
Demosthenes	198	Aeschylus	33	Vergil	30
Euripides	171	Alcaeus	28	Cicero	12
Hesiod	158	Theocritus	26	Sallust	7
Isocrates	133	Hippocrates	24		
Menander	118	Sappho	23	Christian Greek lit. pap. (LDAB)	1 844
Plato	106	Archilochus	19	<i>Old Testament</i>	533
Thucydides	98	Alcman	15	<i>New Testament</i>	450
Callimachus	84	Plutarch	15	Hermas, <i>Shepherd</i>	26
Aristophanes	58	Aesop	14	John Chrysostom	23
Pindar	57	Bacchylides	14	Gregory of Nazianzus	16
Apollonius of Rhodes	56	Aratos	14	Origen	16
Aeschines	50	Aristotle	13	Basil of Caesarea	10
Herodotus	47	Lysias	10	Eusebius	10

Table 3 Current distribution of Greek literary texts according to data from MP³ and LDAB.

magic and divinatory texts — which are at the border between literary and documentary papyrology — are collected in the *TM-Magic* database, whatever the language they are in.⁹³⁾

Finding and Searching Texts Online

For **Greek and Latin documentary papyri**, since the early days of the *DDBDP*, when a search on the CD-Rom could take hours, much progress has been made: a search for a Greek word on the *Papyrological Navigator* (*PN*: <http://www.papyri.info>) can bring hundreds of answers in but a fraction of a second. Not only does the *PN* bring together the texts entered during the *DDBDP* project together with the metadata from *HGV* and the images and information from *APIS*, but it keeps being expanded: the project *Integrating Digital Papyrology*, led by J. Sosin and funded by the NEH and the Mellon Foundation, has created an environment — called SoSOL⁹⁴⁾ — where different resources are integrated to the point that none of them relies anymore only on the institution that founded it, as every scholar or student around the world can register with the *Papyrological Editor* (*PE*)⁹⁵⁾ and start entering or correcting information (whether text or metadata), which can then be submitted to a board for peer review. The result is that the scholarly community manages to keep the database more or less up-to-date while continuing to improve it — both by correcting mistakes in entering the text and by improving readings. As a consequence, a *Bulletin of Online Emendations to Papyri* (*BOEP*)⁹⁶⁾ has been created, and is published twice a year as a .pdf document; this underlines the need for the systematic integration of another papyrological tool, the *Berichtigungsliste der griechischen Papyrusurkunden aus Ägypten* (*BL*), which has so far been

available only in print and on CD-Rom. The production of another of Fr. Preisigke's creations, the *Sammelbuch griechischer Papyrusurkunden aus Ägypten* (*SB*), will also adapt to this new environment.

Often enough, documentary papyri from Graeco-Roman and Christian Egypt can be bilingual, as they originate from a multicultural society. While this brings new challenges, it makes only sense to try avoiding duplication of work by opening the papyrological tools to other languages than Greek and Egyptian. Scholars have already started to enter **Coptic documentary texts**, both for Greek-Coptic and Coptic only documents; these records use the metadata provided by the *BCD* through an *HGV* filter. **Arabic documentary papyri** were already entered, with their metadata, in the *Arabic Papyrology Database* (*APD*, ca 1 600 records);⁹⁷⁾ a collaboration with the *PN*, currently in progress, should see them incorporated at papyri.info.

Demotic is a more difficult matter, as it seems impossible to define a standardized set of characters, and therefore a Unicode encoding standard, for a script with so many variations from one scribe to the other, not to mention the different methods of transcription used around the world.⁹⁸⁾ Another approach has therefore been taken, involving a very precise lexicographical analysis of every text entered: thanks to the work of G. Vittmann,⁹⁹⁾ a large selection of **Demotic texts** — **both literary and documentary, including inscriptions**

⁹⁷⁾ <http://orientw.uzh.ch:8080/apd/project.jsp>.

⁹⁸⁾ See most recently S.P. Vleeming, Notes on Demotic Orthography, in S.P. Vleeming (Ed.), *Aspects of Demotic Orthography. Acts of an International Colloquium held in Trier, 8 November 2010* = *Studia Demotica* 11 (Leuven - Paris - Walpole, MA, Peeters, 2013) p. 145-161.

⁹⁹⁾ See G. Vittmann, Zur Arbeit an der demotischen Textdatenbank: Textauswahl, in I. Hafemann (ed.), *Perspektiven einer corpusbasierten historischen Linguistik und Philologie. Internationale Tagung des Akademienvorhabens "Altägyptisches Wörterbuch" an der Berlin-Brandenburgischen Akademie der Wissenschaften, 12.-13. Dezember 2011* = *Thesaurus Linguae Aegyptiae* 4 (Berlin, 2013) p. 145-154 (volume available at <http://edoc.bbaw.de/volltexte/2013/2431/>).

⁹³⁾ <http://www.trismegistos.org/magic/index.php>.

⁹⁴⁾ <http://wiki.digitalclassicist.org/SoSOL>.

⁹⁵⁾ <http://papyri.info/editor/>.

⁹⁶⁾ <http://www.uni-heidelberg.de/fakultaeten/philosophie/zaw/papy/projekt/bulletin.html>.

— are available and searchable for subscribers of the *Thesaurus Linguae Aegyptiae*: <http://aaew.bbaw.de/tla/>, where interested users will also find other texts from Graeco-Roman Egypt, among others in the *Leuven Online Index of Ptolemaic and Roman Hieroglyphic Texts*.¹⁰⁰ This is a very commendable project, which could gain more readership through better integration with *DAHT* and *TM* and — for bilingual documents at least — with the *PN* (currently Greek words included in Demotic texts are simply entered in pre-Unicode transcription).

For **hieroglyphic and hieratic documents** of the Graeco-Roman period, we can only point the readers to the resources discussed elsewhere in this journal by W. Claes and E. Van Keer, such as the *Thesaurus Linguae Aegyptiae*.

There is no specific website for **Greek inscriptions** from Egypt, but their contents can be found in resources covering the whole ancient world, all of which are available for free, but not allowing user intervention. The *PHI Greek Inscriptions*¹⁰¹ was a very complete corpus, though the text of some of the most important inscriptions appears several times, being reproduced as it is in different editions (e.g. the Greek text of the Rosetta stone); however, updates have been irregular for some areas, including Egypt, for which the corpora of the last 10 years or so, as well as nearly 20 of the last *SEG* volumes, have not yet been added. A collaboration between the *PN* team and the one in charge of the *PHI Greek Inscriptions* is in discussion, and it is definitely something to be wished for. **Latin inscriptions** are fewer in Egypt; most of them can be found in the *Clauss-Slaby Epigraphik-Datenbank*¹⁰² and, to a lesser degree at the present time, in the *Epigraphic Database Heidelberg*,¹⁰³ itself a part of the *Eagle* network;¹⁰⁴ for those known for a century at least, the whole *CIL* III volume, where they appear, can be accessed online.¹⁰⁵ Finally, P. Dilley is working on a database of **Greek and Coptic inscriptions** from Late Antique Egypt and Nubia.

While a lot of information can be found about **Greek and Latin literary papyri**, there is currently no website devoted to providing their text online, but a project to develop a *Digital Corpus of Literary Papyri* (*DCLP*) has been announced in June 2013;¹⁰⁶ in the meantime, long-known fragments have often permeated, through standard editions, the corpus of the *Thesaurus Linguae Graecae* (*TLG*),¹⁰⁷ where they are of course distributed under each author or, if unattributed, under each genre. Only for some authors can more specific information be found online, such as the diplomatic transcriptions of Homeric papyri¹⁰⁸ belonging to the Homer multitext project,¹⁰⁹ or the first issue of the Center of Hellenistic Studies' online journal, *Classics@*, devoted to

a periodically updated edition of the Posidippus papyrus, *P. Mil. Vogl.* VIII 309;¹¹⁰ special mention should also be made of the corpus of melodies played from, among others, literary papyri on S. Hagel's website,¹¹¹ and of I. Andorlini's project of a corpus of medical papyri (*DigMedText*).¹¹² A corpus of paraliterary papyri — defined as those which will not find their way in either the *TLG* or the *PN*, such as mythographic or grammatical papyri, catalogues, glossaries and commentaries — was created by the late M. Huys and his team;¹¹³ unfortunately, as it appears not to have been updated for quite a few years, the question arises of the survival and later evolution of such projects, where one individual is primordial.

Finally, **Coptic literary papyri, ostraca and parchments** from Late Antiquity and the early medieval period can hardly be distinguished from the rest of the manuscript tradition, as the latter is virtually non-existent outside of Egypt. Most (up to the 12th cent. A.D.) are part of the electronic database of the *Corpus dei Manoscritti Copti Letterari* (*CMCL*), led by T. Orlandi;¹¹⁴ its access is limited to subscribers, except for the *Clavis Coptica*, a fundamental list of the Coptic literature.¹¹⁵ Another ambitious project, though still young, is the *Coptic Scriptorium* (for *Sahidic Corpus Research: Internet Platform for Interdisciplinary Multilayer Methods*),¹¹⁶ which already makes some parts of Coptic literature fully searchable under the powerful *ANNIS*¹¹⁷ search engine as well as freely downloadable. The educational software Marcion offers an interesting study environment for mainly Coptic sources on gnosticism and early Christianity, by integrating both texts and a variety of tools.¹¹⁸ Once again, there are also specific websites, such as the *Bible Tool* for the Coptic translation of the Bible,¹¹⁹ the *Bibliothèque copte de Nag Hammadi*,¹²⁰ offering among others French translations of all treaties from this library, while the *Gospel of Thomas* has its own resource center.¹²¹

Getting a Closer Look at the Text — Finding images

The way scholars work on texts from Graeco-Roman and Christian Egypt has also been strongly affected by a huge increase in the availability of images, both through online resources and because it is much easier to include them in computer-generated print editions. The time when only papyri of special interest were pictured in such books is long gone: these days most editions come with all or most images printed, or included in a CD-Rom, or in free access on a specific website.¹²² Most collections have now at least some

¹⁰⁰ See also W. Claes and E. Van Keer's paper in this volume.

¹⁰¹ <http://epigraphy.packhum.org/inscriptions>.

¹⁰² <http://www.manfredclauss.de/gb/index.html>.

¹⁰³ <http://edh-www.adw.uni-heidelberg.de/home>.

¹⁰⁴ http://www.eagle-eagle.it/Italiano/index_it.htm; see also <http://www.eagle-network.eu/>: this project aims at including both Greek and Latin inscriptions.

¹⁰⁵ http://cil.bbaw.de/cil_en/dateien/cil_baende.html.

¹⁰⁶ See e.g. <http://isaw.nyu.edu/about/news/neh-funds-literary-papyri-project>.

¹⁰⁷ <http://stephanus.tlg.uci.edu>. Access by subscription only.

¹⁰⁸ Catalogue of Online Papyri: <http://homeriapapyri.appspot.com/CTS?request=GetCapabilities&withXSLT=chs-gc&inv=inventary.xml>.

¹⁰⁹ <http://www.homerimultitext.org/>.

See also <http://chs.harvard.edu/wa/pageR?tn=ArticleWrapper&bdc=12&mn=1168>.

¹¹⁰ <http://chs.harvard.edu/wa/pageR?tn=ArticleWrapper&bdc=12&mn=1341>.

¹¹¹ <http://www.oeaw.ac.at/kal/agm/index.htm>.

¹¹² <http://www.papirologia.unipr.it/CPGM/erc.html>.

¹¹³ <http://cpp.arts.kuleuven.be/>.

¹¹⁴ <http://cmcl.aai.uni-hamburg.de/>.

¹¹⁵ http://cmcl.aai.uni-hamburg.de/chiam_clavis.html.

¹¹⁶ <http://coptic.pacific.edu/>.

¹¹⁷ <http://www.sfb632.uni-potsdam.de/annis/aql.html>.

¹¹⁸ <http://marcion.sourceforge.net>.

¹¹⁹ <http://www.crosswire.org/study/fulllibrary.jsp?show=SahidicBible>. For the Coptic Old Testament, see also the project of a digital edition at the University of Göttingen: <http://www.uni-goettingen.de/de/digitale-edition-des-koptisch-sahidischen-alten-testaments/475974.html>.

¹²⁰ <http://www.naghammadi.org/default.aspx>.

¹²¹ <http://gospel-thomas.net/>.

¹²² For the latter, see e.g. the Berenike and Didymoi ostraca, to be found resp. at <http://www.columbia.edu/dlc/apis/berenike/> and <http://www.ifao.egnet.net/bases/publications/fifao67/>.

kind of presence on the web and are in the process of publishing online the images of at least published papyri and ostraca; as mentioned earlier, this trend started with the *APIS* consortium of the American collections — now included in the *PN* —, followed by *e.g.* the *Oxyrhynchus papyri* in Oxford,¹²³⁾ the *PSI* in Florence,¹²⁴⁾ as well as the Berlin¹²⁵⁾ and Vienna¹²⁶⁾ collections, and by national portals for German¹²⁷⁾ and Spanish¹²⁸⁾ collections; this also includes Cairo papyri which were photographed in the '70s and '80s for the AIP International Papyrus archive;¹²⁹⁾ a full list of links to collection websites will be included in the online version of this paper. The archives of Dioscorus of Aphrodite have their own image database (*Banque des images des papyrus de l'Aphrodite byzantine*, or *BIPAB*),¹³⁰⁾ the only one so far, to our knowledge, where images from different collections are brought together on a thematic basis, in this case allowing scholars to take advantage of the virtual reunion of fragments and pieces which were separated by modern dealers. At the other end of the spectrum, the *Ancient Lives* project of Oxford University¹³¹⁾ deserves special mention, as it offers images of unpublished *Oxyrhynchus papyri* to allow anyone interested, including members of the general public, to try and decipher a few fragments. This is a new, interesting medium of publicity for our field, and could be used for pedagogical purposes. The *Arabic Papyrology School (APS)* goes a step further in this direction by allowing freely registered users to practice reading Arabic on a few (published) papyri.¹³²⁾

Searching for Greek texts on papyri.info (last accessed on April 13, 2014), we get 67 904 hits; among these, according to the same website, more than half (37 610) are illustrated online (26 029) and/or in print (20 042). The availability of so many images is not only an invitation for every scholar or student to check the original and its readings as often and as soon as possible. It provides also a large mass of data, and one should search for new ways to use it. One such pioneer, which provides tremendous help for comparative palaeography, is the *PapPal* project led by R. Ast (<http://www.pappal.info>), which allows users to browse through images of dated Greek and Latin documentary papyri and ostraca, presented in chronological order and, if needed, limited by date, by type of text and/or by provenance (all of this being based on the *HGV* metadata integrated in the *PN*): this allows users to quickly search for parallel handwritings in, *e.g.*, 2nd cent. Theban tax receipts, or 3rd cent. *Oxyrhynchus* contracts. This is invaluable for anyone who has to use palaeography as the main criterion for dating unpublished material, and we can only dream of the day such a powerful tool will exist for other parts of our field — Greek and Latin literary papyri, Demotic and Coptic documentary and literary papyri.

¹²³⁾ <http://www.papyrology.ox.ac.uk/POxy/>.

¹²⁴⁾ <http://www.psi-online.it/home>.

¹²⁵⁾ <http://ww2.smb.museum/berlpap/>.

¹²⁶⁾ http://aleph.onb.ac.at/F?func=file&file_name=login&local_base=ONB08.

¹²⁷⁾ <http://www.papyrusportal.de/>.

¹²⁸⁾ <http://dvctvs.upf.edu/lang/es/>.

¹²⁹⁾ <http://www.igl.ku.dk/~bulow/aipdescr.html> and <http://ipap.csad.ox.ac.uk/index.shtml>.

¹³⁰⁾ http://www.misha.fr/papyrus_bipab/.

¹³¹⁾ <http://ancientlives.org/>.

¹³²⁾ http://orientx.uzh.ch:8080/aps_test_2/home/index.jsp;jsessionid=9988D0EAA754D91F126C01FF36A554FB.

5. FURTHER TOOLS

General Lexicography

For **Greek**, the two most important scientific dictionaries, which make liberal use of papyrological sources, can be used online: the Liddell-Scott-Jones (LSJ) can be found and searched both on the *TLG* website¹³³⁾ and on Perseus;¹³⁴⁾ the first volumes of the *Diccionario Griego-Español (DGE)* can be consulted on the website for the project,¹³⁵⁾ as well as another tool potentially useful to papyrologists, the *Léxico de magia y religión en los papiros mágicos griegos*.¹³⁶⁾ While the main lexicographical tool for papyrology itself, the *Wörterbuch (WB)*, remains absent from the web, D. Hagedorn has compiled very useful lists of words from the indexes of recently published volumes, the *Wörterlisten aus den Registern von Publikationen griechischer und lateinischer dokumentarischer Papyri und Ostraka (WL)*, including a precious *Konträrindex*.¹³⁷⁾

A new **Demotic** dictionary has been awaited since W. Erichsen's *Demotisches Glossar* in 1954: the *Chicago Demotic Dictionary*, though covering primarily publications from 1955 to 1979, is still not available in print, but is now complete online, with a .pdf file for each Demotic letter.¹³⁸⁾ Furthermore, Fr. Hoffmann's *Demotische Wortliste* allows one to search parts of words (including determinatives) or even a German translation;¹³⁹⁾ in addition to the translation, it provides the most important bibliography for each entry.

The main **Coptic** dictionary remains Crum's work (1939); it is available online both as a set of .gif images and as a single .djvu file.¹⁴⁰⁾ S. Richter has established a long-term project on the Greek words used in Coptic texts, the *Database and Dictionary of Greek Loanwords in Coptic (DDGLC)*.¹⁴¹⁾

Toponymics and Topography

The main resource for place names from Graeco-Roman and Christian Egypt has to be the *Places* database from the project *Trismegistos*,¹⁴²⁾ which is built on documents and literature from every language in use at the time and includes more than 11 000 place records for Egypt itself (and more than 36 000 for the whole ancient world). This has allowed H. Verreth to contribute several volumes of the *Trismegistos Online Publications* by surveying Egyptian toponyms, but also the provenance of Egyptian documents (both in general and language by language).¹⁴³⁾ For Nubia, G. Ochała

¹³³⁾ <http://stephanus.tlg.uci.edu/lsg/>.

¹³⁴⁾ <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3atext%3a1999.04.0057>.

¹³⁵⁾ <http://dge.cchs.csic.es/index> currently offers from α to $\xi\xi\alpha\upsilon\omicron\varsigma$.

¹³⁶⁾ <http://dge.cchs.csic.es/lmpg/>, using the material collected by L. Muñoz Delgado in the fifth Annex of the *DGE* (2001).

¹³⁷⁾ <http://www.zaw.uni-heidelberg.de/hps/pap/WL/WL.html>. The 17th instalment of the *WL* was published in early 2014; the .pdf file counts no less than 530 pages, covering from 1995 to the present day.

¹³⁸⁾ <http://oi.uchicago.edu/research/pubs/catalog/cdd/>. The last missing letter, S, was added on April 23, 2014.

¹³⁹⁾ <http://www.dwl.aegyptologie.lmu.de/>.

¹⁴⁰⁾ <http://www.metalog.org/files/crum.html>. See also the Marcion software presented above (col. 324).

¹⁴¹⁾ <http://www.uni-leipzig.de/~ddglc/index.html>. The database is not yet online.

¹⁴²⁾ <http://www.trismegistos.org/geo/index.php>.

¹⁴³⁾ H. Verreth, *A Survey of Toponyms in Egypt in the Graeco-Roman Period* = TOP. 2, Köln - Leuven, 2013; Id., *The Provenance of Egyptian Documents from the 8th century BC till the 8th century AD*, Köln - Leuven,

and G. Ruffini have collected a list of known toponyms on *Medieval Nubia*.¹⁴⁴⁾

The *Pleiades* website started from the well-known Barrington Atlas and covers the whole ancient world.¹⁴⁵⁾ Though sharing much information with *Trismegistos Places*, it is more systematic in trying to place toponyms on a map.

Finally, 1:100 000 maps of Egypt, made in the 1940s for military use, can still be of a great help.¹⁴⁶⁾

Onomastics and Prosopography

The combination of elements from Greek, Latin and Egyptian (including Demotic and Coptic) sources makes again *Trismegistos People*¹⁴⁷⁾ the best resource for onomastics in Graeco-Roman and Christian Egypt: it allows the user to search for a name and to quickly have a first glance at when and where (in which nome, at least) it is attested, as well as the different forms it can take in each language, and then to move on to all attestations of the name or of one of its spellings. For recent publications, this can be completed with the name index of D. Hagedorn's *WL*. For Greek and Latin names, this can of course be furthered by tools covering the whole ancient world, such as the *Lexicon of Greek Personal Names (LGNP)*.¹⁴⁸⁾

The *Trismegistos* team has linked this to one of the long-term projects inherited from its predecessors, the *Prosopographia Ptolemaica*, and this could be the beginning of a prosopography for the whole of Egypt (and beyond), not only in the Ptolemaic period, but from 800 B.C. to A.D. 800. To develop such a prosopography of the whole of Egypt (and beyond) seems however like a daunting task, and the *Trismegistos* team is now exploring, together with *LGNP* and other partners, how to set up a collaborative platform in *Standards for Networking Ancient Prosopographies*.¹⁴⁹⁾ Therefore, the *Trismegistos People* database should be considered as still largely in its infancy, even after a few years of development and with currently *ca* 360 000 individuals recorded, with progress very different from one language or type of text to the other. Still, it is already a very useful tool allowing users to check whether a particular individual they find in a text appears elsewhere in our documentation, even if it is in another language. Currently it can be searched by name, father's and mother's names, and century (plus *Prosopographia Ptolemaica* number if applicable); hopefully, geographical criteria will be added at later stages. As this database assigns a unique number to each individual attested, we hope the time will come (once everything has been cleaned up and checked, we suppose) where people will start to refer, when they edit a new document about someone already known, to even Zenon son of Agreophon not only as

“*PP* 80 + add. = 666 = 1044 + add. = 7982 = 9749”, but “*TM PER* 1757”.¹⁵⁰⁾

Other projects exist, both at more local levels or empire-wide, and it is to be hoped that the different teams will find ways to integrate their data with each other. At the village level, the most advanced project is clearly the prosopography of Dime/Soknopaiou Nesos.¹⁵¹⁾ At the other end of the spectrum, for people of importance in the Roman Empire, one hopes that one day we will be able to use online the *Prosopographia Imperii Romani*,¹⁵²⁾ the more so as Roman names have not yet really been implemented in *Trismegistos People*. G. Ochała and G. Ruffini's *Medieval Nubia* offers also a list of anthroponyms known there, as well as prosopographical elements for officials.¹⁵³⁾

Chronology

Though this should not prevent scholars from doing the calculations themselves, a date converter for regnal years and Egyptian (as well as Macedonian) months of the Ptolemaic and Roman periods is provided on the *Egyptology Online Resources*.¹⁵⁴⁾ For indictional and Hegira dates, similar tools have been created by J. Thomann.¹⁵⁵⁾

A very detailed, and sometimes quite well argued, presentation of the genealogy and history of the Ptolemaic dynasty was created by the late C.J. Bennett.¹⁵⁶⁾ On his welcome page,¹⁵⁷⁾ he made clear that health problems stopped him from updating it much in the last few years, and his recent death raises questions about the future of the site in the mid- to long-term: should it be at least preserved as it is? Should someone take it over, and try to update or even expand it? We do not know if he expressed his will about this, and we do not think this particular case should be discussed publicly, if not to call the scholarly community to reflect on what to do in such a situation, which is bound to happen again and again in the future.

Conservation

For general conservation of papyri, one can use as an online reference tool the guidelines set up (with illustrations) by L. Lau-Lamb, of the University of Michigan, for the *APIS* project.¹⁵⁸⁾ She has also given conservation summer schools, as the *Centro di Studi Papirologici* di Lecce does from time to time.¹⁵⁹⁾ Specific papyrus conditions have been dealt with in separate how-to guides, such as J. Frösén's 1987 video on mummy cartonnage conservation¹⁶⁰⁾ and A. Nurminen's

2009; Id., *Toponyms in Demotic and Abnormal Hieratic Texts from the 8th Century BC till the 5th century AD* = TOP. 5 (Köln - Leuven, 2011). All TOP volumes can be freely downloaded from <http://www.trismegistos.org/top.php>.

¹⁴⁴⁾ <http://www.medievalnubia.info/>.

¹⁴⁵⁾ <http://pleiades.stoa.org/places>.

¹⁴⁶⁾ <http://www.lib.utexas.edu/maps/ams/egypt/>.

¹⁴⁷⁾ <http://www.trismegistos.org/ref/index.php>.

¹⁴⁸⁾ <http://www.lgpn.ox.ac.uk/index.html>. For names in Coptic documentary sources, a list based on indexes in many publications had been compiled in 2007 by M. Hasitzka: http://www.onb.ac.at/files/kopt_namen.pdf.

¹⁴⁹⁾ <http://snapdrgn.net/>.

¹⁵⁰⁾ <http://www.trismegistos.org/person/1757>.

¹⁵¹⁾ <http://www.dime-online.de/index.php>.

¹⁵²⁾ <http://www.bbaw.de/bbaw/Forschung/Forschungsprojekte/pir/de/Startseite>.

¹⁵³⁾ <http://www.medievalnubia.info/>.

¹⁵⁴⁾ <http://aegyptologie.online-resourcen.de/>.

¹⁵⁵⁾ Respectively <http://www.oriold.uzh.ch/static/coptic.html> and <http://www.oriold.uzh.ch/static/hegira.html>.

¹⁵⁶⁾ <http://www.tyndalehouse.com/Egypt/ptolemies/genealogy.htm>.

¹⁵⁷⁾ <http://www.tyndalehouse.com/Egypt/index.htm>.

¹⁵⁸⁾ <http://www.lib.umich.edu/papyrus-collection/advanced-papyrological-information-system-guidelines-conservation-papyrus>. See also her report on the use of a new adhesive material: <http://cool.conservation-us.org/coolaic/sg/bpg/annual/v26/bp26-33.pdf>.

¹⁵⁹⁾ http://www.museopapirologico.eu/?page_id=1214.

¹⁶⁰⁾ <http://www.helsinki.fi/hum/kl/papupetra/papyrus/cartonnage.html>.

presentation on recording, processing and archiving carbonized papyri.¹⁶¹⁾

6. ARCHAEOLOGY AND ART HISTORY

Every museum with an Egyptological collection will probably have some material from the period we consider here, and many of them have started to make images of at least parts of their collections available online, such as the British Museum,¹⁶²⁾ the Louvre¹⁶³⁾ or the Coptic Museum in Cairo;¹⁶⁴⁾ others have joined their efforts with the hope of starting a *Global Egyptian Museum*.¹⁶⁵⁾ The Petrie Museum has created a very nice learning and teaching resource called *Digital Egypt*, which can be navigated through chronology as well as geography.¹⁶⁶⁾ Specific databases or projects exist for some material, such as glass and wood objects,¹⁶⁷⁾ or for buildings of a certain type, including Graeco-Roman or Christian innovations, such as baths¹⁶⁸⁾ and monasteries¹⁶⁹⁾ — in some cases, they are as such not limited to Egypt. Quite a few websites are devoted by enthusiastic amateurs and professionals to coins from Graeco-Roman Egypt.¹⁷⁰⁾ Of course, the evolution of traditional Egyptian buildings such as temples can be studied for this particular period, as shown by the project *Rome in Egypt: Roman temples for Egyptian gods*.¹⁷¹⁾

It can be difficult to keep track of the many archaeological activities led each year in Egypt under the auspices of the Supreme Council of Antiquities (SCA). Information on recent excavations can be found on the SCA website,¹⁷²⁾ as well as through the main national research centers active in the country, such as the American Research Center in Egypt (ARCE),¹⁷³⁾ the Deutsches Archäologisches Institut (DAI),¹⁷⁴⁾ the Egypt Exploration Society (EES),¹⁷⁵⁾ the Institut français d'archéologie orientale (IFAO),¹⁷⁶⁾ the Netherlands-Flemish Institute in Cairo (NVIC)¹⁷⁷⁾ and the Netherlands Institute for the Near East itself (NINO),¹⁷⁸⁾ as well as institutional research centers such as the Oriental Institute of the University of Chicago (OI)¹⁷⁹⁾ or the Polish Centre of Mediterranean Archaeology of the University of Warsaw (PCMA).¹⁸⁰⁾ N. Strudwick tries to offer a more comprehensive view of all fieldwork projects, presented in geographical order but with

no indication of chronology, on a page of the Fitzwilliam Museum.¹⁸¹⁾ Generally speaking, it would be difficult to distinguish how much each excavation project is related, or not, to the Graeco-Roman and Christian periods, for which there are not many specific online resources, and this is not the place to list all such current or recent projects. We would like to draw attention to one archaeological database only, because it houses information from several projects, in the Fayum and in the Eastern Desert, including Berenike, which have produced important results for the Graeco-Roman period: *Archbase*.¹⁸²⁾ Special mention might also be made here of D. Salvoldi's blog on *Early Explorers in Egypt and Nubia*.¹⁸³⁾

There are quite a few Egyptian towns for which we have a wealth of both archaeological and papyrological data — and the texts themselves are just a special kind of archaeological data, as they are preserved on ancient objects found in legal or illegal excavations. Some Fayum villages are among the best-known among them: we can now, thanks to a virtual 3D reconstruction, nearly walk in the streets of one of them, Karanis.¹⁸⁴⁾ The next step is obvious, and is met by an existing project for Karanis, while it is talked about for Tebtynis: scholars from each field need to work together to link and integrate archaeological and papyrological data, with the hope that, one day, it will bring us closer to add ancient people in such virtual reconstructions.

7. CONCLUSION

There is a wealth of information out on the web, and we are certainly not aware of every possible source for it. This is also a fast moving scene, whereby the present paper might be more quickly outdated than the average scientific paper. While we hope our review might be helpful to users, we can only encourage them to browse and find, or create if need be, what works for them. The challenge facing the scholarly community as a whole will be to work together as much as possible, to avoid any expensive duplication of work, and to try to integrate data from as many different sources as possible, while keeping in mind that each resource has to survive its own creator, to meet the demands of its own public and to overcome specific difficulties. By bringing together the most important resources for Greek, Latin and now Coptic documentary papyrology, the *Integrating Digital Papyrology* project has shown a very nice way to do this, while taking at least part of the burden of keeping the resources up-to-date away from the shoulders of each founding institution, if not of each project director, to distribute it among the whole community — even allowing the original institutions to

¹⁶¹⁾ <http://www.cs.hut.fi/papyrus/>.

¹⁶²⁾ http://www.britishmuseum.org/research/collection_online/search.aspx.

¹⁶³⁾ See for instance the online catalogue of the Louvre collection of Coptic ceramics: http://musee.louvre.fr/bases/neyret/contenu_a.php?page=1210&lng=0&.

¹⁶⁴⁾ <http://www.coptic-cairo.com/museum/selection/selection.html>.

¹⁶⁵⁾ <http://www.globalegyptianmuseum.org/>.

¹⁶⁶⁾ <http://www.digitalegypt.ucl.ac.uk/>.

¹⁶⁷⁾ See respectively <http://www.ifao.egnet.net/bases/verre/> and <http://www.ifao.egnet.net/bases/bois>.

¹⁶⁸⁾ <http://balneorient.hypotheses.org/> for the whole ancient world.

¹⁶⁹⁾ <http://www.ambilacuk.com/coptic/cmdbase.html>.

¹⁷⁰⁾ See e.g. <http://www.coinsofromanegypt.org/html/resources.htm>.

¹⁷¹⁾ <http://www.romeinegypt.unipi.it/>.

¹⁷²⁾ <http://www.sca-egypt.org>.

¹⁷³⁾ <http://www.arce.org/>.

¹⁷⁴⁾ <http://www.dainst.org/>.

¹⁷⁵⁾ <http://www.ees.ac.uk/>.

¹⁷⁶⁾ <http://ifao.egnet.net/>.

¹⁷⁷⁾ <http://www.institutes.leiden.edu/nvic/>.

¹⁷⁸⁾ <http://www.nino-leiden.nl/>.

¹⁷⁹⁾ <https://oi.uchicago.edu/>.

¹⁸⁰⁾ <http://www.pcma.uw.edu.pl/>.

¹⁸¹⁾ <http://www.fitzmuseum.cam.ac.uk/er/dig.html>.

¹⁸²⁾ <http://www.archbase.com/>. For the Eastern Desert, see also <http://www.egypt-archaeology.com/>.

¹⁸³⁾ <http://earlyexplorersegypt.blogspot.com>.

¹⁸⁴⁾ <http://www-personal.umich.edu/~jmharrin/Karanis/>. On this project, see also W. Wendrich et al., VR Modeling in Research, Instruction, Presentation and Cultural Heritage Management: the Case of Karanis (Egypt), in M. Ioannides et al. (Eds.), *The e-volution of Information Communication Technology in Cultural Heritage. Where Hi-Tech Touches the Past: Risks and Challenges for the 21st Century. Short papers from the joint event CIPA/VAST/EG EuroMed 2006, 30 Octobre - 4 November 2006, Nicosia, Cyprus* (Budapest, 2006) p. 225-230, available on http://www.academia.edu/866623/Karanis_the_Virtual_and_the_Reality.

retain a pioneering role.¹⁸⁵) Could the next step be to integrate digital papyrologies (including by the systematical addition of online translations), but also to integrate them with epigraphical sources from Egypt, perhaps also with literary sources about this country, and most importantly with archaeological data, including information from museum archaeology, whenever possible? Such might be the challenge which we need to contemplate today in order to build tomorrow's information resources.

Brussels and Strasbourg, April 2014

¹⁸⁵) As is the spirit of the Duke Collaboratory for Classics Computing (DC3): <https://blogs.library.duke.edu/dcthree/projects/>.