

EDITORIAL NOTE

The year 2014 marks the 75th anniversary of NINO — *The Netherlands Institute for the Near East*. As one of the initiatives to celebrate this event the editorial board of *Bibliotheca Orientalis* decided to devote one of the 2014 issues to reviews of web-based resources on the scholarly subjects covered by the journal.

Bibliotheca Orientalis — **BiOr** — has for decades been one of the main review journals for (Ancient) Near Eastern Studies, providing comprehensive and prompt information and reviews on published books in the fields of Near Eastern Archaeology, Egyptology, Assyriology, Arabic and Semitic philology and history, and generally studies on the Middle East. The traditional focus on printed works has of recent neglected an increasing mass of web-based resources. These resources of course incorporate digital access or reference to printed materials, but also provide independent data sets and compilations of otherwise scattered information in new integrated configurations. It is surely highly relevant to consider these still fairly new, but fast developing resources, and we have therefore invited a number of experts to submit overview — or review articles on this aspect of their relevant fields. We are grateful for the enthusiastic and constructive responses to this call by the authors of the contributions presented here in conventional printed form, but simultaneously also in open access digital version on the NINO website (www.nino-leiden.nl), which allows active links to the referenced sites.

We have deliberately left the authors free to choose the scope and format of their contribution, knowing that comprehensive assessments are impossible for a sphere which witnesses virtually daily additions and readjustments. Matters have moved considerably from the time not so long ago when scholars depended primarily on their own ‘Zettelkasten’ to a situation where much information is now available at our fingertips on the web. The basic importance and obvious convenience of this change are certainly not in doubt, but the organisation and optimal developments, as well as the ‘side effects’, of this brave new situation deserve serious consideration and debate. Both aspects are reflected in the contributions presented here. Generous listings and comments of web-based resources will hopefully be of interest and usefulness to many readers, while broader perspectives touched upon may serve as inspiration for further and future debates — also welcome as contributions to new issues of **BiOr**...

HOOFDARTIKELEN

LES RESSOURCES NUMÉRIQUES
POUR L'ÉGYPTOLOGIE

Wouter CLAES et Ellen VAN KEER,
Musées royaux d'Art et d'Histoire
Bibliothèque
Bruxelles, Belgique

Introduction

En 1665 s'ouvre une nouvelle ère dans le domaine de l'histoire des sciences. En l'espace de trois mois apparaissent les premiers numéros du *Journal des Sçavans* (l'actuel *Journal des Savants*) et des *Philosophical Transactions of the Royal Society of London*. La naissance de la revue scientifique est désormais une réalité¹⁾. Étant donné qu'il s'agit de la meilleure façon de diffuser l'information, le nombre de périodiques va rapidement augmenter. La spécialisation, la standardisation, l'introduction de résumés, de citations et de comités de lecture externes ont finalement débouché sur les périodiques que nous connaissons aujourd'hui, avec une grande constante : l'information circule sous forme de publications imprimées. L'émergence des nouvelles technologies de l'information et de la communication a créé maintes nouvelles possibilités permettant le partage et la diffusion de l'information. Le nombre de ressources et d'outils numériques a explosé au cours des dernières années, sous l'effet de la révolution de l'Internet et des développements rapides dans le domaine des technologies et des communautés de réseaux de partage. Personne n'aurait pu prévoir il y a 30 ans²⁾ l'impact qu'aurait Internet sur la recherche scientifique et les publications académiques. Dans les premières années, cet impact fut surtout ressenti au sein de la communauté ICT ; à partir de 1992, les premières versions numériques d'articles scientifiques furent partagées sur Internet dans le cadre du projet TULIP³⁾. Au début du nouveau millénaire, ce nombre est passé à plus de 11 millions. C'est également à ce moment que les premiers *e-books* furent rendus disponibles. Les publications électroniques ainsi que les sources et les outils de recherche numériques marquent une nouvelle étape dans la diffusion de l'information, des données et des résultats de recherche. Bien que ce ne soit au début qu'au compte-gouttes, l'égyptologie a pris en marche le train de la numérisation, dans le sillage d'autres disciplines et branches scientifiques. Depuis la publication de deux articles de Dirk van der Plas au début des années 1990⁴⁾,

l'égyptologie a parcouru un long chemin avant d'utiliser pleinement les ressources électroniques. C'est surtout dans la dernière décennie que le nombre de celles-ci a augmenté de manière exponentielle.

Nous ne présenterons ici qu'une sélection restreinte de l'ensemble des ressources disponibles sur Internet. Nous essayerons néanmoins de balayer l'ensemble du spectre, qui recouvre des formes très variées. Nous proposerons également quelques sites où l'on pourra trouver toute une série de liens utiles. Le présent aperçu sera limité essentiellement au rôle d'Internet dans l'étude de l'Égypte pharaonique. Pour les époques gréco-romaine et chrétienne, le lecteur est invité à se reporter à la contribution d'Alain Delattre et Paul Heilporn dans le présent fascicule de *Bibliotheca Orientalis*.

Outils bibliographiques

À côté des catalogues des différentes bibliothèques, l'instrument bibliographique par excellence est bien entendu la *Online Egyptological Bibliography (OEB)*⁵⁾. Depuis 2009, cette bibliographie est publiée sous forme de base de données sur Internet par le Griffith Institute d'Oxford sous les auspices de l'Association internationale des Égyptologues. Elle contient plus de 100.000 références bibliographiques, accompagnées pour la plupart d'un résumé. Le cœur de ce fonds se compose des notices qui furent publiées chaque année dans l'*Annual Egyptological Bibliography (AEB)* et est complété par les 21.465 références contenues dans la *Bibliographie Altägypten* de Christine Beinlich-Seeber⁶⁾. Récemment, l'*OEB* a été enrichie d'une grande partie des enregistrements issus d'une autre base de données importante, *Aigyptos*⁷⁾ qui, de ce fait, vient de cesser toute activité. L'importation de la dernière partie de références a commencé en décembre 2013 et nous espérons qu'elle sera disponible bientôt.

Dans le domaine des bibliographies égyptologiques en ligne, signalons encore la *Literaturdatenbank des Instituts für Ägyptologie und Koptologie* de l'université de Münster⁸⁾. Cette base de données offre l'avantage d'être gratuite et de permettre des recherches très détaillées à partir d'une liste de mots-clés qui se réfèrent non seulement aux titres, mais aussi au contenu des livres et articles répertoriés ; son intérêt réside aussi dans le fait qu'elle suit de très près le rythme des nouvelles acquisitions de la bibliothèque de l'Institut.

Publications électroniques

Ces dernières années, les versions en texte intégral d'articles, de livres et d'autres ouvrages ont rapidement pris le chemin de la publication sur Internet. Outre les sites des éditeurs et les grandes bibliothèques numériques telles que *Google books*⁹⁾, *Gallica*¹⁰⁾ ou *Internet Archive*¹¹⁾, il existe

^{*)} Article basé sur les informations disponibles en mars 2014.

¹⁾ D. Kronick, *History of Scientific and Technical Periodicals: The Origins and Development of Scientific and Technical Press, 1665-1790* (2nd ed.), Metuchen, 1976.

²⁾ La date de naissance plus ou moins officielle d'Internet dans la forme que nous lui connaissons actuellement, avec la mise en œuvre technique du protocole réseau TCP/IP, est traditionnellement fixée au 1^{er} janvier 1983.

³⁾ J. Zijlstra, The University Licensing Program (TULIP) : a large Scale Experiment in bringing Electronic Journals to the Desktop, in : *Serials. The Journal for the Serials Community* 7/2, 1994, p. 169-172.

(<http://dx.doi.org/10.1629/0702169>) [Consulté le 27/02/2014].

⁴⁾ D. van der Plas, Eine internationale ägyptologische Datenbank zwischen Traum und Wirklichkeit, in : D. Apelt, E. Endesfelder & S. Wenig (Hrsg.), *Studia in honorem Fritz Hintze* (Meroitica 12), Berlin, 1990,

p. 237-243 ; D. van der Plas, IEDS — ein Integriertes Ägyptologisches Datenbanksystem, IED — eine internationale Ägyptologische Datenbank, in : *ZAS* 119, 1992, p. 38-43.

⁵⁾ <http://oeb.griffith.ox.ac.uk/>

⁶⁾ C. Beinlich-Seeber, *Bibliographie Altägypten 1822-1946* (Ägyptologische Abhandlungen 61), Wiesbaden, 1998.

⁷⁾ <http://www.aigyptos.uni-muenchen.de/>.

⁸⁾ http://www1.ivv1.uni-muenster.de/litw3/Aegyptologie/index_1_0.htm

⁹⁾ <http://books.google.com>.

¹⁰⁾ <http://gallica.bnf.fr/>.

¹¹⁾ <http://archive.org/index.php>.

sur Internet des dizaines — voire des centaines — de pages sur lesquelles on trouve des publications électroniques. Puisqu'il est impossible d'en donner un aperçu détaillé, nous nous limiterons ici à quelques sites qui nous semblent particulièrement intéressants et utiles.

Une première publication électronique d'importance est l'*Encyclopedia of Egyptology*¹²⁾ de l'UCLA. Cette encyclopédie en ligne, librement accessible, est annuellement augmentée de plusieurs articles écrits par des spécialistes d'un sujet particulier. Bien qu'aujourd'hui, seulement 129 contributions soient disponibles, l'ambition des éditeurs est d'atteindre les 4.000 entrées, de façon à constituer un homologue plus étendu, plus actuel et en ligne du *Lexikon der Ägyptologie*, et d'accorder plus d'attention à des domaines qui sont parfois négligés dans le *Lexikon* (comme par exemple l'archéologie, l'Égypte gréco-romaine ou même l'histoire de la discipline égyptologique).

Une autre ressource riche en publications est le site JSTOR¹³⁾, qui donne accès à plus de 300 périodiques et livres relatifs à l'archéologie, dont une grande partie se rapporte à l'égyptologie. L'accès à cette base de données est, hélas ! très onéreux, mais il existe heureusement d'autres sites qui offrent un accès libre et illimité à certaines publications.

Une des sources principales d'information est la liste des périodiques disponibles en *open access*, qui est élaborée et actualisée sur le blog AWOL¹⁴⁾. Celle-ci énumère les liens vers plus de 1.300 périodiques dont on peut consulter et/ou télécharger un ou plusieurs volumes. Une autre liste fort utile est celle qui a été publiée en décembre 2013 sur le site de l'Institute of Egyptian Art and Archaeology de l'université de Memphis (Tennessee)¹⁵⁾. Elle comprend les liens vers des sites et des versions PDF d'articles et de livres qui ont trait exclusivement à l'Égypte ancienne.

De nombreuses institutions proposent également leurs publications en ligne, gratuitement. L'Oriental Institute de Chicago et le Metropolitan Museum of Art de New York, par exemple, ont fortement investi ces dernières années dans la numérisation et la mise en ligne d'une grande partie de leurs ouvrages. Ainsi, le Metropolitan Museum of Art a mis en *open access* sur son site plus de 80 articles et livres¹⁶⁾. L'Oriental Institute offre plus de 50 titres issus du riche assortiment de ses publications papier¹⁷⁾. On peut ainsi lire en ligne ou télécharger librement toute une série de titres de l'*Epigraphic Survey*, mais également des volumes d'autres collections telles que *Studies in Ancient Oriental Civilization*, *Oriental Institute Museum Publications*, *Oriental Institute Publications* etc. De plus, ils sont couplés à un ingénieux moteur de recherche intégré, grâce auquel l'utilisateur peut simultanément chercher dans la collection en ligne du musée, qui contient pas moins de 207.000 objets, et dans les archives de recherches qui incluent aussi bien les ressources de la bibliothèque que les archives et les publications en ligne¹⁸⁾. C'est une des rares institutions dans le monde à posséder un outil de recherche

aussi complet. La plupart du temps, les différentes collections (objets, bibliothèques, archives, publications) sont enregistrées dans des bases de données individuelles qui ne sont pas forcément liées entre elles.

Une mention spéciale doit être accordée au projet *Giza Archives* du Museum of Fine Arts de Boston¹⁹⁾, qui a pour objectif de conserver et de rendre accessibles, en un seul endroit, toutes les informations et la documentation relatives à l'histoire de l'archéologie du plateau de Gizeh. Outre quelque 400 publications numérisées, on peut y consulter des dizaines de milliers d'autres documents tels que des photographies, des cartes et des plans, des descriptions d'objets et des journaux de fouille. Par analogie avec la *Giza Library*, le site du *Theban Mapping Project*²⁰⁾ est une mine de renseignements sur la Vallée des Rois et la nécropole thébaine. Plusieurs autres missions archéologiques et épigraphiques disposent de sites Internet fournis où l'on peut trouver les versions électroniques de nombreuses publications, ainsi que des bibliographies, des bases de données d'objets et d'autres informations. Les archéologues et les égyptologues connaissent également sans aucun doute la série d'articles *Fouilles et travaux en Égypte et au Soudan* publiés annuellement dans la revue *Orientalia*. Ces contributions, qui font le point sur le travail de terrain en cours en Égypte et au Soudan, sont également disponibles en ligne²¹⁾. Le vaste index des sites archéologiques, accompagné d'une carte et de liens vers leurs pages Internet respectives, permet de trouver aisément les informations relatives au travail de terrain de chaque mission et également de lire les rapports en texte intégral.

Culture matérielle

Dans cette partie de notre contribution, nous désirons attirer l'attention sur quelques bases de données qui renvoient aux sources primaires pour l'égyptologie et l'archéologie de l'Égypte, celles consacrées aux vestiges de la culture matérielle de l'Égypte ancienne. Des décennies de recherche archéologique ont mis au jour une masse sans précédent d'objets qui, chacun à leur manière, témoignent de la façon dont était organisée la société égyptienne à une certaine époque de son histoire. Dans le monde entier, des musées exposent des centaines de milliers d'objets ou les conservent dans leurs réserves. Nous avons déjà mentionné ci-dessus le catalogue de l'Oriental Institute, mais les collections d'autres musées sont également de plus en plus présentes sur Internet, même si pas toujours de manière aussi avancée. Un recensement de tous ces catalogues électroniques nous mènerait bien trop loin — il suffit de consulter les sites des différents musées — mais certains projets méritent d'être mis en exergue ici.

Le projet *CHAMPOLLION / Egyptian Treasures in Europe*, entamé au début des années 1990 sous la direction de Dirk van der Plas (CCER, Utrecht), avait pour but de présenter sur CD-Rom les collections égyptiennes d'une dizaine de musées européens. Elles sont presque toutes consultables à partir d'un moteur de recherche central, celui du *Global Egyptian Museum*²²⁾, et complétées par les collections de

¹²⁾ http://escholarship.org/uc/nelc_uee.

¹³⁾ <http://www.jstor.org>.

¹⁴⁾ <http://ancientworldonline.blogspot.be/2012/07/alphabetical-list-of-open-access.html>.

¹⁵⁾ <http://www.memphis.edu/egypt/onlinebiblio.php>.

¹⁶⁾ <http://www.metmuseum.org/research/metpublications>.

¹⁷⁾ <https://oi.uchicago.edu/research/pubs/catalog/>.

¹⁸⁾ <https://oi.uchicago.edu/idb/>.

¹⁹⁾ <http://www.gizapyramids.org/>.

²⁰⁾ <http://www.thebanmappingproject.com/>.

²¹⁾ <http://www.egyptologists.net/orientalia/home>.

²²⁾ <http://www.globalegyptianmuseum.org/>.

six autres musées. À ce jour, ce site est le seul à rassembler un si grand nombre d'objets égyptiens (presque 15.000) d'une manière collective. Nombre de ces collections sont également présentes dans *Europeana*²³⁾, la grande bibliothèque numérique européenne, où l'on trouve les collections d'un certain nombre de musées supplémentaires.

Toute une série d'autres bases de données d'objets sont en outre présentes sur Internet. Le site de Francesco Raffaele offre un grand nombre de renseignements sur l'Égypte pré- et protodynastique. On peut en outre y consulter trois catalogues consacrés respectivement aux palettes²⁴⁾, aux étiquettes en bois et en ivoire²⁵⁾ et aux inscriptions sur des vases en pierre²⁶⁾.

Le site *Oxford Expedition to Egypt*²⁷⁾ comporte une base de données en ligne²⁸⁾ reprenant des centaines de scènes figurant sur des monuments de l'Ancien Empire. Outre des illustrations des scènes représentatives, on y trouve des informations archéologiques, bibliographiques, chronologiques et géographiques. La base de données est organisée selon une structure pyramidale suivant les thèmes, les types et les détails. De façon analogue, l'université de Vienne a développé la plateforme *MEKETRE*²⁹⁾ qui se focalise sur les reliefs et peintures du Moyen Empire. Ces deux outils sont actuellement toujours « en construction ».

Deux bases de données sont consacrées à l'énorme quantité de matériel provenant de Deir el-Médineh, le village des artisans de la nécropole royale thébaine. Tout en offrant une bibliographie systématique — exhaustive et mise régulièrement à jour — en rapport avec ce site, le projet du Nederlands Instituut voor het Nabije Oosten (université de Leyde)³⁰⁾ se concentre sur les ostraca et papyrus non littéraires aujourd'hui dispersés à travers le monde. À l'heure actuelle elle centralise les données concernant plus de 4.300 documents. Chaque document y est présenté sous forme d'une fiche d'inventaire analytique, avec de nombreuses possibilités de recherche à partir de mots-clés, termes égyptiens, noms propres, titres de fonctions etc. La base de données de l'université de Munich (*Deir el Medine Online*)³¹⁾, quant à elle, ambitionne à terme de mettre en ligne l'édition intégrale (transcription phonétique, translittération en hiéroglyphes, description, photo, traduction allemande et notes de commentaire) de tous les ostraca hiératiques non littéraires de Deir el-Médineh en y intégrant aussi les documents qui furent découverts dans des lieux voisins et dont le contenu présente des liens évidents avec le village d'artisans, comme c'est le cas des ostraca de Berlin et des textes dits « de Qourna ».

La découverte archéologique qui a probablement le plus frappé l'imagination du grand public est celle de la tombe de Toutankhamon en 1922. La documentation complète (journaux de fouille, fiches d'enregistrement d'objets, photos, plans, dessins), accumulée par Howard Carter au cours de la fouille de la tombe, est intégralement consultable sur le site du Griffith Institute d'Oxford³²⁾. On y trouve également de

nombreuses archives se rapportant à des thèmes variés : documentation de fouilles, aquarelles, photographies ..., mais également un certain nombre de manuscrits, comme la correspondance entre d'éminents égyptologues tels que William Matthew Flinders Petrie, Alan Gardiner ou Jaroslav Černý, et des documents provenant de voyageurs du 19^e siècle. Enfin, un corpus extrêmement précieux de documents hiératiques y est également mis à disposition.

Une autre grande découverte dans l'histoire de l'égyptologie fut celle de la « cachette royale de Deir el-Bahari » (1881), la tombe TT320, dans laquelle furent exhumées plus de cinquante momies accompagnées de leur mobilier funéraire. L'endroit fut à nouveau fouillé par Erhart Graefe en 1998, 2001 et 2004, et le résultat des recherches intégré dans une base de données entièrement consultable en ligne³³⁾ et reprenant également toutes les momies et objets de 1881.

Le contenu de la fameuse « cachette de Karnak », consistant en plus de 700 statues, 17.000 objets en bronze et bon nombre d'autres pièces, est consultable sur le site de l'Institut français d'Archéologie orientale du Caire³⁴⁾. En plus du matériel de la cachette, on y trouve des photographies, des archives et une description actualisée des objets, qui accorde une attention particulière aux aspects muséographiques, épigraphiques et prosopographiques.

Philologie

L'étude de la langue est bien entendu un domaine fondamental de l'égyptologie. Une première base de données importante relative à la question rassemble les inscriptions protodynastiques³⁵⁾. Élaborée par Ilona Regulski, elle donne un aperçu de tous les signes d'écriture connus depuis la période de Nagada IIIA jusqu'au règne de Djoser.

La source en ligne par excellence pour l'étude de la langue égyptienne est incontestablement le *Thesaurus Linguae Aegyptiae*³⁶⁾. Cette plateforme digitale se présente comme un dictionnaire virtuel complet destiné à faciliter les recherches lexicographiques dans le domaine de l'égyptien ancien. La base de ce corpus digital est le *Wörterbuch der ägyptischen Sprache*, qui est contrôlé et mis à jour de manière systématique, y compris le *Zettelarchiv*, et qui comporte actuellement plus de 1.100.000 mots. D'autres bases de données, comme par exemple celle du *Totenbuch-Projekt*³⁷⁾ de l'université de Bonn, le corpus des textes magiques du Moyen Empire et du Nouvel Empire de l'université de Leipzig³⁸⁾ ou celui des textes du temple d'Horus à Edfou, rassemblés dans *Edfu Explorer*³⁹⁾, y sont également intégrées. Dans le *Thesaurus Linguae Aegyptiae* tous les termes peuvent être recherchés à l'aide de leur translittération, leur traduction, leurs références bibliographiques et leurs graphies hiéroglyphiques.

Dans la même veine, le projet *Wortdiskussionen*⁴⁰⁾ de l'Ägyptologisches Seminar de l'université de Bâle s'avère

²³⁾ <http://www.europeana.eu/>.

²⁴⁾ <http://xoomer.virgilio.it/francescoraf/hesyra/palettes.htm>.

²⁵⁾ <http://xoomer.virgilio.it/francescoraf/hesyra/tagcorpus.htm>.

²⁶⁾ <http://xoomer.virgilio.it/francescoraf/hesyra/aufgefasse.htm>.

²⁷⁾ <http://www.oxfordexpeditiontoegypt.com/>.

²⁸⁾ <http://dx.doi.org/10.5284/100000>.

²⁹⁾ <http://www.meketre.org>.

³⁰⁾ <http://www.leidenuniv.nl/nino/dmd/dmd.html>.

³¹⁾ <http://dem-online.gwi.uni-muenchen.de/>.

³²⁾ <http://www.griffith.ox.ac.uk>.

³³⁾ <http://www1.ivv1.uni-muenster.de/litw3/Aegyptologie/index04.htm>.

³⁴⁾ <http://www.ifao.egnet.net/bases/cachette/about>.

³⁵⁾ <http://www1.ivv1.uni-muenster.de/litw3/Aegyptologie/index06.htm>.

³⁶⁾ <http://aaew.bbaw.de/tla/>.

³⁷⁾ <http://www.totenbuch-projekt.uni-bonn.de/>.

³⁸⁾ <http://www.uni-leipzig.de/~digiheka/>.

³⁹⁾ <http://adw-goe.de/en/research/research-projects-within-the-academies-programme/the-inscriptions-of-the-ptolemaic-temple-of-edfu/the-database-of-the-edfu-project/>.

⁴⁰⁾ <http://aegyptologie.unibas.ch/werkzeuge/wortdiskussionen/>.

une ressource très utile. Il a pour objectif de fournir un index des mots, des objets et monuments couverts d'inscriptions qui ont fait l'objet de discussions ou de commentaires importants dans des revues égyptologiques. L'index comporte trois fichiers en format PDF : 1) mots ; 2) textes, monuments ou objets cités ; 3) noms propres. Jusqu'à présent, quatorze revues ont été dépouillées. Les PDF sont actualisés une fois par an.

Les ressources mentionnées ci-dessus ne représentent qu'une petite partie de ce qui est disponible sur Internet. Un certain nombre de listes de diffusion, comme celle de l'*Egyptologists' Electronic Forum*⁴¹⁾ ou l'*Agade mailinglist*⁴²⁾, offrent de manière quotidienne ou hebdomadaire des informations sur les nouvelles découvertes, les publications et les nouvelles sources digitales. Le blog *AWOL*⁴³⁾ de Charles Jones est également une source incontournable d'informations. Avec ses mises à jour quotidiennes, ce blog se focalise plus particulièrement sur les ressources en *open access* dans le domaine de l'Antiquité. Dans la même optique, le portail *Sisyphos*⁴⁴⁾ est également intéressant : il sélectionne, évalue et classe selon leur pertinence scientifique des sites traitant de l'Antiquité classique, du Proche-Orient ancien et de l'Égypte ancienne.

Défis et opportunités

L'émergence et la propagation de ces outils et méthodes numériques, cette « révolution numérique » ou *digital turn*, a profondément changé les sciences humaines en général, et par conséquent l'égyptologie également. Ils offrent de nouvelles possibilités pour l'enseignement et la recherche. Dans une récente étude à ce sujet, Tanner & Deegan⁴⁵⁾ résument ces innovations en huit points :

1. Modification des méthodes de recherche. Les sources numériques présentent un nouveau contenu sous de nouvelles formes et créent un espace propice à de nouveaux questionnements et de nouvelles réponses. Ainsi, en offrant des fonctionnalités telles que la lemmatisation et l'annotation morphosyntaxique, le *Thesaurus Linguae Aegyptiae* permet de mener des recherches selon des perspectives lexicales, philologiques, linguistiques et historiques.
2. Accès plus facile aux chercheurs. La collecte de littérature scientifique et de références s'avère beaucoup plus rapide et plus facile, parce que les ressources numériques peuvent être indexées et parcourues⁴⁶⁾. Les chercheurs peuvent

désormais accéder aux périodiques en texte intégral par l'intermédiaire de bases de données, et télécharger des articles. En dehors du circuit traditionnel (et commercial) des éditeurs scientifiques, l'information est devenue plus rapidement accessible suite à l'apparition de publications en *open access* et par de nouveaux canaux tels que les sites et les blogs, qui sont référencés dans Google⁴⁷⁾.

3. Exploitation de nouveaux domaines de recherche. De nouvelles spécialisations s'ouvrent grâce à l'utilisation des ressources numériques et l'application des technologies informatiques. Les activités centrales du groupe Informatique et Égyptologie sont par exemple l'encodage des textes hiéroglyphiques et l'analyse linguistique par ordinateur des corpus de textes égyptiens. D'autres sources, bases de données et techniques comme la modélisation 3D sont également à prendre en considération⁴⁸⁾.
4. Attention attirée sur les collections. Les sources primaires sont beaucoup plus conséquentes, puisque les objets et les collections issus de fouilles ou d'institutions tels que musées, archives et bibliothèques sont désormais accessibles en ligne. Ainsi, les chercheurs n'ont plus à se rendre à Oxford pour consulter les notes de terrain de Howard Carter conservées dans les archives du Griffith Institute. Des collections inédites, inaccessibles au public, éphémères ou dont la conservation est menacée peuvent également être mises à disposition en ligne.
5. Réunification virtuelle. Des objets physiquement dispersés peuvent être rassemblés virtuellement, et la recherche comparative en est d'autant facilitée. Les bases de données thématiques contiennent généralement des pièces provenant de diverses collections, mais des collections peuvent également être mises en ligne ensemble. Le site du *Global Egyptian Museum* ou la plateforme *Europeana* rassemble les collections égyptiennes de plusieurs musées.
6. Avantages pour l'enseignement. Les sources numériques peuvent être facilement réutilisées, non seulement dans des bases de données et des publications scientifiques, mais aussi dans un contexte plus large, vers un nouveau public et de nouvelles applications. Les informations disponibles sur Wikipedia sont très largement répandues et utilisées. Les *podcasts* d'égyptologie du musée de Manchester⁴⁹⁾ sont également des innovations.
7. Disponibilité d'un nouveau type de matériau. Des supports nouveaux et complexes, par exemple les sources audiovisuelles et les données interactives, peuvent être présentés et partagés en ligne. En outre, les données brutes, telles que la documentation de fouille, sont de plus en plus stockées et diffusées via des infrastructures électroniques appropriées⁵⁰⁾.

⁴¹⁾ <http://www.egyptologyforum.org>.

⁴²⁾ Pour s'y inscrire, il faut envoyer un e-mail vide à listserv@unc.edu avec pour objet « subscribe agade ».

⁴³⁾ <http://ancientworldonline.blogspot.com>.

⁴⁴⁾ <http://sisyphos.uni-hd.de>.

⁴⁵⁾ S. Tanner & M. Deegan, *Inspiring Research, Inspiring Scholarship. The Value and Benefits of Digitised Resources for Learning, Teaching, Research and Enjoyment*, 2010.

http://www.kdcs.kcl.ac.uk/fileadmin/documents/Inspiring_Research_Inspiring_Scholarship_2011_SimonTanner.pdf.

⁴⁶⁾ Les bases de données de certains périodiques électroniques comme *Web of Science* offrent des fonctionnalités telles que « cited reference search ». On peut également utiliser « cited reference » via *Google Scholar*. La citation constitue la base des calculs du facteur d'impact et de l'indice h, techniques de bibliométrie qui sont devenues des critères incontournables dans l'évaluation qualitative de la recherche : <http://en.wikipedia.org/wiki/Bibliometrics>.

⁴⁷⁾ Par exemple <http://egyptmanchester.wordpress.com/>. De cette évolution dépend aussi le redressement des critères d'évaluation alternatifs « altmetrics » : <http://en.wikipedia.org/wiki/Altmetrics>.

⁴⁸⁾ Pour un aperçu de leurs activités, voir : N. Strudwick (ed.), *Information Technology and Egyptology in 2008* (Digital Technologies and the Ancient World 2), Piscataway 2008 ; S. Polis & J. Winand (eds.), *Texts, Languages & Information Technology in Egyptology. Selected Papers from the Meeting of the Computer Working Group of the International Association of Egyptologists* (Informatique & Égyptologie), Liège, 6-8 July 2010. Liège, 2013.

⁴⁹⁾ <http://www.museum.manchester.ac.uk/collection/ancientegypt/>.

⁵⁰⁾ Des exemples connus sont *Ianus* (<http://www.ianus-fdz.de/>), *tdar* (<https://www.tdar.org>), et surtout *opencontext* (<http://opencontext.org>).

8. **Intégration de différents types de ressources.** L'intégration numérique de différents types de ressources permet leur enrichissement mutuel et la mise en évidence de nouveaux liens. Les bases de données en ligne avec des références renvoyant aux sources primaires et à la littérature secondaire ne sont pas une nouveauté. Les sites web fournissent toujours plus de textes en version intégrale, de photographies, d'objets représentatifs, de documents d'archives... et offrent de nouvelles visualisations grâce aux géo-données et à la 3D, proposant une expérience de recherche plus riche et innovante. Des sites très interactifs, comme *Giza Archives*, font entrer l'égyptologie dans ce qui a été appelé récemment les *digital humanities*⁵¹).

Le potentiel des ressources et des méthodes numériques est immense, mais des études dans le domaine des sciences humaines⁵², notamment celui de l'Antiquité classique⁵³, montrent que ce sont essentiellement la rapidité et la facilité qui conduisent les chercheurs actifs à se tourner vers les ressources électroniques. Peu de chercheurs tirent le maximum de leur potentiel de recherche. L'absence de connaissances suffisantes constitue souvent un obstacle, bien que le manque de standardisation et la question de l'utilité des données soient également problématiques. L'explosion des sources numériques au cours de ces dernières années n'a pas facilité la recherche de matériel vraiment pertinent. Des guides édités par des institutions académiques comme la Sackler Library et des blogs professionnels comme *AWOL* résolvent partiellement le problème.

Il existe, en outre, une tension fondamentale entre l'accès aux données et la qualité de celles-ci. Les données de bonne qualité ne sont en effet pas librement ni immédiatement accessibles, parce qu'elles sont protégées par des *pay-walls* et des copyrights⁵⁴. L'incohérence en ce qui concerne la visibilité et la qualité des ressources numériques est également à relier au manque de pratiques de citation claires.

La durabilité pose également un gros problème. Il n'est pas rare que des sites disparaissent de la toile et que les liens ne fonctionnent plus. Une complication connexe réside dans l'utilisation de formats et de systèmes commerciaux fermés. Les logiciels sont, après tout, soumis à l'obsolescence. Voilà pourquoi on accorde aujourd'hui beaucoup d'importance aux formats et standards ouverts, ce qui permet en outre d'atteindre l'interopérabilité entre systèmes et bases de données. Là où la fragmentation et l'hétérogénéité étaient traditionnellement la norme, et où les données étaient souvent rassemblées dans des systèmes séparés et fermés (bases de

données de musées, archives, bibliothèques, chercheurs individuels et projets isolés), l'évolution vers des standards techniquement et sémantiquement ouverts et interopérables fait que les données peuvent non seulement être importées et exportées, mais aussi être liées quant à leur contenu, enrichies et réutilisées⁵⁵). L'égyptologie bénéficie également du passage de bases de données et de ressources numériques fermées vers un réseau intégré de contenu ouvert et lié⁵⁶). C'est une entreprise fondamentale et interdisciplinaire avec des sujets d'étude divers et des domaines séparés tels que la philologie, l'épigraphie, l'archéologie et l'histoire de l'art. Un niveau bien plus haut et complexe d'intégration de données, de collaboration, de durabilité et de valorisation sera atteint lorsque ces bases de données et ressources numériques produiront, lieront et consommeront toutes des données ouvertes via des identifiants uniques et permanents. La mise en œuvre pratique présente encore des obstacles, mais offre de nombreuses nouvelles possibilités⁵⁷). Les données seront mieux (ré)utilisables, plus polyvalentes et plus « intelligentes », et de nouvelles formes intégrées de production intellectuelle seront possibles. Par exemple, des *global editions* pourront être créées et annotées collectivement par les scientifiques, sur base de sources issues de différentes disciplines et institutions⁵⁸). L'ouverture, l'interopérabilité, la collaboration et la durabilité sont en tout cas des thèmes de grande importance pour les développements futurs et la pertinence de l'égyptologie numérique et les sciences humaines en général.

Bruxelles et Dayr al-Barshā, avril 2014

⁵¹) La littérature et les débats sur les principes et les objectifs de cette nouvelle discipline sont très abondants. Une bonne introduction est : P. Lunenfeld, A. Burdick, J. Drucker, T. Presner & J. Schnapp, *Digital Humanities*, Cambridge.

⁵²) M. Bulger, E. Meyer, G. De la Flor, M. Terras, S. Wyatt, M. Jirotko, K. Eccles & C. McCarthy Madsen, *Reinventing Research? Information Practices in the Humanities*, 2011.

⁵³) A. Babeu, *Rome Wasn't Digitized in a Day: Building a Cyberinfrastructure for Digital Classicists*, 2011.

⁵⁴) Heath fait le point pour le cas de l'Antiquité classique : S. Heath, *Diversity and Reuse of Digital Resources for Ancient Mediterranean Material Culture*, in : G. Bodard & S. Mahomy (eds) *Digital Research in the Study of Classical Antiquity*, Farnham, 2010, p. 35-52.

⁵⁵) Voir : M. Ridge, *Where Next for Open Cultural Data in Museums?*, 2013 (<http://www.museum-id.com/idea-detail.asp?id=387>) (*open data* dans le domaine de la culture) ; S. Costa, A. Beck, A.H. Bevan & J. Ogden, *Defining and Advocating Open Data in Archaeology*, in : *Proceedings of the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA)* University of Southampton on 26-30 March 2012, 2013, p. 449-456 (*open data* dans le domaine de l'archéologie).

⁵⁶) C'est la base de Linked Open Data et du Web sémantique : http://en.wikipedia.org/wiki/Linked_Open_Data.

⁵⁷) Sur les pratiques actuelles dans le domaine des *digital classics*, voir : T. Elliott, S. Heath & J. Muccigrosso (eds), *Current Practice in Linked Open Data for the Ancient World* (ISAW Papers 7), 2013 <http://sfsheath.github.io/lawdi-publication/isaw-papers-7.xhtml>.

⁵⁸) G. Crane & A. Babeu, *Global Editions and the Dialogue Among Civilizations*, in : *Perspektiven einer corpusbasierten historischen Linguistik und Philologie, Internationale Tagung des Akademienvorhabens „Altägyptisches Wörterbuch“ an der BBAW, 12.-13. Dezember 2011 (Thesaurus Linguae Aegyptiae 4)*, Berlin, 2013, p. 11-80.

**ELECTRONIC RESOURCES FOR
GRAECO-ROMAN AND CHRISTIAN EGYPT:
A REVIEW OF THE STATE OF THE NET
(MARCH 2014)***

Alain DELATTRE,
Université libre de Bruxelles
and Paul HEILPORN,
Université de Strasbourg - UMR 7044 Archimède
and Université libre de Bruxelles

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

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

*) The authors would like to thank their pool of early readers, Rodney Ast, James Cowey, Mark Depauw, Cassandre Hartenstein, Christine Hue-Arcé, Alain Martin, Joshua Sosin and Naïm Vanthieghem, for their support, suggestions and comments.

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 (*IGLE*; see col. 319).

²⁾ See for instance the very recent and up-to-date resources page by B.C. Jones: <http://bricecjones.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=Risorse&id=6&lang=en> and <http://lila.sns.it/mnamon/index.php?page=Risorse&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. Philippiadis' *House of Ptolemy*, housing many links to other resources, but hardly updated for a few years: <http://www.houseoftolemy.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/papy>)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.

Blogging 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://hermagos.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_Caanus; 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/philo/cpeg/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 uninscribed 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*

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

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.

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/ArtIdHomepage.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).

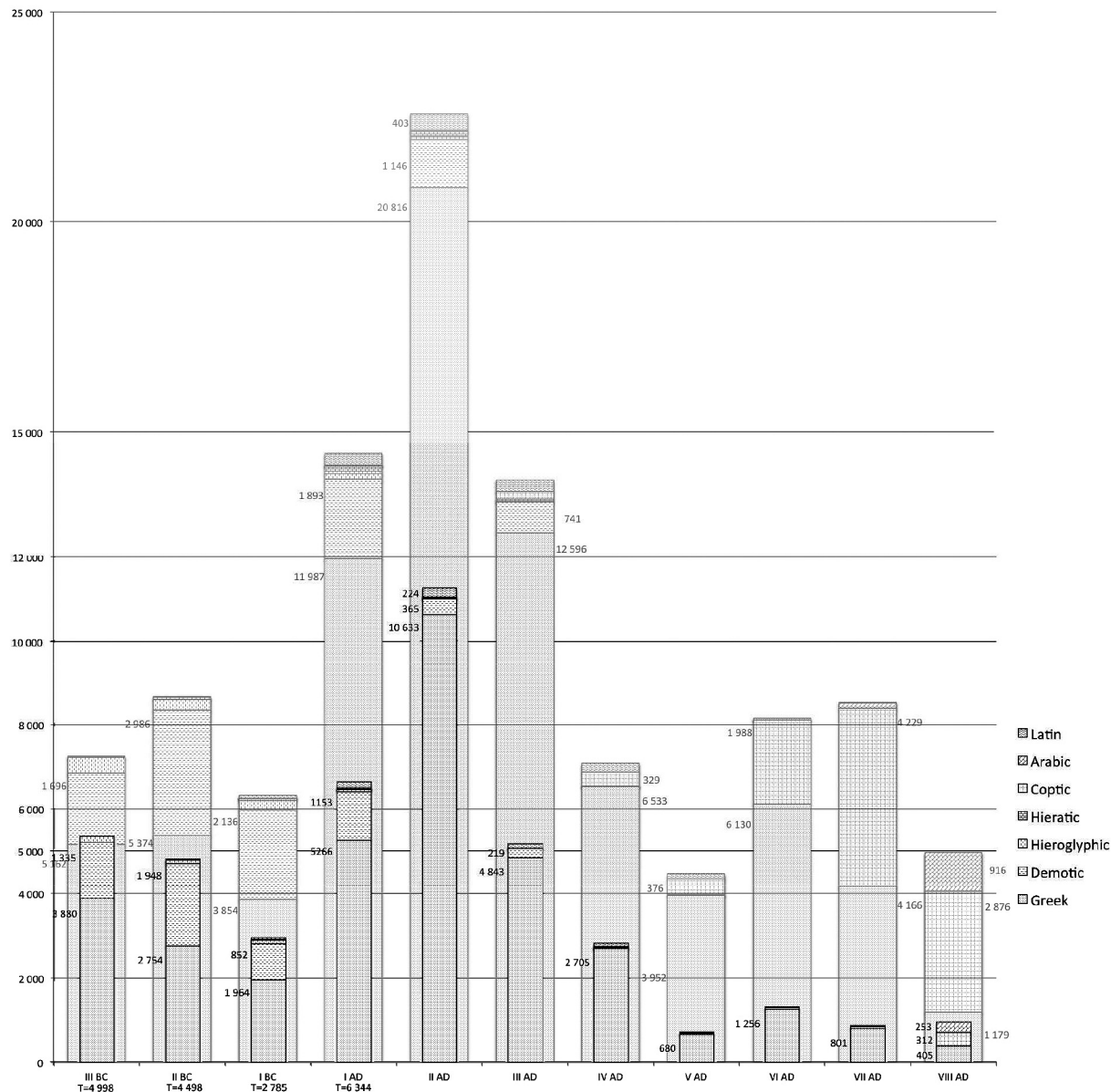


Figure 1 Current distribution of texts in *TM* by language and century, with minimal numbers at the front, and maximal numbers faded at the back

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.manfredclaus.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://homerpapyri.appspot.com/CTS?request=GetCapabilities&withXSLT=chs-gc&inv=inventory.xml>.

¹⁰⁹ <http://www.homer-multitext.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://www2.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 ἔξαιος.

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, 20132; 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 (LGPN)*.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 *LGPN* 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/kla/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.

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RESSOURCES ASSYRIOLOGIQUES SUR INTERNET

Dominique CHARPIN
Collège de France — UMR 7192

Les ressources assyriologiques sur Internet sont devenues très nombreuses ces dernières années, mais elles sont le plus souvent dispersées. Cette contribution voudrait aider les chercheurs à mieux les connaître et à davantage les utiliser¹). Un des freins à la communication électronique des données a été pendant longtemps la variété des fontes utilisées pour la transcription du cunéiforme : ce problème n'existe plus depuis l'avènement d'Unicode²). Un autre problème subsiste, celui du droit d'auteur, qui diffère selon les pays et pose notamment des questions pour la mise en ligne d'illustrations.

On peut répartir les sites en trois catégories : les publications en ligne (livres, revues, forums) ; les instruments de travail (dictionnaires, bibliographies) ; enfin, les sites qui donnent accès aux données elles-mêmes, qu'il s'agisse de banques d'images, de corpus de textes, ou de bases permettant des recherches croisées dynamiques³).

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

¹) On doit d'emblée signaler l'utilité du site *AWOL - The Ancient World Online* de Charles Jones (ISAW, New York) (<http://ancientworldonline.blogspot.com>) pour s'y repérer dans une offre de plus en plus foisonnante. J. Sasson (Vanderbilt University, Nashville) signale également de nombreuses ressources aux abonnés à sa liste Agade. Je me suis ici limité à l'assyriologie au sens traditionnel du terme (soit les corpus en écriture cunéiforme et en langues sumérienne et akkadienne) : les données relatives à l'archéologie, au hittite, hourrite, élamite, etc. ne sont pas ici prises en compte.

Mes remerciements s'adressent aux collègues qui ont relu la présente contribution à un stade plus ou moins avancé de sa rédaction, ainsi qu'à ceux qui m'ont communiqué suggestions ou informations complémentaires : B. Fiette, A. Jacquet, M. Jursa, J. Patrier, E. Robson, W. Sommerfeld, N. Wasserman.

²) La plupart des sites utilisent désormais le codage en Unicode UTF-8.

³) De nombreux départements, équipes ou projets de recherches etc. dans le domaine de l'assyriologie disposent d'un site Web dans lequel on trouve des ressources en ligne (bibliographies, publications, etc.). On n'a cependant pas cru possible d'en entreprendre ici le recensement : le plus souvent, entrer dans un moteur de recherche le nom d'un assyriologue et/ou de son projet permet de retrouver ces informations, dont les adresses

1. LES PUBLICATIONS EN LIGNE

1.1. Publications disponibles en ligne (livres, etc.)

Les assyriologues disposent depuis 2001 d'une banque de publications numériques spécifique : *Electronic Tools and Ancient Near East Archives*, soit ETANA (<http://www.etana.org/>). Le site inclut plusieurs modules, dont l'indispensable ABZU (commencé en 1994 par Charles E. Jones et tenu à jour depuis) : on y trouve des liens vers de nombreuses publications disponibles en ligne, classées par auteur, avec également des liens vers les sites institutionnels où se trouvent désormais les publications de nombreux assyriologues⁴). ETANA a également assuré la numérisation de nombreux ouvrages anciens libres de droits (CT, TCL, YOS, etc.), que l'on trouve sous la rubrique *Core Texts*.

De plus en plus d'éditeurs mettent en ligne une version numérique des livres dont ils publient par ailleurs une version papier⁵). L'Oriental Institute le fait systématiquement et gratuitement : tous les livres des séries AS, MAD, OIP, OIS, SAOC ainsi que divers autres ouvrages sont ainsi disponibles (<http://oi.uchicago.edu/research/pubs/catalog/>). La SBL fait de même pour la série ANEM (http://sbl-site.org/publications/Books_ANEmonographs.aspx). Le NINO de Leyde a récemment mis en ligne certains livres de son catalogue (<http://www.nino-leiden.nl/publications.aspx?id=10>). Pour s'y retrouver dans une offre de plus en plus foisonnante, certains sites sont très utiles, comme <http://www.lib.uchicago.edu/e/ets/eos/>. Certains éditeurs comme Brill ou De Gruyter donnent maintenant accès également à une version électronique des livres qu'ils publient, mais avec une différence de prix par rapport au volume imprimé qui n'est guère incitative.

1.2. Les revues en ligne

Dans le domaine de l'assyriologie, les revues qui ne sont disponibles qu'en version numérique restent très rares (essentiellement celles du CDLI). En revanche, de plus en plus de revues imprimées sont également accessibles en ligne. On distingue deux grands cas de figure :

- revues en ligne disponibles pour les abonnés (prix inclus dans l'abonnement papier ou moyennant un supplément ; l'achat d'articles isolés est souvent possible, généralement à un prix excessif) ;
- anciens numéros disponibles avec une barrière mobile (généralement de 3 à 5 ans). L'accès peut être gratuit ou payant selon les cas. La numérisation rétrospective peut concerner la revue depuis son origine, ou seulement à partir d'une certaine date. Signalons que certains sites appliquent le droit d'auteur de façon très stricte, supprimant les illustrations des articles lorsqu'un accord n'a pas

sont souvent mouvantes. Un exemple parmi bien d'autres : M. Jursa indiquait en 2005 dans GMTR 1 p. 1 : « A web-based Neo-Babylonian bibliography can be found at <http://www.univie.ac.at/orientalistik/searchform.htm> », mais la recherche aboutit aujourd'hui à la fameuse erreur 404...

⁴) Noter que les publications de plus en plus nombreuses présentes sur <http://www.academia.edu> ne sont pas ici prises en compte.

⁵) Je ne mentionne que pour mémoire le site Google books, où de plus en plus d'ouvrages assyriologiques sont accessibles, le plus souvent en partie seulement, pour des raisons de droits d'auteur (*copyright*). D'autres sites donnent accès à des copies numériques piratées d'ouvrages assyriologiques : il n'est évidemment pas question d'y renvoyer ici.

été donné explicitement par celui qui les a réalisées⁶⁾ : la disponibilité d'une revue en ligne ne devrait jamais avoir pour conséquence la destruction des exemplaires imprimés, comme cela a parfois été pratiqué par certaines bibliothèques universitaires... Une difficulté pour les assyriologues vient de la pratique commerciale des « bouquets » : certains consortiums comme JSTOR ou CAIRN obligent les institutions à souscrire à un ensemble prédéterminé de revues, sans qu'un choix soit possible. D'autres sites

mettent en ligne les revues de façon totalement gratuite, comme en France revues.org ou persee.fr, généralement avec une barrière mobile.

La liste qui suit n'est naturellement pas exhaustive, car des articles d'assyriologie peuvent se trouver dans des revues moins spécialisées⁷⁾. L'accès est variable selon les « bouquets » et les conditions d'abonnement négociées par les institutions (dans certains cas, accès sur le site d'une bibliothèque et pas ailleurs).

Acronyme	Nom complet	Adresse (URL)	Conditions d'accès	Remarques
AfO	Archiv für Orientforschung	http://orientalistik.univie.ac.at/forschung/publikationen/archiv-fuer-orientforschung/ - other http://www.jstor.org	1) Libre. 2) Barrière mobile. Être membre d'une institution abonnée à JSTOR.	Seulement la table des matières et quelques suppléments. 2) Version PDF.
	Akkadica	http://www.akkadica.org/		Recherche des titres par auteurs (1977-2011); table des matières depuis 2011.
AOF	Altorientalische Forschungen	http://www.degruyter.com/view/j/aofo?rskey=VP7RMZ&result=5	Payant.	
BiOr	Bibliotheca Orientalis	http://poj.peeters-leuven.be/content.php?url=journal&journal_code=BIOR	Sur abonnement (individuel ou institutionnel) ou achat ponctuel.	À partir de 1997.
CDLJ	The Cuneiform Digital Library Journal	http://cdli.ucla.edu/?q=publications/journal	Libre.	Depuis 2002. Pas de version papier.
CDLB	The Cuneiform Digital Library Bulletin	http://cdli.ucla.edu/?q=publications/bulletin	Libre.	Depuis 2002. Pas de version papier.
CDLN	The Cuneiform Digital Library Notes	http://cdli.ucla.edu/pubs/cdln/	Libre.	Depuis 2003. Pas de version papier.
Iraq	Iraq	http://www.jstor.org	Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR.	Version PDF.
JANEH	Journal of Ancient Near Eastern History	http://www.degruyter.com/view/j/janeh	Payant.	N°1 (2014) en <i>Open access</i> .
JANER	Journal of Ancient Near Eastern Religions	http://booksandjournals.brillonline.com/content/journals/15692124	Payant.	Version HTML ou PDF.
JANES	The Journal of the Ancient Near Eastern Society	http://www.jtsa.edu/Scholars_and_Research/JANES.xml	Libre.	Version PDF.
JAOS	Journal of the American Oriental Society	http://www.jstor.org	Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR.	Version PDF.
JCS	Journal of Cuneiform Studies	http://www.jstor.org	Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR.	Version PDF.

⁶⁾ C'est par exemple le cas de *Syria*.

⁷⁾ Je pense en France à l'*Annuaire de l'École pratique des hautes études* ou à l'*Annuaire du Collège de France*, disponibles sur Revues.org (<http://>

www.openedition.org/catalogue-journals), ou aux *Comptes rendus de l'Académie des Inscriptions et Belles Lettres*, disponibles sur Persée (<http://www.persee.fr/web/revues/home/prescript/revue/crai>).

Acronyme	Nom complet	Adresse (URL)	Conditions d'accès	Remarques
JESHO	Journal of the Economic and Social History of the Orient	http://www.jstor.org	Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR.	Version PDF.
JMC	Journal des Médecines Cunéiformes	http://people.ds.cam.ac.uk/mjw65/jmc/	Libre.	Table des matières.
JNES	Journal of Near Eastern Studies	http://www.jstor.org	Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR.	Version PDF à partir de 1942. De 1895 à 1941: <i>American Journal of Semitic Languages and Literatures</i> (disponible sur JSTOR).
NABU	Nouvelles Assyriologiques Brèves et Utilitaires	http://www.sepoa.fr	Version en ligne gratuite (à partir de mai 2012, et rétrospectivement depuis 1987).	Version PDF de chaque numéro en ligne 1 semaine après sa sortie. Tous les numéros depuis la création (1987).
OLZ	Orientalistische Literaturzeitung	http://www.degruyter.com/view/j/olzg?rskey=VP7RMZ&result=4	Payant.	
Orientalia	Orientalia	http://vergil.uni-tuebingen.de/keibi/	Libre.	Seulement la <i>Keilschriftbibliographie</i> .
RA	Revue d'Assyriologie et d'archéologie orientale	http://www.cairn.info/revue-d-assyriologie.htm http://www.jstor.org	1) CAIRN. L'accès au 4 derniers numéros est soit payant (par article), soit gratuit pour les particuliers abonnés ou pour les membres d'une institution abonnée à CAIRN ⁸). Au-delà, accès gratuit pour tous (à partir de 2000). 2) JSTOR. Numérisation rétrospective à partir du numéro 1 (1884). Être membre d'une institution abonnée à JSTOR.	1) Version HTML ou PDF. 2) Version PDF.
SAAB	State Archives of Assyria Bulletin	http://www.helsinki.fi/science/saa/saab.html - Contents	Libre.	Volumes 1 (1987) à 10 (1996). Pour la suite, seulement la table des matières.
Syria	Syria	http://www.jstor.org http://www.persee.fr/web/revues/home/prescript/revue/syria	1) JSTOR. Barrière mobile de 5 ans. Être membre d'une institution abonnée à JSTOR. 2) PERSEE. Gratuit. Numérisation rétrospective de 1920 à 2005	1) Version PDF. 2) Version PDF (de nombreuses images sous <i>copyright</i> sont omises).
WO	Die Welt des Orients	http://www.v-r.de/de/magazine-0-0/die_welt_des_orient-500045/	Payant.	
ZA	Zeitschrift für Assyriologie und Vorderasiatische Archäologie	http://www.degruyter.com/view/j/zava	Payant.	

Ce tableau est limité aux principales revues assyriologiques ; la lacune la plus importante demeure *Orientalia* (mais voir ci-dessous § 2.2 à propos de la *KeiBi*). D'autres revues dont une partie du contenu intéresse les assyriologues (AnSt, BSOAS, Iran, etc.) sont disponibles sur JSTOR (<http://www.jstor.org/action/showJournals?discipline=43693412&>). Pour des compléments, voir les 1360 titres de AWOL (« Alphabetical List of Open Access Journals in Ancient Studies » <http://ancientworldonline.blogspot.fr/2012/07/alphabetical-list-of-open-access.html>).

1.3. Les forums et « blogs »

Un des avantages d'Internet est de raccourcir considérablement les délais dans la communication scientifique. Cependant, les assyriologues n'ont sans doute pas encore tiré tout le parti possible des échanges rendus possibles par

⁸) Pour les membres d'une Unité de recherche du CNRS : <http://www.cairn.info.gate3.inist.fr/revue-d-assyriologie.htm>.

Internet. T. Doherty et M. Hilgert avaient lancé en 2008 un *Ancient Mesopotamia Forum* (<http://www.am-forum.org/>) qui n'a pas rencontré le succès qu'on aurait pu attendre. Les envois de courriels par J. Sasson aux abonnés à sa liste Agade restent le mode de communication le plus pratiqué dans la communauté assyriologique.

On trouve aussi un certain nombre de « blogs » consacrés à des sujets relevant de l'assyriologie, mais j'avoue n'avoir pas pu les recenser de manière exhaustive.

2. LES INSTRUMENTS DE TRAVAIL

On examinera successivement le cas des dictionnaires (sumérien et akkadien) et celui des bibliographies.

2.1. Dictionnaires

2.1.1. Sumérien

L'aventure du *Sumerian Dictionary of the University Museum of the University of Pennsylvania*, entamée en 1974 sous la direction de Å. Sjöberg, a abouti à la publication du volume B en 1984, puis A/I (1992), A/II (1994) et A/III (1998) ; la présentation des données s'inspirait très fortement de celle du CAD. Lorsque S. Tinney a pris la relève, il a été décidé que le dictionnaire serait finalement publié de façon numérique. Le ePSD est disponible depuis 2006, à la fois en ligne et sous forme d'un ensemble de fichiers html consultables *off line* (<http://psd.org/epsd1/>). Le site n'a pas évolué depuis 2006, mais E. Robson m'informe qu'une nouvelle version sera prochainement disponible.

Il faut aussi mentionner le *Sumerisches Glossar*, lancé par P. Attinger (Université de Berne) et W. Sallaberger (Université de Munich). Le projet est décrit dans http://www.assyriologie.uni-muenchen.de/forschung/woerterbucher_und_lexika/sumglossar/index.html. Il porte sur les textes sumériens de l'époque présargonique au début de l'époque d'Isin (XXIV^e-XX^e siècles) : textes littéraires et inscriptions royales (P. Attinger), lettres, textes juridiques et administratifs (W. Sallaberger). Actuellement, on peut télécharger un gros fichier intitulé « LEIPZIG-MÜNCHNER SUMERISCHER ZETTELKASTEN » et daté du 26/09/2006 ; on peut également télécharger la traduction française annotée de nombreux textes littéraires sumériens par P. Attinger (http://www.iaw.unibe.ch/content/ueber_uns/mitarbeitende/abt_va_prof_dr_pascal_attinger/uebersetzungen/index_ger.html).

2.1.2. Akkadien

Les deux grands dictionnaires akkadiens, AHW et CAD, sont désormais achevés. L'Oriental Institute, dans le cadre de la mise en ligne gratuite de ses publications, a rendu un immense service à l'assyriologie en rendant gratuitement accessibles les 21 volumes du CAD au format pdf (<http://oi.uchicago.edu/research/pubs/catalog/cad/>) avec deux restrictions : on ne peut imprimer les fichiers, ni procéder à du copier/coller. La limite la plus fâcheuse est toutefois la qualité de l'OCR : elle a manifestement été faite automatiquement et sans correction, de sorte que l'akkadien est souvent mal reconnu (dès que la translittération comporte des signes diacritiques). Mais pouvoir consulter partout la totalité du CAD était inimaginable quand j'ai débuté l'assyriologie...

Aucune version numérique officielle du AHW n'existe, ce qui est bien dommage. Sa version anglaise abrégée, le CDA, également publiée par Harrassowitz, n'est pas non plus disponible sous forme numérique⁹). Il existe en revanche une très utile liste de justifications, ajouts et corrections (<http://www.soas.ac.uk/cda-archive/>), qui est régulièrement mise à jour¹⁰).

En juin 2011, K. R. Veenhof avait communiqué en vue de la RAI de Rome un « Proposal to the IAA », visant à la création d'un outil collectif de « veille lexicographique » ; la mise à jour régulière du CDA (cf. ci-dessus) pallie en partie cette lacune. W. Sommerfeld a lancé en juillet 2014 à l'Université de Marbourg un site qui devrait également contribuer à combler ce besoin et fournir beaucoup d'autres ressources, notamment concernant la lexicographie sumérienne et akkadienne (<http://www.dnms.org/>)¹¹). On doit également signaler le projet de l'*Etymological Dictionary of Akkadian* que L. Kogan (Moscou), M. Krebernik (Iéna) et M. P. Streck (Leipzig) ont lancé en juillet 2012 (<http://www.uni-leipzig.de/altorient/etymd.html>). On trouve notamment sur ce site un *Supplement to the Akkadian dictionaries*, certes incomplet, mais néanmoins utile.

2.2. Bibliographies

Deux outils très utiles et complémentaires existent depuis longtemps : le *Register Assyriologie*, publié dans *Archiv für Orientforschung* et la *Keilschriftbibliographie (KeiBi)*, publiée dans *Orientalia*. Malheureusement, le *Register* n'est toujours pas accessible en ligne¹²). En revanche, la *KeiBi* est depuis quelques années disponible sur Internet, non seulement sous forme de fichiers pdf distincts (<http://vergil.uni-tuebingen.de/keibi/index.php?r=volume/list>) mais surtout sous forme d'une base de données cumulatives, avec une barrière mobile de 2 numéros (<http://vergil.uni-tuebingen.de/keibi/>). Chose rare qui mérite d'être signalée : l'interface est trilingue (allemand, anglais, français).

On a aussi des bibliographies limitées à des domaines particuliers (corpus, thèmes, etc.). À titre d'exemple, on peut signaler :

- textes OB de la Diyala : sur le site du Laboratorio di Assyriologia de Pise, un catalogue des textes avec bibliographie préparé par P. Gentili en 2002 (http://www.uplink.it/assyriologia/writable/documenti/11_36_0_0_texts_from_diyala.pdf) ;
- EHKM : Elektronisches Handbuch der Keilschrifttexte aus Mari (<http://www.uni-leipzig.de/altorient/mari.html>). Fichier Excel qui donne la bibliographie pour chacun des textes de Mari (B. Kärger, Univ. de Leipzig). N'est pas encore complet, mais a l'avantage de concerner aussi les citations des textes inédits (auxquels ARCHIBAB [cf. ci-dessus] n'a pas donné la priorité).

⁹) On en trouve une version en ligne sur le Web, dont j'avoue ignorer le statut légal ; je m'abstiens donc d'indiquer le lien.

¹⁰) On peut télécharger ce fichier au format html, qui est consultable *off line*.

¹¹) Le nom du site est Digitale Nah- und Mittelost-Studien / Digital Near and Middle Eastern Studies.

¹²) Les données du *Register* (AfO 25 à 52 et Beiheft 21) sont désormais accessibles sous forme d'un fichier pdf pour l'akkadien (www.dnms.org/apps/agi) et le sumérien (www.dnms.org/apps/sgi).

- Bibliography of Emar Studies (<http://www.ieiop.csic.es/emar/en/Presentation.html>) de B. Faist (FU Berlin) J.-J. Justel & J.-P. Vita (Univ. de Saragosse) ; cette bibliographie des études sur les textes d'Emar, classée par auteurs et par thèmes, a également été publiée dans plusieurs livraisons d'*UF* (35, 37, 39) ; le site est figé depuis juillet 2007.
 - droits cunéiformes : les très utiles *Chroniques assyriologiques* de la *Revue Historique de Droit Français et Étranger*, débutées en 1980 par G. Cardascia et E. Szlechter, ont été poursuivies par S. Démare-Lafont (en version papier jusqu'en 2002) et mises en ligne par A. Mouton (<http://chroniqueassyrio.free.fr/> ou <http://chroniquesassyriologiques.wordpress.com/>) ; le site est figé depuis 2010.
- Enfin, de nombreuses bibliothèques spécialisées donnent accès à leur catalogue en ligne. Ici encore, je ne peux être exhaustif. Voici donc quelques exemples :
- Chicago, Oriental Institute, Research Archives (<http://oaidb.uchicago.edu/>) ;
 - Jérusalem - École Biblique et Archéologique Française, Bibliothèque St Étienne (<http://biblio.ebaf.edu/>) ;
 - Paris, Collège de France, Bibliothèque d'Assyriologie (<http://bude.college-de-france.fr/F?RN=457081598>). Les nouvelles acquisitions sont régulièrement signalées (<http://www.digitorient.com/?cat=134>) ;
 - Universität Leipzig, Digitale Bibliothek (<http://www.uni-leipzig.de/altorient/Digitalebibliothek.html>)¹³).

3. LES BASES DE DONNÉES

On trouvera ci-dessous une description sommaire du contenu et du fonctionnement des bases de données en ligne qui peuvent intéresser les assyriologues (portant sur les textes sumériens et akkadiens). Souvent, des informations sont données par les sites eux-mêmes (historique, financement, etc.) ; on a indiqué ci-dessous la référence à un certain nombre d'études dans lesquelles leurs concepteurs ont expliqué leur entreprise¹⁴. D'un point de vue théorique, on pourrait distinguer les corpus (qui sont une *construction* de ceux qui les ont constitués — anciens ou modernes¹⁵) et les archives (formées par l'*accumulation* des écrits résultant des activités d'une personne ou d'un groupe). On a préféré ici un regroupement pragmatique en trois catégories : les banques d'images, le consortium Oracc, et les autres bases spécialisées par genres et/ou périodes. Les descriptions sont suivies d'un tableau (§ 3.5) qui donne pour chaque base son acronyme, son URL ainsi que le nom du/des responsable(s), et résume ses caractéristiques principales.

¹³) La bibliographie est accessible librement, mais les publications numérisées ne sont accessibles qu'aux personnes autorisées.

¹⁴) Noter que les bases n'indiquent pas toujours clairement l'arrière-plan technique qui leur permet de fonctionner. Je n'ai pas ici retenu cette approche, puisque toutes les bases n'auraient pu recevoir le même traitement.

¹⁵) Les bibliothèques formant un sous-groupe, qu'on peut définir comme une collection d'œuvres classées (D. Charpin, *Lire et écrire à Babylone*, Paris, 2008, p. 193 = *Reading and Writing in Babylon*, Cambridge, Ma., 2010, p. 178).

3.1. Des banques d'images

Cette section n'a pas cherché l'exhaustivité. Le principal intérêt des sites ici décrits est d'offrir des images des textes cunéiformes, même s'ils ne se limitent pas à cela.

- Une base généraliste : le **CDLI (The Cuneiform Digital Library Initiative)**. Le CDLI a été un site pionnier en assyriologie : il a d'abord donné accès aux textes les plus archaïques (Uruk IV et III), dont il proposait des photos en ligne, ce qui était révolutionnaire il y a une quinzaine d'années, puis a été élargi à l'ensemble du troisième millénaire. Le projet a évolué dans une perspective patrimoniale, avec la mise en ligne des tablettes de nombreuses collections et musées (une trentaine actuellement) : le projet se définit comme « dedicated to the digital capture, preservation and dissemination of cuneiform collections that are spread throughout the world ». Le site a désormais l'ambition d'offrir à terme le catalogue de tous les textes cunéiformes : il compte actuellement 290000 entrées sur un total estimé à plus de 500000¹⁶). On trouve des transcriptions pour certains corpus¹⁷). Différents outils, notamment à vocation pédagogique, ont été développés autour de la base elle-même. Certains considèrent que la technique de scan du CDLI (http://cdli.ox.ac.uk/wiki/doku.php?id=submission_guidelines) est aujourd'hui obsolète. Mais quand on voit l'échec du projet de numérisation 3D *Digital Hammurabi* (<http://pages.jh.edu/~dighamm/>), qui ne semble pas avoir abouti malgré un financement de plus de 1,5 millions de dollars¹⁸), le proverbe qui dit « mieux vaut tenir que courir » n'a-t-il pas raison ?
- Les sites propres à certains musées ou collections (autres que ceux du CDLI)¹⁹. Quelques exemples :
 - **British Museum** : il s'agit notamment des tablettes de Kuyunjik (http://www.britishmuseum.org/research/research_projects/all_current_projects/ashurbanipal_library_phase_1.aspx)²⁰). On peut retrouver toutes les copies ou photos des tablettes du BM qui ont été numérisées sur le

¹⁶) On regrette que les indications bibliographiques soient parfois incomplètes ; les rééditions sont souvent comptées comme de nouveaux textes (par exemple, les textes réédités dans ARM 26 sont également présents sous leur référence d'origine, comme ARM 10 4 = ARM 26 207, etc.).

¹⁷) Par exemple :
 – environ 2000 textes présargoniques (ED IIIb) sont disponibles en trans-littération (D. Foxvog, 2008) ;
 – de nombreux textes d'Ur III sont également téléchargeables, ainsi que des textes paléo-assyriens, etc. (<http://cdli.ucla.edu/?q=downloads>).
 – on y trouvera aussi les transcriptions par Ph. Abrahami et B. Lion d'une partie des 640 textes du palais de Nuzi (projet EETCN/Palais : Edition électronique de textes cunéiformes de Nuzi : les archives du palais). Le site spécifique dans Oracc, annoncé en 2011 (<http://cluster13.ens-lyon.fr/spip.php?article80>), n'a pas encore vu le jour.

¹⁸) Plus modestement le *Cuneiform Forensics Project* de Brooklyn College (<http://cuneiform.vgurgov.com/>) ne semble pas non plus avoir débouché sur des résultats concrets.

¹⁹) Pour une liste qui prétend recenser toutes les collections qui contiennent des tablettes cunéiformes, voir http://cdli.ox.ac.uk/wiki/doku.php?id=cuneiform_tablet_collections - *cuneiform_tablet_collections*. Cette liste est cependant loin d'être complète : la rubrique « Collections of more than 1000 tablets » ne comprend pas le musée syrien de Der-ez-Zor, où presque toutes les tablettes découvertes par A. Parrot dans le palais de Mari sont conservées depuis 2004 ; la rubrique « Collections of less than 100 tablets » ne contient que deux entrées... En revanche, la liste du BDTNS doit être proche de l'exhaustivité, car la plupart des collections comportent au moins une tablette d'Ur III (http://bdts.filol.csic.es/index.php?p=principal_colections). On relève environ 600 collections dans 39 pays, mais plusieurs dizaines de collections se limitent à une seule tablette.

²⁰) Noter que les mêmes photos ont une meilleure résolution sur le site du CDLI que sur celui du BM.

site http://www.britishmuseum.org/research/collection_online/search.aspx : on doit entrer les numéros du BM tels quels (chiffres seulement), ou avec le préfixe K. pour Kuyunjik.

– **VAM Berlin** : « The El-Amarna Letters at the *Vorderasiatisches Museum* of Berlin » : photos des lettres d'El-Amarna prises par J.-P. Vita à Berlin en 2001 (<http://amarna.ieiop.csic.es/maineng.html>). Je n'ai pu y avoir accès en préparant cette contribution.

– **Cuneiform Library at Cornell University** (<http://cuneiform.library.cornell.edu/>) : contient notamment des photos de CUSAS 8 et 15. Pour CUSAS 8, consulter aussi <http://www.arts.kuleuven.be/info/ONO/Meso/cornell>, qui donne accès aux photos prises avec le fameux « dôme » de Leuven.

– **KU Leuven** : photos des tablettes de la collection de la KU Leuven (<http://www.arts.kuleuven.be/info/ONO/Meso/cuneiformcollection>) et d'autres collections et informations sur la technique de photographie par le « dôme » (<http://www.arts.kuleuven.be/info/ONO/Meso/digitalisatie>).

– **Archives royales de Mari** : les photos des textes publiés (ARM, FM et hors collections), conservées dans le répertoire Archipix sur un serveur du Collège de France, sont progressivement rendues accessibles via <http://www.archibab.fr> (actuellement, photos de 1150 tablettes).

3.2. Le consortium Oracc

Oracc s'est constitué peu à peu à partir de l'expérience du ePSD de S. Tinney. Celui-ci a mis au point une norme pour la translittération des textes cunéiformes, ATF (*ASCII Transliteration Format*), devenu *Extended ATF* (<http://oracc.org/help/editingnatf/>), qui utilise Unicode (UTF 8)²¹. Le corpus est *annoté* : chaque unité translittérée (groupe de signes entre deux espaces) est caractérisée par son lemme (transcription du mot ou nom), son type (*word class information*, autrement dit *part-of-speech tag*), son sens général et son sens contextuel (en anglais). Cette annotation est visible par l'utilisateur par simple « survol ». En cliquant sur la translittération d'un mot/nom dans un corpus, l'utilisateur obtient la liste de toutes les occurrences du mot/nom dans le corpus, et la possibilité de consulter la totalité de chaque texte où le mot/nom est attesté (cf. <http://oracc.org/doc/wwwhome/how-and-why.html>). Il s'agit donc de corpus électroniques lemmatisés, où la part des métadonnées est très réduite.

Oracc donne accès à des sites de natures très différentes, sans que cela soit forcément clair pour celui qui aborde ce portail, dont le nom (*Open Richly Annotated Cuneiform Corpus*) ne correspond plus tout à fait à la réalité (<http://oracc.org/>)²². On peut regrouper la vingtaine de sites Oracc en trois catégories : accès au contenu de livres déjà publiés, accès à des corpus, outils pédagogiques.

3.2.1. Accès au contenu de livres déjà publiés

Dans tous les cas, la consultation se fait volume par volume et les corpus sont le plus souvent identiques à la publication papier ; les textes ont été lemmatisés. Il s'agit actuellement de la correspondance néo-assyrienne et des inscriptions royales néo-assyriennes :

– **SAAo : State Archives of Assyria online**. Donne accès aux textes des volumes 1 à 19 de la série SAA (*State Archives of Assyria*)²³, volume par volume (4819 textes au total).

– **RINAP : The Royal Inscriptions of the Neo-Assyrian Period**²⁴. Donne accès aux inscriptions royales publiées dans les volumes 1, 3/1²⁵ et 4 de la série RINAP.

Noter également la publication en ligne des index des volumes du RIM Project, qui en étaient dépourvus (RIMA 1-3 ; RIMB 2 ; RIME 1-4) : <http://oracc.org/rinap/namesindex/>.

3.2.2. Accès à des corpus

– **Amarna : The Amarna Texts**. Transcriptions par Sh. Izre'el des 378 tablettes MB découvertes à El Amarna.

– **CAMS : Corpus of Ancient Mesopotamian Scholarship**. Le titre est ambitieux, la réalité actuellement encore limitée : accès à deux textes littéraires akkadiens (Anzu et Ludlul, d'après les éditions de SAACT 3 et 7), à un modèle de foie paléo-babylonien (sous la rubrique *Barutu*) et à trois inscriptions royales séleucides (sous la rubrique *SeIBI = Seleucid Building Inscriptions*). Le site GKAB (voir plus bas) est désormais devenu une composante de CAMS.

– **CTIJ : Cuneiform Texts Mentioning Israelites, Judeans, and Related Population Groups**. Le site se définit ainsi : « Cuneiform texts and onomastic data pertaining to Israelites, Judeans, and related population groups during the Neo-Assyrian, Neo- and Late Babylonian, and Achaemenid Periods (744-330 BCE). » Le site est en cours de construction.

– **DCCLT : Digital Corpus of Cuneiform Lexical Texts**. Les MSL ont rendu — et rendent encore — de grands services, mais s'il est un domaine où la numérisation est essentielle, c'est bien pour les listes lexicales. Ce site, encore en cours d'enrichissement, donne accès aux textes par périodes (6, de l'époque archaïque à la fin du 1^{er} millénaire), ou par types (exercices, textes de bibliothèques, listes de mots, listes de signes). Le site comprend une bibliographie classée, avec de nombreux liens vers des publications numérisées.

Un sous-projet est consacré plus spécifiquement aux textes lexicaux de Ninive, qui utilise les photos des textes de Kuyunjik du British Museum.

– **DCCMT : Digital Corpus of Cuneiform Mathematical Texts**. Corpus de 1392 textes mathématiques de toutes périodes et provenances.

– **GKAB : The Geography of Knowledge in Assyria and Babylonia**. Édition des textes savants de deux bibliothèques

²¹) Noter l'exception du CDLI, qui continue d'afficher les translittérations en C-ATF, antérieur à la généralisation d'Unicode, ce qui n'est pas très *user friendly*...

²²) Un manuel en ligne se révèle très utile (<http://oracc.org/doc/user/p2/index.html>)

²³) Noter que SAA 19 (M. Luukko, *The Correspondence of Tiglath-pileser II and Sargon II from Calah/Nimrud*, Winona Lake, 2012), n'était pas encore sur la liste générale de Oracc en juin 2014, alors qu'il est disponible (<http://oracc.org/saao/saa19/corpus>).

²⁴) Curieusement, le titre annoncé avait été RINAP Online (G. Frame, message à la liste Agade du 15 juillet 2011), parallèlement à SAA Online (= SAAo), mais le sigle du site Oracc est RINAP et non RINAPo.

²⁵) Le volume 3/2 n'est pas encore en ligne (juin 2014).

néo-assyriennes (Huzirina et Kalhu) ainsi que de deux bibliothèques babyloniennes récentes (Uruk, époques achéménide et séleucide).

– **HB TIN : Hellenistic Babylonia : Texts, Iconography, Names.** Textes d'archives d'époque hellénistique (essentiellement Uruk), prenant en compte les empreintes de sceaux ; études prosopographiques.

– **ETCSRI : Electronic Text Corpus of Sumerian Royal Inscriptions.** Le site, consacré aux inscriptions royales sumériennes, est conçu pour compléter l'ETCSL, qui ne traitait pas ce type de textes. L'annotation est plus riche que dans les autres sites Oracc du point de vue de l'analyse grammaticale et morphologique. Le linguiste y trouve donc son compte ; l'historien de l'époque OB un peu moins, puisqu'une partie des inscriptions royales de cette période sont en akkadien et donc absentes du site.

– **OBMC : Old Babylonian Model Contracts.** Site consacré aux modèles de contrats paléo-babyloniens.

– **rimanum : The House of Prisoners.** Donne accès aux 318 textes des archives du *bît asîrî* d'Uruk sous Rim-Anum. Le site a été aussitôt figé, de sorte que les 42 textes publiés par A. Seri dans son livre *The House of Prisoners : Slavery and State in Uruk during the Revolt against Samsu-iluna*, SANER 2, Berlin/New York, 2013 sont entrés avec leur cote de musée et marqués comme « unpublished assigned »²⁶.

3.2.3. Outils pédagogiques

– **AEB : Assyrian Empire Builder**, avec comme sous-titre « Governors, diplomats and soldiers in the service of Sargon II and Tiglath-pileser III, kings of Assyria ». Facilite l'accès à la correspondance royale (SAA 1, 5, 15, 17 et 19), aux listes d'éponymes (SAAS 2) et aux documents juridiques (SAA 6 et 14) ; fournit notamment les listes des comptes rendus de ces volumes (avec URL le cas échéant), des abréviations et des sigles de tablettes.

– **AMGG : Ancient Mesopotamian Gods and Goddesses.** Notices sur les 50 divinités les plus importantes du panthéon mésopotamien. Mis en ligne en 2011.

– **KNPP : Knowledge and Power in the Neo-Assyrian Empire.** Conçu dans le même esprit que AEB pour faciliter l'accès aux volumes 3, 4, 8, 9, 10, 13, 16 et 18 des SAA, grâce à de nombreux outils destinés aux étudiants et au public intéressé. Il faut signaler par ailleurs la mise à jour des volumes de PNA (*The Prosopography of the Neo-Assyrian Empire*) par H. Baker (jusqu'en mai 2012) (<http://homepage.univie.ac.at/heather.baker/pna.html>).

– **Nimrud : Materialities of Assyrian Knowledge Production** (Object Biographies of Inscribed Artefacts from Nimrud for Museums and Mobiles). Se décrit comme « A portal to all things related to the ancient Assyrian city of Nimrud (Kalhu/Calah), on Oracc and beyond. Explores how scientific and historical knowledge is made from archaeological objects. »

3.2.4. Remarques

Les sites d'Oracc sont extrêmement utiles. Ils ont un avantage : l'interface est identique pour tous (du moins pour les catégories 1 et 2 ci-dessus). L'outil a été conçu avant tout

pour répondre à des recherches lexicographiques : de fait, on a instantanément accès à tous les passages contenant tel mot ou nom propre dans un corpus donné (avec des chiffres de fréquence). L'étudiant trouve très pratique d'avoir accès à la forme lemmatisée par simple survol du mot. Mais l'identité de conception rend l'outil moins adapté à certains types de corpus. Le travail sur les documents d'archives est ainsi très limité : par exemple, on ne peut rechercher les textes par date et encore moins les trier chronologiquement. Les inscriptions royales sont accessibles seulement en fonction du texte reconstitué : impossible d'avoir accès aux différentes versions ni de connaître leurs supports ou leurs emplacements²⁷). La limite principale, dans l'optique même du programme, est la segmentation des corpus : il n'est actuellement pas possible de rechercher un mot ou un nom sur l'ensemble de SAAo, il faut procéder volume par volume²⁸). Cette limite devrait être bientôt abolie.

3.3. Autres bases spécialisées par genres et/ou périodes

3.3.1. Troisième millénaire

– Ebla : la base **EbDA (Ebla digital archives)** donne accès aux 2950 textes d'Ebla publiés : ARET 1 (45), 2 (59), 3 (976), 4 (25), 5 (26), 7 (156), 8 (21), 9 (115), 11 (3), 12 (1414), 13 (21), 15 (59), 16 (30). Il ne s'agit pas simplement du portage de l'édition papier : les transcriptions ont été harmonisées, des corrections et collations intégrées. Les recherches se font par référence ou par chaîne de caractères. Pas d'accès aux copies ou photos. Celles-ci sont en partie disponibles sur le CDLI (http://cdli.ucla.edu/search/search_results.php?Collection=idlib&Period=Ebla) ; il s'agit le plus souvent de la reproduction des photos de la mission archéologique de tell Mardikh publiées dans les ARET, très rarement de nouvelles photos prises par le CDLI.

Un autre site permet d'accéder à **The Prosopography of Ebla** (<http://www.ebla.unifi.it/CMpro-v-p-14.html>) : il ne s'agit pas d'une véritable base de données, mais plutôt d'une publication en ligne de A. Archi et A. Catagnoti (dernière mise à jour : août 2012).

– **DCSL : Diachronic Corpus of Sumerian Literature.** Ce site s'était donné comme objectif de prolonger ETCSL, qui est limité aux textes littéraires sumériens d'époque paléo-babylonienne (cf. infra) : « [it] seeks to document the entire history of Sumerian literature from the first evidence in the third millennium BC to when it was integrated in Babylonian and Assyrian cultures. » Le site n'a pas dépassé le stade du catalogue avec références bibliographiques.

– **BDTNS : Base de Datos de Textos Neo-Sumerios – Database of Neo-Sumerian Texts.** L'une des doyennes des bases de données assyriologiques, qui a le gros avantage d'être complète (plus de 84000 textes !) et régulièrement tenue à jour. Toutes sortes de recherches combinées sont possibles : par publication, par collection, par date, chaîne de caractères, etc. On a aussi accès aux copies/photos propres

²⁶ Le corpus vient d'être augmenté par A. Rositani, « More Rīm-Anum Texts from the *bît asîrî* », *Semitica* 56, 2014, p. 35-624. Voir ma chronique de la RA 108, 2014.

²⁷ La présentation de RINAP définit très bien l'outil procuré par Oracc : « RINAP Online will allow those interested in Assyrian culture, history, language, religion, and texts to efficiently search Akkadian and Sumerian words appearing in the inscriptions and English words used in the translations. » Mais on pourrait faire beaucoup plus.

²⁸ La section intitulée **The Q catalogue** (<http://oracc.org/qcat/corpus>) ne donne que le catalogue des textes, mais ne permet pas l'accès à leur contenu. E. Robson m'informe que cela devrait être possible à l'avenir.

au site ou par lien (avec le CDLI essentiellement), l'origine de chaque illustration étant clairement donnée. Voilà un cas où l'on peut dire qu'un domaine de recherche a fait des progrès spectaculaires grâce à l'utilisation d'une base de données.

Cf. M. Molina, « The Corpus of Neo-Sumerian Tablets : An Overview », dans S. J. Garfinkle & J. C. Johnson (éd.), *The Growth of an Early State in Mesopotamia : Studies in Ur III Administration : Proceedings of the First and Second Ur III Workshops at the 49th and 51st Rencontre Assyriologique Internationale*, BPOA 5, Madrid, 2008, p. 19-54.

3.3.2. Première moitié du deuxième millénaire

3.3.2.1. Textes d'archives

Archives paléo-assyriennes

– **Altassyrische Texte** (<http://www.hethport.uni-wuerzburg.de/altass/>) : transcription de nombreux textes par K. Hecker sous forme de fichiers pdf uniquement ; bibliographie.

– **OATP – Old Assyrian Text Project** : une composante de ce projet est formée par **OAPP (OA Prosopography Project)**, dont le but était au départ de fournir une base de données prosopographiques des textes paléo-assyriens. Le site a été ensuite élargi pour donner accès aux textes eux-mêmes. Ils sont transcrits, mais pas traduits ; la recherche sur chaînes de caractères est possible, mais les textes ne sont pas encore lemmatisés. Il n'y a ni copies ni photos.

Archives paléo-babyloniennes. Il n'existe pas moins de 4 bases pour les documents d'archives, soit en ordre chronologique de leur mise en ligne :

– **OBTC : Old Babylonian Texts Corpus.** Ce site, créé en 2005, porte sur tous les textes paléo-babyloniens : « letters, administrative documents, contracts and other types of legal texts, royal inscriptions, omina and mathematical texts ». Les textes sont donnés en translittération seule, sans traduction ni notes ; par ailleurs, les textes sont repris tels quels d'après leur *editio princeps*, sans tenir compte des rééditions avec joints et collations²⁹). Enfin, l'accès aux textes est limité aux contributeurs (soit actuellement 4 personnes en plus des 3 personnes de l'*Editorial board*). Seuls le dictionnaire (*Provisional Dictionary of the Old Babylonian Akkadian Language*) et la liste des signes sont accessibles librement, ce n'est même pas le cas du catalogue des textes.

Cf. L. Pecha & F. Rahman, « The Old Babylonian Text Corpus Project (<http://www.klinopis.cz/nobtc>) », dans L. Kogan et al. (éd.), *Babel und Bibel 4. Language in the Ancient Near East. Proceedings of the 53e Rencontre Assyriologique Internationale Vol. 1 (Parts 1 & 2)*, Orientalia et Classica 30, Winona Lake, 2010, p. 1187-1191.

– **ARCHIBAB : Archives babyloniennes, xx-xvii siècles av. J.-C.** Site dévolu aux documents d'archives paléo-babyloniens de toutes époques et de toutes provenances. La bibliographie permet d'avoir les références aux publications des 32.420 textes actuellement intégralement disponibles. Sur ce corpus, 16.284 textes sont accessibles sous forme d'une notice de catalogue : numéro de musée/collection, bibliographie, description (par résumé libre et mots-clés),

date, type, lieu de découverte et/ou de rédaction. De plus en plus, on trouve également une transcription (9671 textes, dont 5573 lemmatisés). La traduction est donnée pour certains types (lettres, une partie des documents juridiques, mais pas les documents comptables). Les notes justificatives reproduisent celles de l'édition originale, ou sont dues aux éditeurs d'ARCHIBAB. Les légendes des empreintes de sceaux et les formules de noms d'années sont prises en compte. Il s'agit d'une base de données relationnelle, qui permet des interrogations croisées en temps réel³⁰) ; l'importance des métadonnées permet des recherches très complètes. L'accent est mis sur les publications récentes, avec une intégration rétrospective des textes plus anciens. Des suggestions sont souvent intégrées par rapport à l'édition d'origine (parfois justifiées dans des notes de *NABU*, rubrique « En marge d'ARCHIBAB... »). La base web est mise à jour tous les trimestres ; les nouveautés sont signalées dans un document pdf sur la page d'accueil (et sur <http://www.digitorient.com/?cat=131>). Le site est en français, mais depuis 2013, une interface en anglais est disponible.

L'un des buts du projet est de permettre différents types de recherches à partir de ces archives paléo-babyloniennes, sous forme de prolongements qui se greffent sur la base de données. Le projet HIGOMES est actuellement en train de traiter les toponymes de la Haute-Mésopotamie (<http://www.digitorient.com/?cat=130>) ; un site spécifique devrait voir le jour d'ici 2016, combinant les données des textes OB et MA et de l'archéologie. Autre cas : M. Béranger entreprend pour sa thèse l'analyse des lettres OB dans une perspective textométrique à l'aide du logiciel TXM (<http://textometrie.ens-lyon.fr/>) : ARCHIBAB peut exporter les textes avec les balises XML nécessaires à ce logiciel.

Cf. D. Charpin, « L'historien face aux archives paléo-babyloniennes » (<http://www.digitorient.com/?p=190>), texte écrit en 2008 et publié en anglais comme « The Historian and the Old Babylonian Archives », dans H. Baker & M. Jursa (éd.), *Documentary Sources in Ancient Near Eastern and Greco-Roman History : Methodology and Practice*, Londres, 2014, p. 24-58 ; Id., « Les nouvelles technologies au service de l'historien de la Mésopotamie : le projet "ARCHIBAB" », *Comptes rendus de l'Académie des Inscriptions et Belles Lettres*, 2010, p. 1381-1394 [bientôt accessible sur <http://www.persee.fr/web/ouvrages/home/prescript/fond/aibl>] ; Id., « The Assyriologist and the Computer : The "Archibab" Project », *Hebrew Bible and Ancient Israel* 3, 2014, p. 137-153.

– **LOB-PNI : Late Old Babylonian Personal Names Index.** Ce site à visée prosopographique donne accès à 4678 noms de personnes attestés dans ca. 3000 textes paléo-babyloniens tardifs (Ammi-ditana à Samsu-ditana³¹).

– **rimanum : The House of Prisoners** : voir ci-dessus § 3.2.2.

3.3.2.2. Littérature sumérienne et akkadienne

– **ETCSL : The Electronic Text Corpus of Sumerian Literature.** Corpus de la littérature sumérienne d'époque paléo-babylonienne. Un site précurseur et très utile, qui donne accès en transcription et traduction à l'essentiel des textes littéraires sumériens (380 compositions), lemmatisés,

²⁹) C'est notamment le cas de ARM 10 (voir par exemple ARM 10 134, réédité sans son joint avec ARM 10 (http://www.klinopis.cz/utf/utf/catalogue.php?bookandchapter=_ARM_10,134), alors que le texte a été réédité en 1988 dans ARM 26 (n°185-bis). Peut-être cela a-t-il été corrigé depuis dans la version réservée ?

³⁰) L'inconvénient de la technique utilisée est qu'il n'existe pas d'URL fixe pour un texte donné ; c'est le prix à payer pour la flexibilité, puisque le site évolue constamment.

³¹) De manière étonnante, les textes du règne de Abi-ešuh sont exclus. Les signes diacritiques ne sont que partiellement pris en compte, ce qui est étonnant depuis l'avènement d'Unicode.

et présentés en 7 catégories : « Ancient literary catalogues (C0), Narrative and mythological compositions (C.1), Compositions with a historical background and royal praise poetry (C.2), Literary letters, letter-prayers and laws (C.3), Hymns and cult songs (C.4), Other literature (C.5), Proverbs and proverb collections (C.6) », chaque composition recevant un numéro selon un principe de classification décimale. La lemmatisation a été effectuée à l'aide du « moteur ATF » de S. Tinney et l'ETCSL est en lien étroit avec l'ePSD (et vice-versa)³².

Certains sumérologues ont mis en garde contre un usage non contrôlé de l'ETCSL, soulignant qu'on n'avait pas affaire à une édition critique des compositions ; la principale limite de l'ETCSL est en effet de ne donner qu'un texte composite, sans fournir le texte des différents manuscrits (« Partitur »), dont seules les références sont indiquées. Créé en 1998, l'ETCSL n'a hélas survécu que peu de temps à la mort de J. Black (2004) et est figé depuis 2006.

Un livre, issu du travail du groupe, accompagne ce site : J. Black, G. Cunningham, E. Robson & G. Zólyomi, *The Literature of Ancient Sumer*, Oxford, 2004. Voir aussi J. Ebeling, « The Electronic Text Corpus of Sumerian Literature : an all-in-one corpus ? », dans H. D. Baker, E. Robson & G. Zólyomi (éd.), *Your praise is sweet. A memorial volume for Jeremy Black from students, colleagues and friends*, Londres, 2010, p. 53-67.

– Rappelons qu'on peut également télécharger la traduction française annotée de nombreux textes littéraires sumériens par P. Attinger, sous forme de fichiers pdf distincts présents sur le site de l'Université de Berne (http://www.iaw.unibe.ch/content/ueber_uns/mitarbeitende/abt_va/prof_dr_pascal_attinger/uebersetzungen/index_ger.html).

– **SEAL : Sources of Early Akkadian Literature. A Text Corpus of Babylonian and Assyrian Literary Texts from the 3rd and 2nd Millennia BCE.** Site consacré aux textes littéraires akkadiens des troisième et deuxième millénaires (y compris MA et MB), classés en 10 catégories : épopées (93 textes), hymnes et prières (98), lamentations (21), *Love lyrics* (20), incantations (313), lettres littéraires (9), littérature de sagesse (43), textes funéraires (7), divers (27), catalogues (4). Les textes sont translittérés, traduits en anglais et lemmatisés et des index sont disponibles par catégories de textes ; des images (copies et/ou photos) disponibles si les droits sont libres. Bibliographie importante. Accès possible aux textes par périodes, par collections ou par sites (avec carte).

– **eTact : Electronic Translations of Akkadian Cuneiform Texts.** Recueil à but pédagogique de traductions de textes akkadiens (avant tout littéraires). L'initiative n'a pas eu le succès qu'on pouvait escompter : seulement 28 textes sont actuellement disponibles (en traduction anglaise).

3.3.3. Seconde moitié du deuxième millénaire

– Hethitologie Portail Mainz : ce site précurseur concerne essentiellement les hittitologues, mais certaines sections sont destinées aux assyriologues (cf. ci-dessus § 3.3.2.1 *Altassyrische Texte* et ci-dessous *Emar Online Database*).

– Emar : pas moins de 3 sites sont dévolus aux textes découverts à Emar et dans les environs (sans parler de la bibliographie mentionnée au § 2.2) :

– **Middle Euphrates Digital Archive** : base qui donne accès aux textes eux-mêmes, tant à ceux issus des fouilles officielles qu'aux autres.

– **Emar Online Database** : notices bibliographiques pour chaque texte d'Emar (commentaires, suggestions de lecture pour tel ou tel passage, etc.).

– **Tell Hadidi** : copies et transcriptions par R. Whiting des 15 textes découverts à Tell Hadidi (= Azu ?) et encore inédits (<http://www.helsinki.fi/~whiting/hadidcat.html>).

3.3.4. Premier millénaire

Beaucoup de sites sont rattachés à Oracc (voir ci-dessus). On relève encore :

– **DKB-LLA : Digitale Keilschrift bibliothek Lexikalischer Listen aus Assur.** Textes lexicaux d'Assur conservés au VAM de Berlin (410 textes correspondant à 18 séries, dont 40% d'inédits).

– **Nineveh Tablet collection.** Donne la liste de tous les joints des tablettes de la « bibliothèque d'Assurbanipal » du British Museum ainsi que le catalogue des textes babyloniens.

– **Achemenet** : site dévolu à l'empire achéménide. En ce qui concerne les assyriologues, les textes sont actuellement accessibles sous forme de fichiers PDF et classés par... éditeurs modernes : Joannès (= Strassmaier Darius [579] ; Cambyse [441] ; Cyrus [384] ; Bardiya/Smerdis [9] ; Nabucho. III et IV [18]) ; Jursa (Bêl-rêmanni = PIHANS 86 [72]) ; Wunsch (varia [213]).

– **PFA : Persepolis Fortification Archive Project.** Ce site appartient au consortium OCHRE de l'Université de Chicago³³. Il donne accès à tous les objets découverts à Persépolis, notamment ceux inscrits en élamite et en araméen (transcriptions et images).

– **Mesopotamian Chronicles** : catalogue, transcription et/ou traduction des chroniques assyriennes et babyloniennes, dont certaines d'époques séleucide et parthe encore inédites.

– **The Melammu Project. The Heritage of Mesopotamia and the Ancient Near East (Melammu).** Le site se définit ainsi : « This database contains documented links between the civilizations of Ancient Mesopotamia (Assyria, Babylonia and Sumer) and contemporary and later civilizations that show the impact and continuity of religion, political systems, art and iconography, literature, and other cultural and social phenomena as a result of both direct influence and of cultural diffusion. » Une sorte d'encyclopédie savante sur un thème original.

3.4. Bilan et perspectives

On voit donc que le chercheur dispose d'énormes richesses, qui sont actuellement peut-être sous-exploitées par beaucoup d'assyriologues.

³² Les détails techniques sont donnés dans <http://etcsl.orinst.ox.ac.uk/edition2/technical.php>.

³³ « The University of Chicago's OCHRE database is accessible on the Web at <http://ochre.uchicago.edu>. Users can click a link there to download software, free of charge, which lets them view and search information in the Chicago database that has been made public by participating projects ». Personnellement, je n'ai réussi à ouvrir le fichier « ochre.jsp » sur un Mac qu'avec Safari (pas avec Firefox). Pour une présentation du projet, voir <http://oi.uchicago.edu/research/projects/persepolis-fortification-archive>.

3.4.1. Avantages et limites des bases de données en ligne

L'un des avantages les plus clairs des bases de données en ligne est la possibilité d'enrichir constamment leur contenu et de l'améliorer au fil du temps. Cela contraste fortement avec les corpus imprimés traditionnels, figés une fois pour toutes dans un domaine comme l'assyriologie où les rééditions sont rarissimes. Cela permet de se lancer dans des entreprises de longue haleine qui auraient été difficilement concevables autrement : le provisoire y est acceptable. Une limite bien connue est le problème des citations : on peut avoir consulté un site à un moment donné et y avoir trouvé une interprétation d'un texte qui a ensuite changé. C'est la raison pour laquelle les sites qui permettent d'exporter les données font souvent figurer automatiquement sur l'extrait la date de consultation.

La plupart des bases de données fonctionnent en accès libre (*Open access*) et c'est très heureux. Certaines obligent l'utilisateur à s'enregistrer, sans doute pour pouvoir mieux comptabiliser les accès³⁴), mais il ne fait pas de doute que cela limite leur audience. La seule restriction qui s'impose est celle qui distingue les membres d'un projet, ayant accès aux inédits, des autres utilisateurs, qui ont un accès libre à ce qui est publié³⁵).

3.4.2. Les lacunes

La revue à laquelle on s'est livré ci-dessus permet de mettre en évidence quelques lacunes.

En ce qui concerne les archives, la plus grave concerne les textes néo-babyloniens : CTIJ est limité thématiquement, tandis qu'Achéménide est limité chronologiquement (et techniquement dans son état actuel). Deux projets sont actuellement en préparation :

– **NaBuCCo (Neo-Babylonian Cuneiform Corpus)** : cette base, mise au point par K. Abraham et Sh. Gordin (KU Leuven) et M. Jursa (Univ. de Vienne) devrait rendre accessibles les métadonnées concernant les quelque 20000 textes d'archives néo-babyloniens, mais sans transcriptions dans un premier temps (voir <http://blog.greatermesopotamia.be/#user6>). C. Waerzeggers (Univ. de Leyde) a lancé un projet de prosopographie qui devrait compléter NaBuCCo.

Pour le médio-assyrien, E. Cancik-Kirschbaum a adopté à Berlin la structure d'ARCHIBAB, mais la base ARCHIMAss en cours de constitution, qui sert au projet HIGEOMES, n'est pas accessible en ligne.

En ce qui concerne la littérature akkadienne : on a SEAL pour les 3^e et 2^e millénaires ; pour la suite, seulement quelques textes dans CAMS et les traductions de 28 textes dans eTact.

Enfin, les recueils « techniques » sont encore incomplètement couverts : c'est en cours pour les textes lexicaux (DCCLT) et mathématiques (DCCMT), mais rien n'existe encore de manière systématique pour les recueils divinatoires, médicaux, juridiques, etc. E. Robson m'a informé que Oracc va bientôt accueillir plusieurs nouveaux sites :

- Corpus of Mesopotamian Anti-Witchcraft Literature Online, par D. Schwemer (Univ. de Würzburg) ;
- BabMed, par M. Geller (Max Planck Institut, Berlin) ;
- Cuneiform Commentaries, par E. Frahm (Yale) ;
- ALCOve = Ancient Law Codes Online, développé par un groupe comprenant B. Wells et R. Head.

3.4.3. Quelques perspectives

Un souci est loin d'être propre à l'assyriologie : c'est celui de la pérennité des bases de données, à la fois d'un point de vue technique et humain. Sur la trentaine de bases recensées dans le tableau ci-dessous, 7 (soit près d'un quart) sont actuellement figées. Tant qu'on peut les consulter, on peut dire que l'on n'a pas de regrets à avoir par rapport à des corpus publiés de manière traditionnelle : par exemple, un site comme ETCSL, figé depuis 2006, demeure accessible³⁶). Il faut espérer qu'il le restera ; mais il serait bien entendu préférable qu'il continue d'être mis à jour.

Faut-il rêver d'une base unique, donnant accès à tous les textes, quels que soient leurs genres et leurs époques ? Notons qu'actuellement Oracc n'est qu'un portail, qui regroupe, comme on l'a vu, des sites très divers ; les corpus de données fonctionnent avec la même structure, mais sont séparés. On a par ailleurs indiqué ci-dessus que la structure des bases doit correspondre à la nature des données : les besoins pour un corpus de textes littéraires ne sont pas les mêmes que pour des documents d'archives. Mais certaines recherches (sur le vocabulaire, les noms de lieux, de divinités, etc.) ont besoin d'avoir accès à tous les types de textes. L'avenir semble être à l'agrégation de données : la création de superstructures capables d'extraire les informations de différentes bases et de les présenter de manière unifiée³⁷).

3.5. Tableau récapitulatif

La plupart des projets indiquent sur leur page d'accueil leur(s) source(s) de financement, que l'on n'a donc pas ici indiquée(s). On n'a marqué de dates que pour les projets désormais figés ou au contraire tout récents.

³⁴) Rappelons qu'un système comme *Google Analytics*, qui n'oblige pas les utilisateurs à s'enregistrer, ne comptabilise qu'une partie du trafic : les ordinateurs bien protégés ne sont pas pris en considération dans les statistiques.

³⁵) Dans le site Middle Euphrates Digital Archive, même en étant enregistré, l'utilisateur n'a pas accès au module de recherche ni au glossaire. Le cas le pire est celui du site tchèque OBTC, dont l'accès est restreint pour les visiteurs à AbB 5 et au Code de Hammurabi. La rubrique « How to become a member » indique : « Full access will be given to users who are able to contribute transliterated texts which are not yet in the OBTC, in the scope of AbB 3, i.e. min. 2500 lines of OB text in the electronic form. The active user (member) will have a password valid for one year. » La formule n'est guère encourageante...

³⁶) Dans le tableau qui suit, on a signalé les sites qui ne sont malheureusement plus accessibles au moment où cette contribution est achevée.

³⁷) C'est ce qui est actuellement expérimenté par le projet HIGEOMES, agréant les données des textes d'archives OB (ARCHIBAB, Paris) et MA (ARCHIMAss, Berlin) et les données archéologiques récoltées dans une base à Mayence.

Acronyme	Nom complet	Adresse (URL)	Responsable(s), institution(s)	Objet	S'enregistrer	Remarques
Achemenet	Achemenet	http://www.achemenet.com/	P. Briant (Collège de France) et W. Henkelman (EPHE)	Tout ce qui a trait à l'empire achéménide; une section concerne les textes babyloniens	non	1716 textes disponibles sous forme de fichiers pdf distincts.
	Altassyrische Texte	http://www.hethport.uni-wuerzburg.de/altass/	K. Hecker (Univ. de Münster)	Transcriptions de textes OA	non	Sous forme de fichiers pdf.
Amarna	The Amarna Texts	http://oracc.org/contrib/amarna/corpus	Sh. Izre'el	378 tablettes d'El Amarna	non	
ARCHIBAB	Archives babyloniennes, XX ^e -XVII ^e siècles av. J.-C.	http://www.archibab.fr	D. Charpin (Collège de France)	Archives paléo-babyloniennes	non	Depuis 2010. Plus de 16000 textes catalogués, dont plus de 10000 transcrits (dont plus de 5500 lemmatisés); sur un corpus recensé de plus de 32000. Interface en français et en anglais.
BDTNS	Base de Datos de Textos Neo-Sumerios (Database of Neo-Sumerian Texts)	http://bdts.filol.csic.es/	M. Molina (CISC, Madrid)	Archives néo-sumériennes (Lagaš II et Ur III)	Non. Mais les personnes enregistrées ont accès aux inédits (11.200 textes)	Depuis 2002. Contient la totalité des 84100 textes publiés. Régulièrement tenu à jour. Liens avec les images du CDLI. Interface en espagnol et en anglais.
CDA	A Concise Dictionary of Akkadian	http://people.ds.cam.ac.uk/mjw65/cda/home Ou http://www.soas.ac.uk/cda-archive/	M. Worthington (Cam- bridge Univ.)	Addenda et corrigenda à la version imprimée du CDA	non	
CDLI	The Cuneiform Digital Library Initiative	http://www.cdli.ucla.edu/	R. Englund (UC Los Angeles) et J. Renn (Max Planck Institute for the History of Science, Berlin)	Images des documents cunéiformes d'une trentaine de collections.	non	Transcriptions d'une partie des textes catalogués
CDP	The Cuneiform Digital Palaeography Project	http://www.cdp.bham.ac.uk/index.htm	A. Livingstone (Univ. de Birmingham)	Paléographie du cunéiforme	non	Figé depuis 2005.
CTIJ	Cuneiform Texts Mentioning Israelites, Judeans, and Related Population Groups	http://oracc.org/ctij	R. Zadok et Y. Cohen (Univ. Tel Aviv); K. Abraham (KU Leuven)	Textes et onomastique néo-assyriens et néo-babyloniens	non	121 textes catalogués, en partie translittérés.
DCCLT	Digital Corpus of Cuneiform Lexical Texts	http://oracc.org/dcclt	N. Veldhuis (UC Berkeley)	Textes lexicaux de toutes les périodes	non	7544 manuscrits catalogués, dont 3661 transcrits, pour un total de 308 textes catalogués, dont 141 transcrits.

Acronyme	Nom complet	Adresse (URL)	Responsable(s), institution(s)	Objet	S'enregistrer	Remarques
DCCMT	Digital Corpus of Cuneiform Mathematical Texts	http://oracc.org/dccmt	E. Robson (UC London)	Textes mathématiques de toutes les périodes	non	1392 textes catalogués, dont plusieurs certaines translittérés. Figé depuis 2007.
DCSL	The Diachronic Corpus of Sumerian Literature	http://dcs1.orinst.ox.ac.uk/	M. Van De Mieroop (Univ. d'Oxford)	Catalogue des textes sumériens du III ^e au I ^{er} millénaire	non	
DKB-LLA	Digitale Keilschriftbibliothek Lexikalischer Listen aus Assur	http://keil.uni-goettingen.de/	«Gemeinschaftsprojekt des Seminars für Orientalistik (Assyriologie) der Universität Göttingen und der Gesellschaft für wissenschaftliche Datenverarbeitung Göttingen (GWVG)»	Textes lexicaux d'Assur	non	410 textes. Figé depuis 2006.
EbDA	Ebla Digital Archives	http://virgo.unive.it/eblaonline/cgi-bin/home.cgi	L. Milano (Univ. de Venise)	Textes d'Ebla	oui	2950 textes: ARET 1-16 (sauf 6, 10 et 14, encore inédits) et ARES 4.
	Emar Online Database	http://www.hethport.uni-wuerzburg.de/emar/konk/index.html	Y. Cohen, L. d'Alfonso, D. Sürenhagen	Bibliographie des textes d'Emar		Figé depuis 2008.
eTact	Electronic Translations of Akkadian Cuneiform Texts	http://www.etana.org/etact	C. Wunsch	Traductions de textes akkadiens à but pédagogique	non	Seulement 28 textes actuellement disponibles.
ETCSL	The Electronic Text Corpus of Sumerian Literature	http://etcsl.orinst.ox.ac.uk	J. Black (†) (Oxford University)	Compositions sumériennes	non	380 textes transcrits, traduits et lemmatisés. Figé depuis 2006.
ETCSRI	Electronic Text Corpus of Sumerian Royal Inscriptions	http://oracc.org/etcsri	G. Zolyomi (Univ. de Budapest)	Inscriptions royales en sumérien	non	1407 textes transcrits, traduits et lemmatisés. Trilingue (sumérien/anglais/hongrois).
GKAB	The Geography of Knowledge in Assyria and Babylonia	http://oracc.org/cams/gkab	E. Robson (Univ. of Cambridge [désormais UCL]) & S. Tinney (UM Philadelphie)	Textes de 4 bibliothèques du premier millénaire (Kalhu, Huzirna et 2 d'Uruk)	non	2217 textes.
HBTIN	Hellenistic Babylonia: Texts, Iconography, Names	http://oracc.org/hbtin	L. Pearce (UC Berkeley)	Archives hellénistiques (515 textes, surtout d'Uruk)	non	Les images des empreintes de sceaux seront prochainement disponibles. Essais de prosopographie automatique.
HPM	Hethitologie-Portal Mainz	http://www.hethport.uni-wuerzburg.de	G. Wilhelm (Akademie, Mainz)			Fournit aussi des ressources aux assyriologues.
LOB-PNI	Late Old Babylonian Personal Names Index	http://oi.uchicago.edu/research/projects/lobpni/	S. Richardson (Univ. de Chicago)	Index de 13573 NP de ca. 3000 textes OB tardifs (Ammi-ditana à Samsu-ditana).	<i>Guest Account</i> ou <i>Name and Password</i>	Figé depuis septembre 2010; n'était plus accessible comme <i>Guest</i> en mai 2014.

Acronyme	Nom complet	Adresse (URL)	Responsable(s), institution(s)	Objet	S'enregistrer	Remarques
Melammu	The Melammu Project. The Heritage of Mesopotamia and the Ancient Near East	http://www.aakkl.helsinki.fi/melammu/	S. Parpola (Univ. of Helsinki) et R. Rollinger (Univ. d'Innsbruck)			
	Mesopotamian chronicles	http://www.livius.org/cg-cm/chronicles/chron00.html	R. van der Spek (Vrije Univ. Amsterdam)	Catalogue, transcription et/ou traduction des chroniques assyriennes et babyloniennes		51 textes, dont des chroniques d'époques séleucide et parthe encore inédites
	Middle Euphrates Digital Archive	http://virgo.unive.it/emaronline/cgi-bin/index.cgi	F. Di Filippo (Univ. Naples)	Totalité des textes d'Emar et des environs	oui	Même en étant enregistré, on n'a pas accès au module de recherche ni au glossaire, réservés aux contributeurs.
	Nineveh Tablet Collection	http://www.finke-cuneiform.com/nineveh/index.htm	J. Fincke (SOAS, Londres)	Liste de tous les joints des tablettes de la «bibliothèque d'Assurbanipal» du BM. Catalogue des textes babyloniens.	non	Fait partie de la page personnelle de l'auteur.
OATP	Old Assyrian Text Project	http://oatp.net	Th. Hertel (Univ. de Copenhague)	Textes des archives paléo-assyriennes	non	6200 textes sur un corpus de ca. 10000. Seuls les noms de personnes sont indexés (Le site oatp.ku.dk est gelé depuis le 30/01/2012).
OBMC	Old Babylonian Model Contracts	http://oracc.org/obmc	G. Spada (Université La Sapienza, Rome)	Modèles de contrats paléo-babyloniens	non	51 textes transcrits sur un catalogue de 317 (mise en ligne le 18/05/2014).
OBTC	Old Babylonian Texts Corpus	http://www.klinopsis.cz/nobtc	L. Pecha & F. Rahman (Univ. de Pilsen)	Sélection de textes paléo-babyloniens de tous genres	Accès limité au Code de Hammu-rabi et à Abb 5. Accès complet réservé aux contributeurs	
Oracc	Open Richly Annotated Cuneiform Corpus	http://oracc.org/	S. Tinney (UM Philadelphie), E. Robson (UC London) & N. Veldhuis (UC Berkeley)	Portail pour une vingtaine de sites	non	Dans l'état actuel, les sites Oracc ne fonctionnent pas sur Mac avec Firefox (mais avec Safari). Une version 3 de Oracc (été 2014) devrait régler ces problèmes.

Acronyme	Nom complet	Adresse (URL)	Responsable(s), institution(s)	Objet	S'enregistrer	Remarques
PFA	Persepolis Fortification Archive Project	http://oi.uchicago.edu/research/projects/pfa/	M. Stolper, (Oriental Institute, Univ. de Chicago)	Textes et images des archives des Fortifications de Persépolis	Accès aux données en fonction du statut de l'utilisateur	Nécessite le téléchargement d'une application JAVA sur l'ordinateur (OCHRE 7).
rimanum	rimanum: The House of Prisoners	http://oracc.org/rimanum/corpus	A. Seri (Oriental Institute, Univ. de Chicago)	Textes des archives du <i>bît asîrî</i> d'Uruk sous Rim-Anum	non	378 textes.
RINAP	The Royal Inscriptions of the Neo-Assyrian Period	http://oracc.org/rinap	G. Frame (Univ. of Pennsylvania, Philadelphie)	Inscriptions royales NA (de Tiglat-phalasar III à Esarhaddon)	non	313 textes.
SAAo	State Archives of Assyria Online	http://oracc.org/saao	«With the kind permission of Pr. Simo Parpola»	Contenu de tous les volumes des SAA	non	4819 textes transcrits, traduits et lemmatisés
SEAL	Sources of Early Akkadian Literature. A Text Corpus of Babylonian and Assyrian Literary Texts from the 3rd and 2nd Millennia BCE	http://www.seal.uni-leipzig.de/	M. Streck, (Leipzig) & N. Wasserman (HU Jérusalem)	Textes littéraires en langue akkadienne, 3e et 2e millénaires av. J.C.	non	643 textes catalogués, en partie transcrits, traduits (en anglais) et lemmatisés.

WEB RESOURCES FOR HITTITOLOGY

Federico GIUSFREDI
Ludwig-Maximilians-Universität
München

Scholars in Hittitology and Anatolian Studies have shown a keen interest in the development of web-based resources. Some of the tools currently available on the Internet are part of larger projects, which cover many different fields of Indo-European or Ancient Near Eastern studies, while others have a specific focus in the field of ancient Anatolia. In order to attempt a satisfactory review of the major resources that currently exist, I will start from the largest and most articulated project, the so-called Hethitologie Portal Mainz, and then proceed to the more specialized ones, dedicated either to linguistics and philology or to archaeology.

1. The Hethitologie Portal of the Akademie der Wissenschaften und der Literatur in Mainz.

The Hethitologie Portal, often and henceforth abbreviated as HPM, is a large, multifaceted project run by the Akademie der Wissenschaften und der Literatur in Mainz, and currently is directed by Gernot Wilhelm, and Gerfrid Müller, with a Board of Directors consisting of Doris Prechel, Elisabeth Rieken, and Daniel Schwemer. It was started in 2001 and it also includes projects from other universities and research centers. The Index page of the project, <http://www.hethport.uni-wuerzburg.de/>, is hosted on a server at the University of Würzburg and it contains links to internal projects and collaborations, as well as tools and bibliographical resources. In particular, the HPM hosts the following resources:

- Databases including:
 - Marie-Claude Trémouille's *Répertoire onomastique* (a collection of the Hittite personal names);
 - Müller and Wilhelm's revision of E. Laroche's CTH¹)
 - Silvin Košak's *Konkordanz der hethitischen Texten*, a large collection of meta-information regarding the single and joined texts from the Hittite corpus, which embeds Košak's join-sketches (*Joinskizze*) and likely represents the most successful web-based resource in the field of Hittitology (or at least the resource that one sees most frequently opened in the web-browsers of both scholars and students), as it quickly provides a large amount of epigraphic and archaeological information on the single tablet fragments, their joins, and a selection of publications published after 1971 (the date of Laroche's CTH)
- Publications: a downloadable collection of PDF files of several volumes in the series, *Studien zu den Boğazköy-Texten*, and all titles of the series, *Hethitologie Portal Mainz, Materialien*, a useful compendium to the HPM project, edited by the Mainzer Akademie.

¹) CTH refers to: E. Laroche, *Catalogue des textes hittites*, Paris 1971, with supplements in *RHA* 30 (1972): 94-133 and *RHA* 33 (1973): 68-71.

– Bibliographies: the HPM contains six different bibliographical collections, including:

- The general bibliographical database managed by Massimiliano Marazzi, Müller, Wilhelm, and Jana Součková-Siegelová (probably the most complete and up-to-date available);
- A systematic bibliography organized in a thematic index of topics (supervised by Součková-Siegelová and Müller);
- Lexicographical bibliography containing the titles of studies dedicated to single lexical items of the Hittite language (by Marazzi and Natalia Bolatti Guzzo);
- An online catalogue of the *separata* of the Bibliothek der Forschungsstelle in Mainz;

– Two large collections of secondary literature, the first one, by Yoram Cohen, Lorenzo d'Alfonso, and Dietrich Sörenhagen, dedicated to the bibliography on the texts found in Emar (Meskene), and the other, by Detlev Grodek, offering an impressive amount of bibliographical references to the single passages (*Textstellen*) of the edited Hittite texts.

– Text corpora: the HPM currently features three projects that offer textual materials. By far, the initiative *Textzeugnisse der Hethiter* is the richest, as it collects philological editions of several texts of the Hittite corpus, overviewed by scholars from different universities (to date, the HPM offers editions of Hittite Treaties, coordinated by Müller and Wilhelm; of Edicts, coordinated by Marazzi; of Myths, coordinated by Rieken; and of Rituals, coordinated by Prechel and Susanne Görke). Although many of them have already been published in books and the editions are in some cases quite derivative, the general level of philological innovation and the portability and accessibility of the online materials place this collection at the cutting edge of current research. Besides the Hittite Texts, the HPM also hosts Karl Hecker's initiative for a publication of the Old Assyrian Texts from Anatolia (*Altassyrische Texte*) and a project of publication of textual materials from Nuzi.

Finally, the HPM has tools for cuneiform and Anatolian hieroglyphic scripts, virtual keyboards, and documentation about the Unicode resources, while the *Facsimilia* section offers photographs of cuneiform tablets from the *Mainzer Photoarchiv* and several museums and collections (Durham University, Hermitage in St. Petersburg, *Vorderasiatisches Museum* in Berlin, and Chicago Oriental Institute), as well as a collection of photographs of Old Assyrian tablets and the innovative project Tontafel 3D, which has 3D scans and reproductions of original epigraphic *specimina*.

Additional resources, such as the list of addresses of scholars and researchers and the links to other projects and initiatives collaborating with the HPM complete the services provided by the largest web-based tool available to the scientific community of scholars in the field Ancient Anatolian studies.

2. Other initiatives oriented to philology and linguistics

The most important web-based initiatives dedicated to the philological and linguistic aspects of Hittitology can be categorized as text collections, collections of secondary literature, *lexica*, and other resources.

In addition to the several text collection initiatives clustered around the HPM, another important collection is offered by University of Frankfurt's TITUS project (<http://titus.uni-frankfurt.de/indexe.htm>). Managed by Jost Gippert, currently with the collaboration of Agnes Korn, the TITUS project is a partly limited-access online publication of Indo-European texts and didactic materials, which also includes collections in Hittite and other Anatolian languages.

The two largest scientific *lexica* of the Hittite language are the Chicago Hittite Dictionary, by the Oriental Institute (University of Chicago), and University of Munich's *Hethitisches Wörterbuch Projekt*. The former is available online as a java-based interface (<http://ochre.lib.uchicago.edu/eCHD/>), and the volumes of the dictionary are downloadable as PDFs (<http://oi.uchicago.edu/research/pubs/catalog/chd/>). The latter is not available online, but the project website offers an exhaustive online bibliography (<http://www.assyriologie.uni-muenchen.de/forschung/hethwoerterbuch/abkuerzungen/index.html>).

Lexica for other Anatolian languages are mainly still works in progress, but for the Luwian language H.C. Melchert's Luwian lexicon (<http://www.linguistics.ucla.edu/people/Melchert/LUVLEX.pdf>) and I. Yakubovich's annotated corpus of Luwian texts (<http://web-corpora.net/LuwianCorpus/search/>) are available online.

Collections of secondary bibliographies, along with the PDF files offered by the HPM, are made available by individual scholars and authors and as such, it is impossible to provide a full list. However, Melchert's website, listing his publications on Anatolian and other Indo-European Languages (<http://www.linguistics.ucla.edu/people/Melchert/publications.html>), the collection of materials in the database of the American School of Oriental Studies (<http://www.asor.org/>), and scholars who upload their papers on the professional social-network Academia (www.academia.edu) should be mentioned.

Bibliographical lists on the Internet are frequently published on websites of individual projects, and again a complete list is virtually impossible, however, the University of Tübingen's *KeiBi* initiative is one of the largest (<http://vergil.uni-tuebingen.de/keibi/>).

Lists of digital resources and introductory materials to Anatolian Studies and to specific topics are also available on the Internet. The Italian web-guide on digital resources for the study of Mediterranean epigraphy offers materials about Anatolia at <http://lila.sns.it/mnamon/>. The website www.bmanuel.org, dedicated to many aspects of linguistics, also offers materials on Anatolian linguistics (a critical collection of theories on ergativity is available at <http://www.bmanuel.org/courses/rizza2/relo2.htm>).

3. Initiatives oriented to archaeology

As far as archeology is concerned, almost every excavation in Anatolia and every museum have websites that offer pictures as well as general and bibliographical information. Once again, the most exhaustive list of resources can be found on the HPM, in the Links section (<http://www.hethport.uni-wuerzburg.de/HPM/linksextern.html>). Among the others, the website of the German excavation in Hattuša (<http://www.hattuscha.de/>) is particularly good: available in three languages (English, German, and Turkish), it offers a rich collection of images and a virtual "tour" of the ancient

capital city of the Hittites (and of the rock sanctuary of Yazılıkaya). The Deutsches Archäologisches Institut (<http://www.dainst.org/it/>) also provides the user with extensive databases, bibliographies, and collections of pictures of archaeological interest.

Finally, an interesting initiative is represented by the web-site, Monuments of the Hittites (<http://www.hittitemonuments.com/>), which contains pictures and information on the Hittite monuments and monumental hieroglyphic inscriptions from both the Bronze Age and the Iron Age; a map of the sites with epigraphic relevance is available at <http://www.hittiteepigraphs.com/>.

Every field in the Humanities needs to keep up with the new technologies and the speed that ideas and discoveries circulate nowadays. Hittitologists have taken this task very seriously, and the result is a strong net of resources that accompany the work of the new generations of students and scholars. One cannot help but wish that this positive and enriching trend will continue, and that new projects will be created in order to promote the interaction between IT technologies and Anatolian Studies.

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WEB-BASED RESOURCES IN THE FIELD OF OLD TESTAMENT STUDIES

KLAAS SPRONK
VU UNIVERSITY, AMSTERDAM

Digitization had a great impact on Biblical studies, especially since the introduction of professional, commercial software, like Logos Bible Software (1991), Bibleworks (1992), and Accordance (1994). More than twenty years later it can be concluded that for most scholars the benefits were primarily the digitization of the familiar resources and the familiar tools. This helped to save physical space (complete libraries on a harddisk), to speed up the searching in primary sources (more flexible concordances) and secondary literature, and to produce more easily texts with quotations in the languages of the Bible and its early translations. Only more recently one may note a broader interest in the efforts, which was until then done by a few pioneers, to seriously investigate the possibilities of new methods. Instead of only digitizing the old tools scholars are experimenting with new digital tools.¹⁾ These are based on the digitized resources and they for their part also have impact on the way the familiar resources are digitized.

Two recently published volumes offer a good survey of what is going on in this field. The first is based on a congress in Amsterdam in 2008 titled 'Text Comparison and Digital Creativity. An International Colloquium on the Co-production

of Presence and Meaning'.²⁾ This meeting evolved out of the projects of 'The Virtual Knowledge Studio for the Humanities and Social Sciences'³⁾ and 'Turgama', a research project at the Institute for Religious Studies of Leiden University on computer-assisted analysis of the Peshitta and the Targum.⁴⁾ The congress volume contains a number of methodological considerations and some case studies in the field of linguistics and concerning the digitization of manuscripts. The second volume is the product of a research group of the European Association of Biblical Studies called 'Digital Humanities in Biblical Studies, Early Jewish and Christian Studies'⁵⁾ and contains a number of examples of the new ways in which modern scholars work with digitized editions of ancient texts.⁶⁾ In the introductory article to this volume Claire Clivaz expresses the hope 'that we can use digital resources as tools with which to develop a better, clearer, and deeper understanding of human products'. She presents the volume as 'a showroom of what is at stake in digital streams in biblical studies, early Jewish and early Christian studies. The changes are not only irreversible, but probably greater than many scholars acknowledge, even if they do not consider either themselves or the peers to be digital humanists, or doing anything fundamentally different from their predecessors'.⁷⁾

A good example of the efforts to realize a change from digitized to digital tools is the project Shebanq (System for HEBrew text: ANnotations for Queries and markup). The aim of this project is to make it possible to save queries on a linguistic database of the Hebrew text of the Old Testament into the public domain, so that researchers can cite results in publications.⁸⁾ Compared to the work with the common concordances of Biblical texts this can be seen as an interesting attempt to attain a deepening of insight into the text of the Old Testament.

This is not the place to pursue these methodological aspects, but it is certainly something that has impact on the following survey of web-based resources. What can and will be offered here is no more than a selection of the flood of material that can be found on the internet. The emphasis will be on quality and on innovation. It is difficult to present this survey on the basis of a simple and clear classification of the different parts of the field of Old Testament studies. One can see this as a positive aspect of the internet: it crosses old borders and helps the scholars to make new associations. No matter which categories we choose, there will always be overlaps. Many websites can be mentioned in more than one category. We will start with what everyone who is searching the internet needs: the right portals. In fact, almost every website is some kind of portal, because most of them refer in their turn to other websites. The next category will be the websites specifically aimed at presenting the biblical text,

²⁾ Wido van Peursen, Ernst D. Thoutenhoofd, Adriaan van der Weel (eds), *Text Comparison and Digital Creativity: The Production of Presence and Meaning in Digital Text Scholarship*, Brill: Leiden 2010.

³⁾ <http://virtuallknowledgestudio.nl/>.

⁴⁾ <http://www.hum.leiden.edu/religion/research/research-programmes/antiquity/turgama.html>.

⁵⁾ <http://www.eabs.net/site/research-groups/general/digital-humanities-in-biblical-studies-early-jewish-and-christian-studies/>.

⁶⁾ C. Clivaz, A. Gregory, D. Hamidovic (eds), *Digital Humanities in Biblical, Early Jewish and Early Christian Studies* (Scholarly Communication Series), Brill: Leiden 2014.

⁷⁾ Clivaz, *Digital Humanities*, 7.

⁸⁾ <http://annotation-paradigm.readthedocs.org/en/latest/queries-as-annotations/history.html>.

¹⁾ Cf. Wido van Peursen, 'Is the Bible losing its covers? Conceptualization and use of the Bible on the threshold of the Digital Order', *Hiphil Novum* 1/1 (2014), 44-58 (<http://www.hiphil.org/index.php/hiphil/article/view/53>).

starting with one of the most exciting aspects of the internet: the possibility of presenting the manuscripts. To this will be added the websites devoted to the archaeology of ancient Israel. Other websites with relevant resources will be listed under the very general heading of the interpretation of biblical texts, with a separate category of open source journals. A final group to be mentioned is that of the discussion groups and weblogs. When it comes to quality and innovation especially this last category is very important.

Portals

A very well-organized website to start with is that of Torrey Seland (School of Mission and Theology, Stavanger, Norway) 'Resource Pages for Biblical studies' (<http://torreys.org/bible/>) with a page on texts and translations, containing links to biblical texts and various other texts related to the Bible, and especially to the New Testament. It is subdivided into pages on Bible texts and translations, Greek and Hebrew texts, apocrypha and pseudepigrapha, Qumran and Josephus and rabbinica, gnostica and church fathers, 'classical texts', and linguistic resources.

The 'Old Testament Gateway' (<http://www.otgateway.com/>) is a comprehensive and up-to-date gateway by Roy Nicholson (Tabor College, Victoria, Australia), who also gives clear annotations to the character of the sources. It is built up according to the books of the Old Testament. Next to that there are entries on archaeology, the ancient Near East, Dead Sea scrolls, Bibles, noncanonical works, and commentaries.

The website of Ehud Ben Zvi (University of Alberta, Edmonton, Canada) has a very instructive page titled 'Assisting you to learn' (<http://www.ualberta.ca/~ebenzvi/teaching.html>) with the subdivision: Ancient Mesopotamia ('learning about the Ancient Mesopotamia and the Levant'), Hebrew Bible/Ancient Israel ('learning about the Hebrew Bible, the history of Ancient Israel, Biblical Hebrew, and related topics'), From Cyrus to Jesus ('learning about "The Second Temple Period" in Judah within its larger historical and geographical context'), Judaism ('some resources pertaining to the study of Judaism'), and Resources ('for writing papers and additional resources').

'Biblical Studies Online' (<http://biblicalstudiesonline.wordpress.com/>), maintained by James Crossley (University of Sheffield) and Deane Galbraith (University of Otago) is meant 'to provide both biblical scholars and the interested wider public with ease of access to quality biblical scholarship, as it comes available online'. The home page offers a very long list of almost 300(!) categories, with the subdivision: 'academia', 'biblical languages' (which includes most languages of the ancient Near East), 'biblical literature', 'biblical reception history', 'biblical studies topics', 'historical and literary contexts', 'media', 'methods and approaches in biblical studies', 'primary sources', and 'seminars, conferences, talks'. This very rich website deserves a better layout.

Okeanos (<http://faculty.washington.edu/snoegel/okeanos.html>), a website maintained by Scott B. Noegel, gives a good overview of the available websites for the study of the Bible and the ancient Near East.

Tyndale House (Cambridge) offers a good portal and also a special toolbar for many online resources for biblical studies: <http://www.tyndale.cam.ac.uk/index.php?page=online-resources>.

Biblical languages

A long list of useful links to web-based resources related to studying Biblical Hebrew is given by Ben Zvi: http://www.ualberta.ca/~ebenzvi/Assist/Hebrew_Bible/hebrewbib-study.html.

A number of Hebrew lexicons can be consulted online. A very useful portal for this is the website '2Letterlookup' (<http://www.2letterlookup.com/>), which gives access to among others the old lexicon of Gesenius, and lists relevant other websites. Also the work of Brown, Drivers and Briggs is available, for instance on <http://www.biblestudytools.com/lexicons/hebrew/kjv/>.

The United Bible Societies present 'The Semantic Dictionary of Biblical Hebrew' (<http://www.sdbh.org/home-en.html>), which is building a new dictionary of biblical Hebrew that is based on semantic domains. The editor is Reinier de Blois.

The Academy of the Hebrew Language presents in the 'Historical Dictionary Project' (<http://hebrew-academy.huji.ac.il/English/HistoricalDictionaryProject/>) 'the history and development of the Hebrew lexicon, from the earliest occurrences of words down through their most recent documentation'. The enormous database is available, but only via a Hebrew interface (<http://hebrew-treasures.huji.ac.il/>).

'The Semantics of Ancient Hebrew Database' project (<http://www.sahd.div.ed.ac.uk/>) 'aims to provide a structured and critical survey of scholarly literature on the vocabulary of classical Hebrew'. The project started already in 1994 and seems to progress only slowly. What has been produced is of high scholarly quality.

A similar project — also in progress — is the one on Aramaic texts: the 'Comprehensive Aramaic Lexicon Project' (<http://call.cn.huc.edu/>). It offers a database of lexically parsed words of the Aramaic texts in all dialects from the earliest (9th Century BCE) through the 13th Century CE, currently. The ultimate goal is the creation of a complete lexicon of the language, but it is already very useful for scholars working in this field.

'Davar — Biblical Hebrew Vocabularies' (<http://flexible-learning.auckland.ac.nz/davar/index.html>) is a project developed at The University of Auckland as a tool in the teaching of Hebrew. It has built a vocabulary that can be customized with different textbooks or lesson objectives.

There are a number of online courses in Biblical Hebrew, for instance <http://biblicalstudiesonline.wordpress.com/2014/01/13/ken-schenck-on-beginning-biblical-hebrew/>, <http://www.hebrew4christians.com/> and <http://www.tilburguniversity.edu/nl/onderzoek/instituten-en-researchgroepen/luce-crc/digitaal/hebreuws/> (Dutch).

Bible software

This is not the place to evaluate the well known software of BibleWorks, Accordance, Logos (with the Stuttgart Electronic Study Bible), e-Sword and many other tools that are available to study the biblical texts. There are many websites with surveys and reviews, like the 'Top 10 Bible Software Programs' (<http://christianity.about.com/od/biblestudyresources/tp/biblesoftware.htm>). Very useful are the following discussion groups and group pages on the internet.

BibleWorks: <http://www.bibleworks.com/forums/forum-display.php?2-General-BibleWorks-discussion> and <https://www.facebook.com/BibleWorks?fref=ts>.

Accordance: <https://www.facebook.com/accordancebible>
Logos: <http://www.linkedin.com/groups/Logos-Bible-Software-Users-861457> and <https://www.facebook.com/logos?fref=ts>.

Stuttgart Electronic Study Bible: <http://www.sesb-austausch.de/>.

e-Sword: <http://www.biblesupport.com/> and <https://www.facebook.com/pages/e-sword-bible-program/48879560980>

Next to this there are also many useful tools available on the internet for exploring the Bible. A good example is 'The Bible Tool' (<http://www.crosswire.org/study/index.jsp>), an open source tool created by CrossWire Bible Society, the Society of Biblical Literature and the American Bible Society. It only offers the biblical text in (many) translations, together with lots of (partially rather outdated) secondary literature.

Another tool, with a better interface, for browsing the Biblical texts (in English translation), with much extra information is the 'Blueletterbible' (<http://www.blueletterbible.org/>)

The best tool in this category is probably the very extensive and fast working 'Bible Hub' (<http://biblehub.com/>), which also offers Greek and Hebrew study tools, with among other things a good interlinear English — Hebrew/Greek text.

Manuscripts

The codex Leningradensis is available in many ways, for instance, via the Gutenberg project (https://archive.org/details/Leningrad_Codex) or via Wikimedia (http://commons.wikimedia.org/wiki/Category:Codex_Leningradensis)

The Aleppo codex can be studied now via the excellent website www.aleppocodex.org.

Next to these two famous manuscripts there are many more Hebrew manuscripts that can be studied for textcritical reasons or, for instance, to look for ancient traditions in dividing the texts into smaller sections, as in the Pericope project (<http://www.pericope.net/index.htm>). An overview of what is worldwide available, with much more than only Hebrew manuscripts, is offered on the website 'Arts Online' (<http://zeroland.co.nz/directory/visual-arts/manuscripts/>).

The Dead Sea scrolls are available now via <http://dss.collections.imj.org.il/> and <http://www.deadseascrolls.org.il/home>.

The British Library offers a beautiful website (<http://www.bl.uk/manuscripts/>) to view digitized copies of biblical manuscripts and early printed Bibles in the library's collections, with descriptions of their contents.

There is also a Cambridge digital library with Hebrew Manuscripts: <http://cudl.lib.cam.ac.uk/>.

The Bodleian Libraries of the University of Oxford and the Biblioteca Apostolica Vaticana (Vatican Library) have joined efforts in a digitization project which makes available a great number of Hebrew and Greek Bible manuscripts (<http://bav.bodleian.ox.ac.uk/>).

The Ets Haim library in Amsterdam made its manuscripts available on <http://www.etsheimmanuscripts.nl/manuscripts/>.

The 'Virtual Manuscript Library of Switzerland' (<http://www.e-codices.unifr.ch/en>) provides access to all medieval manuscripts of Switzerland, including a number of Hebrew and Greek bible manuscripts.

The Center for the Study of New Testament Manuscripts (<http://www.csntm.org/>) also offers online resources. These include a number of Hebrew texts.

With regard to the Greek translations of the Old Testament we can refer here in the first place to the excellent presentation of the codex Sinaiticus: <http://codexsinaiticus.org/en/>.⁹⁾

Resources for the study of the Septuagint and old Greek translations of the Hebrew scriptures are made available by Joel Kalvesmaki on <http://www.kalvesmaki.com/LXX/secondlit.htm> and by the International Organization for Septuagint and Cognate Studies on <http://ccat.sas.upenn.edu/ioscs/>.

Biblical manuscripts are also included in the large-scale 'West Semitic Research Project' (<http://www.usc.edu/dept/LAS/wsrp/>) and the related project 'InscriptiFact' (<http://www.inscriptifact.com/>) with a wealth of ancient images and commentary relating to the Bible and the ancient Near East.¹⁰⁾ This academic project, affiliated with the University of Southern California School of Religion and directed by Bruce Zuckerman, is running now for almost three decades. A big collection of high resolution images has been made available.

Text editions

Some information on the edition of the Biblia Hebraica Quinta is given on <http://www.scholarly-bibles.com/products/Original-Texts/New-Testament/Hebrew/Biblia-Hebraica-Quinta-BHQ.html>. It contains samples of the parts that have been published thus far.

Information about The Hebrew University Bible Project working on a comprehensive survey of the history of the textual development of the Hebrew Bible and the production of a major critical edition on the basis of the Aleppo codex can be found on <http://www.hum.huji.ac.il/english/units.php?cat=5015&incat=4982> with samples of the edition of the text of Ezekiel.

The work in The Hebrew Bible: A Critical Edition project on a new critical edition of the Hebrew (unlike the diplomatic editions of the Biblia Hebraica Quinta and the Hebrew University Bible) is presented, with a number of samples, on <http://ohb.berkeley.edu/>.

The biblical text in unicode

The biblical text in Hebrew and its ancient translated versions are in many ways available on the internet in unicode, enabling the user to consult the text and use it in word processors. On the site of the German Bible Society <http://www.academic-bible.com/en/home/scholarly-editions/> one finds the following editions: the text of the Biblia Hebraica Stuttgartensia, the text of the Septuagint (ed. Rahlfs/Hanhart), and the Latin Bible following the text of the Vulgate (ed. Weber/Gryson).

The website of the Mamre Institute (<http://www.mechonmamre.org/>) presents the Hebrew Bible in different editions, including a parallel Hebrew and English version, and also the Targum Onkelos on the Books of Moses.

⁹⁾ Cf. also David Parker, 'Ancient Scribes and Modern Encodings: The Digital Codex Sinaiticus', in Van Peursen a.o. (eds), *Text Comparison and Digital Creativity*, 173-188.

¹⁰⁾ cf. Leta Hunt, Marilyn Lundberg and Bruce Zuckerman, 'Concrete Abstractions: Ancient Texts as Artifacts and the Future of Their Documentation and Distribution in the Digital Age' in Van Peursen a.o. (eds), *Text Comparison and Digital Creativity*, 149-172.

There is also a digital text version of the codex Lenin-gradensis transcribed by the J. Alan Groves Center (<http://www.tanach.us/Tanach.xml>).

Via www.biblija.net the United Bible Societies offer a wealth of Bible translations on a website with a very useful interface enabling the user to compare different translations by putting them next to each other on the screen.

The *New English Translation of the Septuagint*, as published by Oxford University Press in 2009, including corrections and emendations, is available via <http://ccat.sas.upenn.edu/nets/edition/>.

The Aramaic Bible Society made available the English translation of the Peshitta by George Lamsa via http://aramaicpeshitta.com/AramaicNTtools/dr_george_lamsa_bible.htm.

<http://www.scripture4all.org/> offers a good interlinear Hebrew-English text.

Biblical archaeology

The Israel Antiquities Authority (<http://www.antiquities.org.il/>) is a good portal for resources about the archaeology of ancient Israel. The Hebrew version is better than the English one.

The website of the American Schools of Oriental Research <http://www.asor.org/> contains a lot of interesting material about current issues but also about excavations in the past. The archive houses material documenting a century of archaeological work with a number of photograph collections.

Very interesting photographs can also be found on <http://www.loc.gov/pictures/collection/matpc/>. Eric and Edith Matson made these photographs in Palestine in the first half of the twentieth century.

The University of Kiel offers a database <http://www.uni-kiel.de/kibidano/> with digital resources for teaching and research related to the Middle East. It contains late 19th century photographs reproduced from books but also photos taken by modern scholars.

The website of the Biblical Archaeology Society (<http://www.biblicalarchaeology.org/>) has a very useful list of current excavations, with links to the related resources (<http://digs.bib-arch.org/>). A similar list can be found on the website 'The Bible and Interpretation' (<http://www.bibleinterp.com/ae.shtml>).

The website 'Theology on the web' also has a page on biblical archaeology (<http://www.theologyontheweb.org.uk/biblicalarchaeology.html>) with 'material relating to the archaeological background of the lands of the Bible'.

The Bible + Orient Museum in Fribourg (<http://www.bible-orient-museum.ch/>) offers the very useful tool 'Bible + Orient Datenbank Online' (<http://www.bible-orient-museum.ch/bodo/>) for consulting the digitalized catalogs of the collections. The database includes a growing number of objects from other iconographically relevant collections as well, for instance from the works on iconography of Othmar Keel and others. It will also include the entries from the 'Iconography of Deities and Demons Project' (<http://www.religionswissenschaft.uzh.ch/idd/>).

Very useful and good information about biblical realia is given on the website of the Dutch society of Old Testament Study in the database about 'Utensils in the Hebrew Bible' (<http://www.otw-site.eu/KLY/kly-intro.php>), edited by Johannes de Moor.

The interpretation of the Hebrew Bible

The website 'The Bible and interpretation' (<http://www.bibleinterp.com/>), maintained by Mark Elliott and Patricia Landy, is designed 'to delivering the latest news, features, editorials, commentary, archaeological interpretation and excavations relevant to the study of the Bible for the public and biblical scholars'. It is up-to-date, with many original contributions and useful links.

We already mentioned the website of the German Bible Society (<http://www.bibelwissenschaft.de/>). This is also the portal to the excellent 'wissenschaftliche Bibellexikon im Internet' (<http://www.bibelwissenschaft.de/wibilex/>), edited by Michaela Bauks and Klaus Koenen.

Also the website 'BibleStudyTools' (<http://www.bible-studytools.com/>) can be mentioned here as a portal to biblical lexicons, be it that these lexicons are relatively old and therefore in some respects outdated.

The website 'Biblical Studies.org.uk' (<http://www.biblicalstudies.org.uk/index.html>) offers many digitized rare and out-of-print books and articles.

The 'Internet History Sourcebooks Project' (Fordham University, the Jesuit University of New York) has a very useful page on Israel (<http://www.fordham.edu/Halsall/ancient/asbook06.asp>) with a big collection of public domain historical texts on the usual issues of biblical studies and many links to other relevant websites.

'Bible History online' (<http://www.bible-history.com/>) is a conservative lexicon about the Bible and its historical context.

The Review of Biblical Literature (<http://www.bookreviews.org/>) presents extensive scholarly reviews of books in biblical studies.

The website 'Best Commentaries' (<http://www.bestcommentaries.com/>) offers reviews and ratings of commentaries of the books of the Bible, thus helping to find a way in this flood of literature.

The well-organized website of Chris Heard (<http://www.itanakh.org/>) offers a wealth of secondary literature on the books of the Old Testament.

For those interested in the logotechnical analysis of the Old Testament the webpage of Casper Labuschagne (<http://www.labuschagne.nl/>) will be of great help. Here he publishes his ongoing research on the numerical features of the Psalms, the Torah and the books Joshua-Kings.

A good introduction to the more common literary critical approach is offered by Tzemah Yoreh on his webpage <http://www.biblecriticism.com/>.

A good webpage about analyzing Hebrew poetry is offered by John F. Hobbins: http://ancienthebrewpoetry.typepad.com/ancient_hebrew_poetry/. It is presented in the form of a weblog (and therefore also listed below), but it contains next to the discussion of some of the contemporary issues in the field of biblical studies a number of good resources on the subject of ancient Hebrew poetry.

Ralph W. Klein presents a useful overview of available sources of secondary literature on his website 'The Old Testament and the ancient Near East: <http://prophetess.lstc.edu/~rklein/>.

An index of Biblical quotations and allusions in early christian literature is found on <http://www.biblindex.mom.fr/>.

A good online Bible atlas is <http://swartzentrover.com/cotor/Bible/Bible/Bible%20Atlas/Bible%20Atlas.htm>.

Very interesting is also the website 'Holy Land Maps' (<http://www.jnul.huji.ac.il/dl/maps/pal/html/>), a big collection of beautiful ancient maps of Israel from the 15th until the beginning of the 20th century, collected by Eran Laor and now made available by the Jewish National and University Library in Jerusalem.

The Pontifical Biblical Institute (<http://www.biblico.it/sussidi.html>) supports the research of biblical literature with good bibliographies.

Online journals

When it comes to surveys of recent literature the Denver Journal is very helpful. It offers online (<http://www.denver-seminary.edu/resources/denver-journal/>) every year an extensive annotated bibliography.

Now we have entered the field of online journals it is good to refer to the constantly renewed list of open access journals in ancient studies on <http://ancientworldonline.blogspot.nl/>.

The website 'Biblical Studies on the Web' (<http://www.bsw.org/>) functions as a gateway to the electronic version of the journals *Biblica* and *Filologia Neotestamentica*.

The online journal *HIPHIL Novum* (<http://www.hiphil.org/>) is part of the SBL program unit on Global Education and Research Technology. It continues *HIPHIL* which was published between 2003 and 2010.

Other online journals are the Jewish Biblical Quarterly (<http://jbq.jewishbible.org/>), the Journal of Hebrew Scriptures (<http://www.jhsonline.org/>), the on-line journal of the Bible Lands Museum Jerusalem: the Bible Lands E-Review (<http://biblelandsreview.wordpress.com/>), Textus: Studies of Hebrew University Bible Project (<http://www.hum.huji.ac.il/english/units.php?cat=5016&incat=4982>), TC: A Journal of Biblical Textual Criticism (<http://rosetta.reltch.org/TC/index.html#page=home>).

Discussion groups and weblogs

Strictly speaking this final category cannot be ranked among web-based resources. Nevertheless, they cannot be excluded from this survey, because they represent one of the most important advantages of the new possibilities offered by the internet for the study of the Old Testament. The ongoing discussion in these groups and via these weblogs helps to find the individual researcher to find his way in the ever growing streams of information. It shows tendencies and stimulates the critical view on relevance and quality.

There are lists of discussion groups on facebook: <http://biblioblogtop50.wordpress.com/complete-list-of-facebook-biblical-studies-pages/> or on yahoo: <https://groups.yahoo.com/neo/groups/biblicalstudies/info>. Interesting (usually these are also big) groups are <https://www.facebook.com/ASOR.org>, <https://groups.yahoo.com/neo/groups/biblical-studies/info>, and <https://groups.yahoo.com/neo/groups/ANE-2/info>.

A very helpful tool in finding one's way among the many weblogs are the regular lists of the best or most interesting ones, like <http://peterkirby.com/category/top-biblioblogs>, or the 'Biblical Studies Carnival' (<http://biblioblogtop50.wordpress.com/biblical-studies-carnival-list/>), 'a monthly carnival showcasing the best of blog posts in the area of academic biblical studies'.

Here I give an admittedly subjective short list, in random order, of useful, high level and regularly updated weblogs on the study of the Old Testament.

'Biblische Ausbildung' (<http://www.biblische.blogspot.nl/>) by Stephen L. Cook (Virginia Theological Seminary).

'Higgaion: Musings on the Bible and Christianity, mostly' (<http://drchris.me/higgaion/>) by Christopher Heard (Pepperdine University).

'KV8R Excavator' (<http://robertcargill.com/>) by Robert Raymond Cargill (University of Iowa).

'With Meagre Powers: "I struggle to understand it"' (<http://withmeagrepowers.wordpress.com/>) by George Athas (Theological College Sydney).

'Pour un Ancien Testament très actuel' (<http://ancien-testament.blogspot.fr/>) by Antony Perrot (École Pratique des Hautes Études).

'Sheffield Biblical Studies: An unofficial blog dedicated to ideas from, and news about, the Department of Biblical Studies, University of Sheffield' (<http://sheffieldbiblicalstudies.wordpress.com/>) by James Crossley (University of Sheffield).

The blog by Lawrence H. Schiffman on the study of the Dead Sea scrolls: <http://lawrenceschiffman.com/blog/>.

'Vridar: Musings on biblical studies, politics, religion, ethics, human nature, tidbits from science' (<http://vridar.org/>) by Neil Godfrey.

'A Hebrew Bible/Old Testament scholar looks at the Bible and culture...' (<http://juliamobrien.net/>) by Julia M. O'Brien (Lancaster Theological Seminary).

'A Christian perspective on the Old Testament and Current Events' (<http://claudemariottini.com/>) by Claude Mariottini (Northern Baptist Seminary).

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A 'LEAN' APPROACH TO DIGITAL RESOURCES FOR ANE ARCHAEOLOGY

Stefano ANASTASIO,
MiBACT – Direzione Regionale per la Toscana, Firenze

Francesco SALIOLA¹)
Studio Associato Metra – Servizi per l'archeologia e per
l'ambiente, Sesto Fiorentino (Firenze)

ANE and digital natives

A study on the use of web-based resources in the field of Ancient Near East (ANE) archaeology, aimed at highlighting the enormous and ever-increasing impact that the web has on this discipline, may seem banal and taken for granted. However, it cannot be denied that the scenario of the first decade of the new millennium has truly been dominated by the web and by digital technologies, embracing the entire scientific community.

¹) The authors equally contributed to this article.

Tests on significant samples of web users show that — twenty years from the birth of the web — a fundamental change is taking place and that the impact that the web will have on our lives will not only be stronger than before but ‘different’.

Unlike previous generations, the so-called ‘digital natives’,²⁾ i.e. the generation born after 1993, have grown up in a world in which information has been widely spread through the web and mobile devices. Younger teens, in particular, are experimenting an even stronger revolution due to the fact that the amount of information shared through the Internet has probably reached ‘critical mass’ today: for them, the web is not regarded as a subsidiary means of information, but as the main one.

This ever-increasing use of the web has a particularly strong impact on the behaviour of the scientific community. The web is not a simple, ‘neutral’ tool, but influences — and at times determines — the conception and development of a project. With regard to this, the results of CIBER’s Google Generation Research programme are worth mentioning. As stated by the researchers in charge of the project “*The virtual revolution is in full swing and it is transforming many aspects of our lives: the ways in which we socialise, shop, entertain ourselves, obtain knowledge and information, manage our health, and interact with public services have all undergone profound change. These transformations have taken place in a remarkably short period of time, leading many to wonder how today’s children and teenagers, the ‘Google Generation’, who have little or no recollection of a life before broadband, mobile technologies and ubiquitous search (Google) will cope. The big question that fascinates (or worries) everyone: parents, teachers, lecturers and employers is whether this generation, when they hit university and the workplace, will turn out to be fundamentally different from older generations in their attitudes, expectations, behaviour and even in the way they ‘think’.*”³⁾

It is of course too early to draw a detailed picture of how this complex phenomenon has evolved over the years, just as it is wrong to stereotype an entire generation. Yet it is evident that there are significant differences between the ‘Google generation’ and older people. The CIBER study mentioned above, for example, highlights how previous generations acquire knowledge in many different ways, while the new young generations tend to focus mainly — if not only — on the Internet. They have unsophisticated mental maps of what the Internet is and place their trust almost completely in standard social media when searching for information of any kind.

These issues affect the knowledge system of the new generations of University students and future researchers and cannot be eluded by the scientific community. This is especially true for the Humanities community which, when acquiring knowledge in the field of the Information and

Communications Technology (ICT), as a rule uses slower processes than those of other communities, such as the Natural and Technical sciences.

With specific regard to the discipline considered in this essay, i.e. ANE archaeology, it is beyond doubt that the adoption of innovative technologies, as well as the development of ICT tools tailored to the needs of cultural heritage research and management are constantly increasing, but is this enough? Is the ‘ICT upgrading’ of our discipline combined with adequate consideration for the real needs of research? Is the scientific community truly and consciously involved in its own renovation process?

In the following pages, we will try to draw a picture of the web-based resources available today for ANE archaeology, focusing on ‘digitisation’ and providing the reader with a list of web tools that can be of use for research. Then, we will attempt to focus on issues concerning the way these tools are used by the scientific community.

Digitisation and ANE Archaeology: goals, methods and tools

The impact of the web on ANE archaeology has led to a huge amount of available web-resources in all branches of the discipline (archives, GIS, 3D, etc.). A contribution that attempts to review and disentangle all these topics would exceed the limits of an article and/or provide the reader with a very biased overview of the subject under consideration. For this reason, we would like to focus on one specific kind of information: digitisation.

Digitisation, i.e. the conversion of analogue data to digital, is ‘easy’ in itself, but can be carried out using a very wide range of diverse processes and applications which differ from one another in terms of costs, time, required skills etc.

Today, the application of a digitisation process — providing it is well focused and fine-tuned — may allow scholars to start and develop projects that were simply not possible just a few years ago.

This is true firstly for projects where the final outcome coincides with the digitised files: publications, photos, drawings, maps, etc., which, since they are digitised, can be more easily shared and preserved. This is also true for projects where digitisation contributes to achieving the expected final result: for example, GIS projects that display data on Google Earth or similar geographical information software that uses digitised maps. A further example is the increasing use of laser scanning or close range photogrammetry to generate RGB point clouds and photographic 3D models of monuments and objects. In the latter case, the input from the use of innovative methodologies may be very significant, as in the case of ‘Building Archaeology’ projects. This discipline has changed its methods and perspectives rapidly and intensely thanks to the opportunities that the above technologies offer us. 3D surveys are no longer an option, but a necessary requirement for recording data, which could not be achieved effectively with a two-dimensional survey.⁴⁾

By focusing on specific targets, we have tried to collect a list of useful web resources that provide users with access to digitised publications, images and maps. This single branch of

²⁾ As to the use of ‘digital natives’ see Prensky 2001. For a discussion of the term, as well as the nearby terms ‘Net Generation’ and ‘Millennials’, especially related to University students, see Jones *et alii* 2010, especially pp. 723-724.

³⁾ Nicholas *et alii* 2011, p. 28. The project, directed by David Nicholas, involved televised experiments with people of different ages to determine their different online behaviour. An interview to Nichols on the results of this study is in the episode *Homo Interneticus?* of the renowned 2010 British television documentary *The Virtual Revolution* (<http://www.bbc.co.uk/programmes/b00n4j0r>).

⁴⁾ See Parenti *et alii* 2011 for an overview of different 3D recording methodologies used for Building Archaeology.

contents has produced a very rich list of references. A selection of '100 digital repositories and other web tools' is listed below according to the following categories: 1) Digital archives of Pre-II World War photos related to ANE archaeology; 2) Digital archives of ANE archaeology publications; 3) Digital archives of museum ANE artefacts; 4) Miscellaneous digital archives of interest for ANE archaeology; 6) Instruments, tools & utilities for digital ANE archaeology.

Particular attention has been paid to the digitised archives of historical photos. The main reason for this is the recent increase in this kind of web repositories, a fact that will encourage scholars to continue archive research activities with greater impetus than in the past, now that research in this field is often hindered both by budget constraints and by the difficult political situations in many regions of the Middle East. An increase in archive studies would surely improve our knowledge of ANE archaeology. In particular, XIX and early XX century photos are extremely useful to evaluate monuments that require restoration work.

100 digital repositories and other web tools for the ANE archaeology⁵⁾

Digital archives of Pre-II World War photos related to ANE archaeology

1. AGSL Digital Photo Archive - Asia and Middle East

<http://goo.gl/yhAiTq>

The digital repository of AGSL is published by the University of Wisconsin-Milwaukee Libraries, and provides access to over 20,000 images from the holdings of the American Geographical Society (AGS) Library, with a special section dedicated to 'Asia and Middle East'.

2. Al Mashriq

<http://almashriq.hiof.no/base/photography.html>

This digital repository is hosted at the Østfold College in Halden, Norway, and it is focused on the Levant (especially Lebanon).

3. Archaeological Archives of the Princeton University

<http://goo.gl/PLICjf>

The repository provides access, among others, to the following archives: 1) Howard Crosby Butler Archive, 2) American Society for the Excavation of Sardis 1910-1914, 3) Committee for the Excavation of Antioch-on-the-Orontes 1932-1939, 4) Princeton Archaeological Expedition to Morgantina 1955-1963 and 1966-1967, 5) Princeton Archaeological Expedition to Polis 1983 – Present.

4. Art and Architecture web site

<http://www.artandarchitecture.org.uk/>

Digital repository of the Courtauld Institute of Art, in London. As far as the Near East is concerned, it provides access to several photos made by the Bonfils family.

5. Blatchford Collection of Photographs

<http://ddc.aub.edu.lb/projects/jafet/blatchford/index.html>

Collection of the AUB Jafet Library, Beirut. It includes photos of historical monuments, archaeological sites, buildings from several countries of the Near East. Among the photographers represented in the collection there are Bonfils, Dumas, Sarrafian, Dupré and Amodio.

6. CLAROS-Antiquarian Photographs Selection

<http://goo.gl/UqMydW>

CLAROS is an international interdisciplinary research federation by the University of Oxford. The digital repository contains photos mainly focused on the art of ancient Greece and Rome, but also the Near East is represented, with photos from the Beazley and Creswell Archives in Oxford.

7. Dorothy Garrod Photographic Archive

<http://www.prm.ox.ac.uk/photocollection.html>

The digital repository of the collection, belonging to the Pitt Rivers Museum in Oxford, provides access to around 750 negatives taken by Dorothy Garrod (1892-1968), mostly relating to archaeological research in present-day Israel in the early 1930s.

8. George Eastman House, Photography Collection Online

<http://www.eastmanhouse.org/oc/oc.html>

The collection, hosted in Rochester, NY, include views of the Near East: notably the Francis Frith, American Colony, and Jericho collections, as well as the Van Voorhis Collection of 19th Century Travel Views. Most images date from the late 1800s to the early 1900s.

9. Gertrude Bell Archive

<http://www.gerty.ncl.ac.uk/>

The digital repository of the collection, curated by the University's School of Historical Studies of the Newcastle University, provides access to the photo collection of the Gertrude Bell's photo-albums dated 1905-1917.

10. Historical photographs of the Land of Israel

<http://lib.haifa.ac.il/collections/isratage/index.php/en/>

The digital repository provides access to the photo collections of the Younes and Soraya Nazarian Library, University of Haifa, with a section devoted to the 'Cultural Heritage'.

11. Imperial War Museum of London

<http://www.iwm.org.uk/collections/search>

IWM archives concern conflicts, especially those involving Britain and the Commonwealth, from the First World War to the present day. The digital repository provides access to explore a catalogue of over 600,000 items, with several photos concerning Iraqi sites in particular.

12. J. Paul Getty Museum, Orientalist Photography

<http://goo.gl/RsbMAJ>

Digital repository of the special collection 'Orientalist Photography' of the J.P. Getty Museum, Los Angeles CA.

13. Machteld J. Mellink Photographs

<http://goo.gl/4jSd9W>

Digital repository of the collection today at the Bryn Mawr College. The digitised images concern 35 mm Kodachrome slides, taken in Turkey, Greece, Syria, Cyprus, Iraq, and Iran between the 1950s and the 1990s.

14. New York Public Library, The Middle East in Early Prints and Photographs

<http://goo.gl/mNzxbI>

The archive includes several thousand prints and photographs contained in works from the 17th century to the beginning of the 20th century.

15. NPAPH-Project

<http://www.npaph.com/>

⁵⁾ This list is updated to March 2014.

The NPAPH-Project aims to collect and digitise photographic documentation of excavations carried out prior to the 1980s, by means of the photo archives of students and volunteers who joined such excavations. It is currently focused on the 1950-1980 period.

16. Palestine Exploration Fund on Flickr
<http://www.flickr.com/people/palestineexplorationfund/>
 The digital repository provides access to the low resolution files from the PEF picture library, concerning photos of Palestine, Jordan and Syria taken from 1850 onwards, with a particular focus on the collection of 19th century photographs.

17. Roland de Mecquenem Archives de Susa (1912-1939)
<http://www.mom.fr/mecquenem/>
 The digital repository provides access to the documentation by Roland de Mecquenem, concerning his researches at Susa, Iran, between 1912 and 1939.

18. PPOC – Prints & Photographs Online Catalog, Library of Congress
<http://www.loc.gov/pictures/>
 The web page introduces to the on-line catalogue of pictures of the USA Library of Congress.

19. Sources for Historical Photographs of the Middle East
<http://goo.gl/4urqJE>
 The web page allows users to download a PDF guide and a list of institutions and organisations with significant collections of historical photos of the Near East. This list was prepared for the session “Documenting the Middle East: A Look at Photograph Collections in the United States” presented at the Society of American Archivists Annual Meeting, New Orleans, Louisiana, August 20, 2005.

20. St Antony's College, Middle East Centre Archive Photo Gallery
<http://www.sant.ox.ac.uk/mec/mecaphotos-gallery.html>
 The archive of Middle East Centre Archive of the Oxford University contains several collections of photos taken by XIX century travellers in the Near East: among them, G. Bell, Fr. Stark, A.L.F. Smith.

21. University of Washington Libraries, Ancient Near East Photograph Collection
<http://content.lib.washington.edu/neareastweb/index.html>
 For the time being, the collection concerns images of Egypt and Israel, although plans exist to eventually add images from Anatolia, Syria, Iraq, and Iran.

Digital archives of ANE archaeology publications

22. AMAR – Archive of Mesopotamian Archaeological Reports
<http://amar.hsclib.sunysb.edu/amar/>
 The AMAR collection contains digitised archaeological site reports concerning excavations in Iraq, Turkey, Syria, Iran and the Gulf area.

23. ETANA – Electronic Tools and Ancient Near Eastern Archives
<http://www.etana.org/>
 ETANA provides access to several publications concerning ANE archaeology, and gather links to other web-based mate-

rials related to the Ancient Near East. Also, it provides access to ABZU, a guide to networked open access data relevant to the study and public presentation of the Ancient Near East and the Ancient Mediterranean world.

24. Forgotten Books
<http://www.forgottenbooks.org/>
 It is an online library with over 1,000,000 books available on demand. It may be accessed as ‘free’ or ‘full’ (paid subscription) member. It provides access to several books by travelers to the Near East in the XIX and the early XX century.

25. Google Books
<http://books.google.com/>
 Google Books allows users to searches all books and magazines that Google has scanned and stored in its digital database.

26. HathiTrust Digital Library
<http://www.hathitrust.org/>
 HathiTrust is a partnership of academic & research institutions. It provides access to a great number of digitised titles from different libraries.

27. Internet Archive's Digital Books Collections
<https://archive.org/details/texts>
 The Internet Archive's Digital Books Collections provides access to digitised publications from several libraries from all the world.

28. JSTOR
<http://www.jstor.org/>
 JSTOR is probably the most used digital library of academic journals, books, and primary sources.

29. OIP – Oriental Institute Publications
<http://oi.uchicago.edu/research/pubs/catalog/oip/>
 The digital repository of OIP provides access to the downloadable publications of the Oriental Institute in Chicago.

30. Open Access (OOP) Publications of the Netherlands Instituut voor het Nabije Oosten
<http://www.nino-leiden.nl/publications.aspx?id=10>
 The digital repository of the publications of the Netherlands Institute for the Near East.

Digital archives of museum ANE artefacts

31. Allard Pierson Museum (Amsterdam)
<http://dpc.uba.uva.nl/archeologischecollectie>

32. Ashmolean Museum (Oxford)
<http://www.ashmolean.org/collections/online/>

33. British Museum, Collection Search (London)
<http://goo.gl/nr7pNp>

34. Brooklyn Museum (New York)
<http://www.brooklynmuseum.org/opencollection/search/>

35. Cantor Arts Center, Stanford University (Stanford, CA)
<http://cantorcollections.stanford.edu/>

36. Cleveland Museum of Art (Cleveland, OH)
<http://www.clevelandart.org/art/collection/search>

37. Erebuni Historical & Archaeological Museum (Yerevan)
<http://goo.gl/nt9syc>

38. Fitzwilliam Museum (Cambridge)
<http://webapps.fitzmuseum.cam.ac.uk/explorer/>
39. History Museum of Armenia (Yerevan)
<http://www.historymuseum.am/collections/?id=4&lang=eng>
40. Israel Museum, IMAGINE Image Search (Jerusalem)
<http://www.imj.org.il/imagine/collections/index.asp>
41. Jewish Museum (New York)
<http://thejewishmuseum.org/collection>
42. Kelsey Museum of Archaeology (Ann Arbor, MI)
<http://goo.gl/HiEVGf>
43. LACMA – Los Angeles County Museum of Art (Los Angeles, CA)
<http://collections.lacma.org/>
44. Louvre (Paris)
<http://www.louvre.fr/moteur-de-recherche-oeuvres>
45. Medelhavsmuseet (Stockholm)
<http://goo.gl/ftlJJY>
46. Metropolitan Museum of Art - Collections (New York)
<http://goo.gl/zsx7yD>
47. Michael C. Carlos Museum, Emory University (Atlanta, GA)
<http://www.digitalgallery.emory.edu/luna/servlet>
48. Montreal Museum of Fine Arts (Montreal)
<http://goo.gl/uU0oRG>
49. Musée d'Art et d'Histoire (Géneve)
<http://www.ville-ge.ch/musinfo/bd/mah/collections/>
50. Musées Royaux des Beaux-Arts de Belgique (Brussels)
http://www.opac-fabritius.be/fr/F_database.htm
51. Museo Arqueológico Nacional (Madrid)
<http://ceres.mcu.es/pages/SimpleSearch?Museo=MAN>
52. Museo Nazionale di Arte Orientale (Roma)
<http://goo.gl/1yXeqV>
53. Museum of Fine Arts (Boston, MA)
<http://www.mfa.org/search/collections>
54. National Museum of Scotland (Edinburgh)
<http://www.nms.ac.uk/collections/>
55. Oriental Institute, Research Archives (Chicago)
<https://oi.uchicago.edu/idb/>
56. Peabody Museum, Asian collections (Harvard)
<https://peabody.harvard.edu/node/200>
57. Penn Museum (Philadelphia, PA)
<http://www.penn.museum/collections/>
58. Rijksmuseum van Oudheden (Leiden)
<http://www.rmo.nl/english/collection/search-collection>
59. Royal Ontario Museum (Montreal)
<http://images.rom.on.ca/public/>
60. Sidney University Museums (Sidney)
http://sydney.edu.au/museums/collections_search/

61. Smithsonian Institution, Collections Search Center (Washington DC)
<http://collections.si.edu/search/>
62. Staatliche Museen zu Berlin, SMB-digital (Berlin)
<http://www.smb-digital.de/eMuseumPlus>
63. State Hermitage Museum, Digital Collection: Archaeological Artefacts (St Petersburg)
<http://goo.gl/R9N3IL>
64. Toledo Museum of Art (Toledo, OH)
<http://classes.toledomuseum.org:8080/emuseum/>
65. UMMA – The University of Michigan Museum of Anthropology (Ann Arbor, MI)
<http://quod.lib.umich.edu/cgi/i/image/image-idx?c=anthro1ic>
66. Yale University Art Gallery (New Haven, CT)
<http://artgallery.yale.edu/collection/search>

Miscellaneous digital archives of interest for ANE archaeology

67. Aerial Photographic Archive for Archaeology in the Middle East
<http://www.apaame.org/>
APAAME is a research project directed by Prof. D. Kennedy and Dr. R. Bewley, based currently between the University of Western Australia and Oxford University. The digitised archive on-line currently contains over 60,000 aerial images, principally focused on Jordan.
68. American Schools of Oriental Research – Collections
<http://www.asor.org/archives/collections.html>
The digital repository provides access to the ASOR archives, including excavation reports, photograph collections, publications.
69. Antoine Poidebard Archive
<http://www.usj.edu.lb/poidebard/muse.htm>
The digital repository provides access to photos of the Musée Virtuel – Antoine Poidebard of the Université Saint-Joseph de Beyrouth. The collection concerns the aerial photographs taken by Père Antoine Poidebard over Syria, Lebanon, and British Transjordan, 1920-1950s.
70. Arachne
<http://arachne.uni-koeln.de/drupal/>
Arachne is the central object database of the German Archaeological Institute (DAI) and the Archaeological Institute of the University of Cologne. It provides useful internet research tools for archaeologists, mainly specialized in Classical archaeology but also of interest for scholars interested in ANE archaeology.
71. ArchNet
<http://archnet.org/library/images/>
This digital repository has been established at MIT in cooperation with the Aga Khan Program for Islamic Architecture. It includes more than 40,000 images, including photos from the Ernst Cohn-Weiner Photographic Archive (British Museum) and the collection of K.A.C. Creswell (Harvard University).
72. Artstor
<http://www.artstor.org/index.shtml>

Artstor is a digital library that provides over 1.6 million digital images of art, architecture, humanities, and sciences.

73. Australian War Memorial

<http://www.awm.gov.au/search/all/>

The memorial, hosted in Canberra, holds photos taken over Palestine and Transjordan by the Royal Australian Flying Corps/Air Force in the last part of the First World War, as well as some others taken by the German Air Force and seized by the Australian Army.

74. CORONA Atlas of the Middle East

<http://corona.cast.uark.edu/index.html>

This web site provides free public access to the database of CORONA images of the Middle East, developed by the University of Arkansas' Center for Advanced Spatial Technologies (CAST). Images can be viewed online and downloaded as NITF file format.

75. DAAHL-Digital Archaeological Atlas of the Holy Land

<http://daahl.ucsd.edu/DAAHL/>

DAAHL is an international project for the realisation of an on-line digital historical atlas of the Mediterranean region. It allows to explore the region and the archaeological resources it contains.

76. Digital Nineveh Archives

<http://okapi.berkeley.edu/nineveh/>

The UC Berkeley Digital Nineveh Archives aims to be a comprehensive archaeological reckoning of the history of the site of Nineveh, from the 19th century through to today.

77. Google Cultural Institute, Art Project

<http://www.google.com/culturalinstitute/home>

Google has partnered with hundreds of museums, cultural institutions, and archives to host a repository of world's cultural treasures online.

78. Israel Antiquities Authority Scientific Archive

<http://www.iaa-archives.org.il/>

The archive of the Israel Antiquities Authority (IAA) is located in Jerusalem. Users are allowed to search texts, pictures, maps, drawings.

79. Manar al-Athar

<http://www.manar-al-athar.ox.ac.uk/>

Manar al-Athar is based at the University of Oxford and aims to provide HR images for teaching, research, and publication. The images will cover the areas of the former Roman empire, later under Islamic rule, with a chronological range from Alexander the Great to the present.

80. MAVI-Musée Achéménide Virtuel et Interactif

<http://www.museum-achemenet.college-de-france.fr/>

MAVI is a virtual museum web site that aims to collect objects and images relating to Achaemenid Persian empire.

81. Persepolis Fortification Archive Project

http://ochre.lib.uchicago.edu/PFA_Online/

The Persepolis Fortification Archive Project is a project of the Oriental Institute of the Chicago University. The PFA Online provides access to a large amount of digitised data from the archive.

82. Van der Meer-Cools Collection

<http://imagebase.ubvu.vu.nl/cdm/landingpage/collection/vdmc>

The web page provides access to the digitised catalogue of

the ANE collection of the University Library of VU University Amsterdam.

83. WDL – World Digital Library

<http://www.wdl.org/en/>

WDL provides free access to significant primary materials from countries and cultures around the world. It was developed by a team at the US Library of Congress, with contributions by partners in many countries.

84. Wikimedia Commons

<http://commons.wikimedia.org/>

Wikimedia Commons is a media file repository for educational media contents that are available in public domain and freely-licensed.

Instruments, tools & utilities for digital ANE archaeology

85. 3D-ICONS

<http://3dicons-project.eu/>

3D-ICONS is a pilot project funded under the European Commission's ICT Policy Support Programme, that brings together several European partners from across Europe with the relevant expertise to digitise in 3D architectural and archaeological monuments and buildings.

86. ARCS

<http://arcs.cal.msu.edu/>

ARCS is an open source web platform provided by GitHub, the popular web-based hosting service for software development projects. ARCS aims to enable collaboration in creating and relating digitised primary evidence when conducting research in the Humanities.

87. AWOL – Ancient World on-line

<http://ancientworldonline.blogspot.it/>

The renowned blog created by Ch. E. Jones, librarian at the Penn State University. The blog notices and comments on open access material relating to the ancient world. Among the many resources of this blog, it is to notice the continuously updated 'List of Open Access Journals in Ancient Studies', as well as the 'Roundup of Resources on Ancient Geography'.

88. CARARE

<http://www.carare.eu/>

CARARE is a best practice network funded by the European Commission's ICT Policy Support Programme. CARARE aims to make digital content for Europe's archaeological monuments and historic sites interoperable with Europeana, that is an on-line collection of millions of digitised items from European museums, libraries, archives and multi-media collections. Even though focused on the European cultural heritage, CARARE concerns also surrounding areas, including the Near East.

89. DEA – Digital Epigraphy and Archaeology Project

<http://www.digitalepigraphy.org/>

DEA is an interdisciplinary project of the Digital Worlds Institute and the Department of Classics at the University of Florida. The project applies concepts from digital and interactive media and computer science to archaeology. It is focused on Classics, but of interest for ANE scholars too.

90 DPC – Digital Preservation Coalition

<http://www.dpconline.org/>

DPC is a UK-based, non-profit limited company which seeks to secure the preservation of digital resources.

91. ECAI – Electronic Cultural Atlas Initiative

<http://ecai.org/>

ECAI is a project which combines global mapping, imagery, and texts. Many features concern ANE cultural heritage.

92. Internet Archive Blogs

<https://blog.archive.org/>

Blog of 'Internet Archive', that is a non-profit digital library that provides free access to books, movies, music & archived web pages.

93. ITHAKA

<http://www.ithaka.org/>

ITHAKA is a not-for-profit organisation that provides services related to the use of digital technologies for the academic community. In particular, it provides three services: JSTOR, Portico, and Ithaka S+R.

94. Luminous Lint, Archaeology

<http://www.luminous-lint.com/app/contents/the/626/>

A very useful guide about the history of archaeological photography, with several photos embedded in the web pages. Luminous Lint is an online scholarly non-commercial resource, aimed at sharing information on the history of photography worldwide.

95. Near Eastern Studies Library Resources

<http://guides.lib.umich.edu/NE>

This web page of the University of Michigan Library provides users with a guide to printed and digital resources for the study of the Near East, including indexes, full text journal articles, electronic books, and other internet resources.

96. OASIS – Online Archival Search Information System, Harvard University

<http://goo.gl/SL5gtn>

OASIS allows users to search a growing percentage of, but not all, finding aids for archival and manuscript collections at Harvard, e.g. letters, diaries, photographs, objects.

97. OCHRE – Online Cultural Heritage Research Environment

<http://ochre.uchicago.edu/>

OUCHRE is a software system for managing archaeological and historical data. It has been realised by OCHRE Data Service, whose team is located in the Oriental Institute at the University of Chicago.

98. tDAR – the Digital Archaeological Record

<http://www.tdar.org/>

tDAR is an international digital repository for archaeological digital records, developed and curated by Digital Antiquity (Arizona State University).

99. UCLA Center for Near Eastern Studies, Resources

<http://guides.library.ucla.edu/ancient-near-east>

UCLA University provides a portal for resources relating to ANE and Egypt, with links to many e-resources, including e-books, on-line archives, image repositories, and maps.

100. Visual Heritage Project

<http://visualheritageproject.weebly.com/>

The Visual Heritage Project is an initiative to increase documentation on at-risk archaeological sites through crowd sourced image collection.

Considerations on the use of digital resources

As already mentioned, the use of web resources and software tools is not a 'neutral' practice but has an impact on the methods and ways for performing research. Using these resources and tools can be risky without adequate consideration of their impact: scholars must be conscious of the implications of digital resources. Awareness of the method and tools we use is an invaluable opportunity for modern sciences (including archaeological disciplines) to deepen knowledge.

The trap of 'cargo cult science'

In 1974, the US physicist Richard Feynman, in his commencement address at the California Institute of Technology, cautioned researchers from becoming 'cargo cult scientists'.⁶⁾

Feynman coined this phrase by referring to a topic well-known to cultural anthropologists, i.e. the so-called 'cargo cult', a religious practice that appeared in a number of tribal societies following interaction with technologically advanced cultures. Well-documented examples regard the South Pacific area, especially New Guinea and the New Hebrides where, especially in the years before and during World War II, large amounts of cargo were dropped by parachute or landed in planes for the English, Australian, New Zealand and above all US troops based in these countries.

These modern items also spread among the indigenous peoples, leading to dramatic changes in their material culture and lifestyles. With the end of the war, the airbases were abandoned and cargo ceased being delivered. Failing to understand the geopolitical reasons for the end of the air-dropped goods, the natives started to conduct ceremonies and religious rituals by imitating the practices and behaviour they had seen in the allied soldiers: examples of fake radio equipment with headphones and microphones used inside wooden and bamboo control towers are documented. The natives built replica planes with makeshift material and constructed rudimentary runways lit up by torches and other signals. These rituals greatly spread in the decade immediately after the end of World War II, and then slowly decreased over the following years.⁷⁾

Feynman used the term 'cargo cult scientists', therefore, to refer to scholars who imitate scientific behaviour, yet adopt a superficial approach, failing to understand the deep reasons behind the method and tools they are using. To avoid being cargo cult scientists, researchers must at all times be on the watch for tricks and illusions; they must always doubt and closely investigate the results of their research and consider any possible weak points of their theories, as well as not accept unquestioningly the research results of other scientists if the former have not been carefully checked.

⁶⁾ The speech, together with other written works, in Feynman – Leighton 1997.

⁷⁾ Many works have addressed cargo cults: e.g., the classic text by Worsley 1968 and the excellent summary published in Lindstrom 1993, to which reference may be made for further details.

Starting from Feynman's exhortation, the term 'cargo cult' is generally used today when the techniques and practices of a discipline are superficially applied to another one, in the hope that some sort of mysterious magic may bring inexplicable benefits, yet without realising that it is essential to fully understand the features and principles of certain tools before using them.

Digital tools: resources or unconscious rites?

The example we have just seen must lead archaeological scholars to ask themselves whether they are using digital tools simply because ICT is the 'in' thing or because by doing so they seem to be contributing to the 'renewal' of archaeology. At times, digital tools serve only as an excuse to strengthen the 'scientific' nature of archaeology — which already has its own method and scientific approach — in the eyes of outside observers. Even in the archaeological community, the risk of becoming 'cargo cult scientists' is always present and must be consciously avoided: using digital tools means understanding them, especially the effects they have on the way research is performed and the way thought is expressed.

New tools and behaviour changes

We will continue our study by considering briefly a simple but fundamental concept: what happens to our behaviour and thinking patterns when we use a new tool? Are we the ones who decide how and to which extent we should use that tool? Or is it the tool that slowly influences the way we behave and that changes our thinking patterns?

To answer these questions, we will take two examples from ethno-anthropological studies. Although these examples are reductive and risk trivialising the complexity inherent in current technological transformation processes, they have the advantage of explaining the relationship between a new tool and its user in simple, linear steps.

Ancient tools and modern materials: Aboriginal artefacts

The study of the use of modern materials and tools in traditional 'primitive' cultures colonised during the past centuries is a topic that has been the subject of considerable ethnological and anthropological research, especially in areas where populations were colonised later, such as Australia. Native populations in the North, especially Arnhem Land, were the latest to experience steady colonisation by the Europeans, who definitely settled in the area only from the 1930s. Although these Aborigines had already had considerable sporadic contact with the colonisers, they were the last to steadily integrate the items and utensils brought by the white settlers into their culture and had used resin-hafted flake knives (*leilira* macroblades),⁸⁾ usually made of quartzite or silcrete, for thousands of years.

Given their peculiar shape, these stone knives had to be specially gripped; once the Aborigines came into contact with the metal knives brought by their colonisers, they realised that these modern utensils were perfect for their needs and quickly adapted to them, yet for many years they continued to handle these tools by grasping them as if holding traditional stone blades. They ignored the standard grip conceived for steel

knives with handles. The 'standard' way of holding a metal knife by its handle gradually spread and slowly replaced the old way of grasping the traditional *leilira* blades.⁹⁾

Similar observations may be made on the way Aborigines used the glass imported by their colonisers. The glass recovered from bottles and from telegraph line insulators was initially chipped to obtain tools that were as similar as possible to those manufactured using traditional techniques. The new material, however, slowly started to influence the technological choices of these populations who had replaced stone with glass to construct their tools, thus modifying tradition. Indeed, despite its similarity with traditional lithic material, glass has specific differences: for example, it has been noted that "bottle shape strongly influences glass artefact morphology in glass tool manufacture".¹⁰⁾ More simply, the presence of an innovative material, such as glass, influenced the reduction processes and modified the Aborigines' millennium-old techno-typological manufacturing patterns.

Thinking patterns for new tools

What has just been described is not a simple ethnographic observation but may serve as an example — reductive yet easy to understand — of a behaviour that arises very often when using new tools: at the beginning, the new tool is compared to another similar, familiar and well-known tool and is used with an old thinking pattern. This is what initially happened with word processing software, which was used as if it were a typewriter, or graphic processing software, perceived by photographers as a sort of digital dark room and by designers as a drawing tool. In fact, the functions and possibilities provided by the new tools allow them to be put to quite different use.

In short, we often tend to use new digital tools and web resources by resorting to previous thinking patterns and procedures which mimic the ones we already know, even if the digital tool has very different functions and uses.

After using a new tool for a certain period of time, however, certain functions, certain features and certain differences from the previous tool slowly arise, showing us new ways to use the tool and ultimately replacing the previous model. This is what is currently happening with the web. For this reason, we need to ask ourselves how these new tools can influence (either positively or negatively) the way we perform research and manage projects.

The import of mobile devices

The effects of the web and of social networks on the cognitive processes of young generations have been the focus of a wide range of studies, as mentioned at the start of the article. Although there is no need to indulge in apocalyptic exaggerations, we do need to come to terms with the fact that new generations of students (and subsequently scholars) take a different approach to study and research. This implies new thinking patterns and the recognition that technological innovations, such as mobile devices, will play an important role in the use of web resources for ANE archaeology.

⁸⁾ Akerman 2007.

⁹⁾ For metal artefacts, see the Western Australia case documented in Harrison 2000.

¹⁰⁾ For a set of modern aboriginal artefacts made of glass using prehistoric flint knapping techniques, see Cooper — Bowdler 1998 and Harrison 2002.

It is quite easy to understand how these devices (tablets and smartphones) will be able to use an entire range of online or (previously downloaded) offline content. However, they could become the main tools to generate content by creating and updating web resources. Tablets and smartphones are devices capable of collecting, processing and storing (via the web or locally, and then sent remotely) amounts of photographic, geographical and documentary data in relatively short time and with relatively easy procedures: a sort of 'paperless archaeology', i.e. the creation, editing and publication of entirely digital content from archaeological excavations and surveys.

It is important, however, to be aware of the technical limits of these devices (data acquisition quality) and to consider the pros and cons of the immediacy with which information may be collected, which may be acceptable for unaggregated data, but has shortcomings — or bias — in the case of partially aggregated data or when data have already been processed. This bias, however, has always existed in the traditional excavation or survey documentation which archaeologists have worked with until now.

An underrated 'digital' resource: software development methodologies

Digital tools are not only a resource in themselves but can provide useful input also when considering the development methodologies used for their implementation. Of course, software development methodologies cannot influence archaeological procedures in strictly technical terms (excavations, stratigraphy, items classification, etc.) but they can be regarded as a resource for data and information processing, for project management purposes and for organising working teams.

Software development methodologies

Over the past thirty years, the world of ICT has undergone huge development. Its scope and the effects it has had on society may be compared, without exaggerating, to the momentous changes in the history of mankind: we are in the presence of a true 'post-industrial revolution'. During the past decade, the diffusion and pervasiveness of the web, fostered by the production and marketing of mobile devices (smartphones, tablets, etc.) has also significantly changed the way scientific research is performed.

An interesting aspect, which is often ignored by the end users of these devices and of social network technologies, is that over the past ten years the creators and producers of devices, software and web contents have given deep methodological thought to the methods used for developing these technologies and tools. The consideration for these methodologies may be seen both in the academic sector and in small and large businesses of the sector.

Lean Software Development

The most promising software development methodologies currently available are those underlying the most profitable, sustainable and upgradable production cycles. They draw inspiration, on the one hand from Lean Manufacturing¹¹⁾ and, on the other, from the practical methodologies of Agile Software Development, especially Scrum implementation.¹²⁾

Lean Manufacturing was initially developed by Toyota for manufacturing its vehicles and can be applied to software

development (Lean Software Development, Kanban methodology¹³⁾ and to so-called 'knowledge economy': to give just a few examples, this production philosophy is used in the field of architectural and engineering design.

These methodologies identify a new way of working — entirely based on empirical principles — which features accurate processes, standardized tools and structured practices, and allows the development teams to carry on projects and to develop their products successfully in a profitable and cost-effective manner. These methodologies diverge significantly from most-widely used project management systems which are based upon production and assembly lines and are ill-suited to processes more closely linked to the world of knowledge, such as those involving archaeological research projects.

In Lean Project Management, workflow control tools (kanban boards) help understand what we are working on and at which pace; they identify bottlenecks, avoid work in progress overloads and coordinate work groups effectively. Leaving aside further details, which we cannot dwell upon and may be found in the bibliographical references, there are certain issues, both in the Lean/Kanban and the Agile/Scrum methodologies, which may also be applied to archaeological research. They regard not so much the technical aspects specific to archaeological practice, as to the way in which the entire project is handled (objectives, data management, documentation, publication of results, etc.).

Avoiding muda, mura and muri in archaeological projects

Some fundamental concepts originate from Lean-inspired methodologies and are expressed with Japanese words, owing to the origin of these practices: *muda* (futility; uselessness; idleness; waste), *mura* (unevenness; irregularity; lack of uniformity; inequality), *muri* (unreasonableness; beyond one's power; overburden; excessiveness). These concepts may be applied beyond doubt to research project management systems.

'Waste' can be sensibly cut if we avoid repeating research that simply duplicates the results of pre-existing research or avoid research that does not bring any added value to the interested stakeholders.

'Lack of uniformity' can be reduced by spreading and applying standard data collection and archiving procedures and by simplifying formats and their standardisation.

Lastly, 'overburdens' may be avoided by clearly explaining the scope of the research. In a scenario dominated by speed (not always a positive thing) and unstable conditions, including the geopolitical conditions of the countries where work is carried out, it is better to perform research which is limited in scope yet able to guarantee dissemination of its results, rather than embark on highly complex projects requiring management skills and efforts which are not always on hand (where Lean/Agile project management would be required).

The perspective that should be taken is waste reduction, learning to do more with less: less waste (time, money, transport, etc.) is helpful in situations where funds are low and ample visibility needs to be given to the research results.

¹¹⁾ See Womack *et alii* 1991.

¹²⁾ See Schwaber 2004.

¹³⁾ Anderson 2010.

Once again, however, it is important not to take the 'cargo cult' approach, which would be to reproduce patterns and practices unconsciously, without deeply comprehending the underlying principles.

Conclusions

The resources provided by the web and digital technologies may represent, broadly speaking, useful tools for carrying out research and projects in the field of ANE archaeology and archaeological disciplines in general. For this reason, we have provided a list of references, divided into different categories, which may be of use to scholars and students.

However, our intention has also been to put forward a number of ideas on the mechanisms underlying the use of digital tools, together with examples from the cognitive and ethno-anthropological field: starting to use new tools has an impact on previous thinking patterns and can lead to significant changes in the cognitive processes involved in the research activities. This is why we are interested in supporting critical and conscious use of new digital technologies, so as to use them to the best of their abilities and be highly aware of the effects they may have.

Our study ends by examining what we can learn from the ICT disciplines that develop these powerful tools: ICT methodological considerations have focused on the adoption of Lean/Agile methodologies for the past ten years. Our study provides insights aimed at encouraging interdisciplinarity and improving, with a lean approach, the way we plan and manage the processes and activities involved in ANE archaeology research and projects.

Bibliographic references

- AKERMAN, K. – "To make a point: ethnographic reality and the ethnographic and experimental replication of Australian macroliths known as Leilira", in *Australian Archaeology*, 64, 2007, pp. 23-34.
- ANDERSON, D.J. – *Kanban: successful evolutionary change for your technology business*, 2010, Blue Hole Press, Sequim.
- COOPER, Z., BOWDLER, S. – "Flaked glass tools from the Andaman Islands and Australia", in *Asian perspectives*, vol. 37, no. 1, 1998, pp. 74-83.
- FEYNMAN, R., LEIGHTON, R. (eds) – *Surely You're Joking, Mr. Feynman!: Adventures of a Curious Character*, 1997, W.W. Norton & Company, New York.
- HARRISON R. – "Nowadays with glass": regional variation in Aboriginal bottle glass artefacts from Western Australia", in *Archaeology in Oceania*, 35, 2000, pp. 34-47.
- HARRISON, R. – "Australia's Iron Age: Aboriginal post-contact metal artefacts from Old Lamboo Station, Southeast Kimberley, Western Australia", in *Australasian Historical Archaeology*, 20, 2002, pp. 67-76.
- JONES, CHR., RAMANU, R., CROSS, S., HEALING, G. – "Net Generation or Digital Natives: Is there a distinct new generation entering University?" in *Computers & education* 54, 2010, pp. 722-732.
- LINDSTROM, L. – *Cargo Cult: Strange Stories of desire from Melanesia and beyond*, 1993, University of Hawaii Press, Honolulu.
- NICHOLAS, D., ROWLANDS, I., CLARCK, D., WILLIAMS, P. – "Google Generation II: web behaviour experiments with the BBC", in *Aslib Preceedings: New Information Perspectives* 63/1, 2011, pp. 28-45.

PARENTI, R., GILENTO, P., CECCARONI, F. – "Three-Dimensional data and the recording of material structure", in *Proceedings of the 4th ISPRS International Workshop 3D-ARCH 2011: 3D Virtual Reconstruction and Visualization of Complex Architectures*, Trento, Italy, 2-5 March 2011, Vol. XXXVIII-5/W16, 2011, pp. 405-412.

PRESNKY, M. – "Digital Natives, Digital Immigrants", in *On the Horizon* 9/5, 2001.

SCHWABER, K. – *Agile Project Management with Scrum*, 2004, Microsoft Press, Redmond.

WOMACK, J.P., JONES, D.T., ROOS, D. – *The machine that changed the world: the story of lean production*, 1991, Harper Business, New York.

WORSLEY, P. – *The trumpet shall sound: a study of "cargo" cults in Melanesia*, 1968, Schocken Books, New York.

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DIGITAL RESOURCES IN MIDDLE EASTERN STUDIES

Birte KRISTIANSEN
Leiden University Library

1. THE DIGITAL LANDSCAPE AND DEVELOPMENTS IN DIGITAL PUBLISHING

1.1 Digital resources

The challenge of writing an article on 'digital' resources for Middle Eastern studies, is that 'digital' in itself is a rather haphazard category for the classification of research material. What is or is not available digitally is more or less based on coincidence. Some publishers are more eager to digitize their output than others for instance, or a specific library might have received a large grant for digitization of its manuscripts; there is not always a straightforward logic behind digital availability. The digital landscape is also changing daily, something that may today only be available in print may be digitally available tomorrow — or indeed the other way round, if certain websites after a while are no longer supported. Having said this, the desire to somehow get an overview of digitally available material in Middle Eastern Studies is understandable because the infrastructure developed for paper only works in part for digital information. In most traditional journals for instance, websites, weblogs and other 'digital-born' output is not part of the review process, whereas in fact the information contained there might be as valuable or more so than publications appearing in print or at least within the sphere of 'traditional publication'. So how do we find our way around the internet?

I will attempt in this article to create an overview of the different forms of digital information. And within that overview I will give examples of websites and sources which I consider useful. However, it will not be an attempt to list as many sources as possible; rather to provide the tools to

find them. I hope that by drawing a ‘road map’ (from a librarian’s point of view) it will become a little easier to navigate through the digital landscape. In this overview I will not include pirate websites which offer books or publications without the permission of the author or publisher, like The Pirate Bay. Having said this I do realize that there exists tension between internet access and copyright issues on a much broader scale, also including more generally accepted websites like Google Books.

1.2 Paid versus ‘free’ sources

Digital in this context includes basically everything that appears on one’s screen – versus sources in some physical form like books, manuscripts, papyri, coins, inscriptions etc. Digital only refers to the shape of the material, the term does not tell you anything about the content, the quality or indeed accessibility. And this accessibility is the first topic to clarify.

There is a divide between digital information that is only available through subscription, and information that is freely available to everyone on the internet. This might seem very straightforward but it is not always as clear when working within a university network. University libraries pay for subscriptions and therefore within the university network, accessing paid-for information may be (almost) as easy as accessing free-to-all information. So in their daily routine most scholars do not think too much about how access is provided, and which enormous amounts their universities invest to provide this access. The practical implications of all this for the current article is that some readers might not have access to part of the sources that I will describe. That also immediately explains the real problem, namely that this limited accessibility inhibits scholarly communication. Because – though the information is digital and therefore very easy to distribute – these technical possibilities do not automatically translate into an optimal use of the newly created options.

1.3 Debates on publishing traditions

It is obvious that there is a contradiction in this whole access issue. Firstly because scholarly journals were once created to distribute scholarly information, so in an ideal world the internet would have provided the ultimate tool. In reality, blocking access is now among the core business of scholarly publishers. Secondly there is a contradiction in the fact that researchers at universities do research, and then universities purchase the results back. Of course publishers add value so it is logical that their efforts should be compensated. The discussion revolves around the question whether the (sometimes large) commercial profits that are being made are acceptable in this context and also if the system is not over-complicating scholarly communication. The third reason why the current publication system is inhibiting research is that a lot of new technologies like data and text mining fail to work or are greatly inhibited if information is locked behind pay-walls. And another objection often mentioned is that the options that digital publishing offers are rarely used to the full extent: digital journal articles tend to be presented as if they were printed on paper. Possibilities such as linking the research data, linking to cited articles, or other options for so-called enriched publications are only used sparsely. The

above objections resulted in the Open Access movement. Many of the big players in the field like universities and university libraries, grant suppliers, the European Union, Governments and even publishers to some extent agree that Open Access should be the logical way ahead. However, nobody is yet sure how to achieve this and how to unwind this very complicated infrastructure of publishing that now exists. It is however fairly sure that most scholars will in the near future be confronted with Open Access issues, for instance in the form of grant suppliers’ demands for Open Access publication. But since Open Access is not the focus of this article I will not elaborate on these issues. For those who would like to get a quick update on why many people support Open Access, I suggest watching the eight minute YouTube film “Open Access explained” (<http://www.youtube.com/watch?v=L5rVH1KGBCY>). For those who would like to understand more about the practical problems *Nature* offers some very good articles in their special issue: *The future of publishing* [OA]. (<http://www.nature.com/news/specials/scipublishing/index.html>).

In this article whenever a source is freely available to all I will add [OA], meaning Open Access. If publications are only available through subscription I will add [LS], meaning library subscription.

Apart from the above mentioned initiatives set up by educational institutes and funders, there are also some social network initiatives that try to break open current publishing traditions: most notably Research Gate (www.researchgate.net) and Academia (www.academia.edu). By giving researchers the opportunity to connect in a more direct way it is hoped information is transmitted more directly as well. Apart from offering opportunities for sharing publications, it also creates opportunities to share research that never quite reached the level of a publication, like unpublished conference papers.

1.4. Navigating the landscape through the library

Libraries have developed all kinds of initiatives to make information more accessible. I will discuss here four products that came out of the wish to organize information including information that is freely available on the web: Catalogues, Discovery Systems, Information Portals, and library guides.

1.4.1. Library catalogues

Clearly most researchers use the catalogue of their own university library to check availability and – if available – access the sources they need. However, catalogues can be used for other purposes as well. First of all there are the national library catalogues of Middle Eastern Countries (or those from very large libraries like Bibliotheca Alexandrina). Though in most Middle Eastern countries the national depots are not as complete as we would like them to be, they are still in fact our best source to find out what was printed in a certain country. Especially by searching different national catalogues together with maybe some of the Western libraries that have large collections or a large online bookstore like Neel wa Furat (<http://www.neelwafurat.com/>) will really help you determine what has been published.

I will not mention all the separate catalogues here (you can find them easily by searching for “national library” plus

country name in a search engine), but three that are surely worth a visit are:

Bibliotheca Alexandrina http://www.bibalex.org/Home/Default_EN.aspx [OA]

National Library of Turkey <http://mkutup.gov.tr/tr/Sayfa-lar/default.aspx> [OA]

National Library of Iran <http://old.nlai.ir/> [OA]

Secondly there are several 'super' catalogues which combine the collections of different libraries. Some countries have national library catalogues which hold the collections of the national library, university libraries, museums or other research institutes, for instance the Dutch Picarta [LS]. One size larger is the European Library (<http://www.theeuropeanlibrary.org>) [OA] which harvests many European scientific libraries and even bigger is WorldCat (www.worldcat.org) [OA]. WorldCat offers not only books but also articles, so it can be used as a bibliography. Moreover WorldCat allows searching in different scripts like Arabic or Persian. One thing to keep in mind here however, is that one book might have different entries in WorldCat and this is even more true for books in different scripts or transliterations. This occurs because the system does not always recognize the entries from different libraries as the same book. So the first item in the search results list may indicate that the requested title is not available in a nearby library. But scrolling down, there might be a second or third item which is available nearby or in digital form. A particularly nice feature of WorldCat is WorldCat Identities (<http://www.worldcat.org/identities/>) [OA]. This is a service that provides information on 'identities' in WorldCat, including authors, corporations and (fictitious) characters names in WorldCat, including *noms de plume*, organizations and fictitious characters. Publications by and about a given person, as well as worldwide availability/distribution of these publications are listed. Though by no means an absolute measurement, it does give some indication of the impact of certain books or certain people.

1.4.2. Discovery Systems

More and more libraries are exchanging their catalogues for a discovery system. This has some disadvantages and many advantages. In short it works as follows: information from a large variety of sources, like catalogues, indexes, bibliographies, e-journal portals, e-book portals, open access sources etc. are stored in the cloud (by the provider of the discovery software). Libraries with a discovery system can then 'plug in' to these sources. So if a library has a subscription to, for instance, JSTOR they can 'plug in' to the JSTOR database and this will allow library users to search – within one search – the collection of their own library as well as the JSTOR collection. In an ideal world, one would eventually be able to search all worthwhile resources including digitalized manuscripts spread around the web, open access repositories, e-journal portals, e-book portals and bibliographies etc. in one search. This situation is still a utopia, but new collections are added almost daily and search technology is still improving, so it does seem that this way of searching might well be the way ahead. If your library does not have a discovery system, you can use the discovery system of a different library in the way you would use a bibliography: it does not provide direct information about availability, but it does give information about the existence of a certain publication.

1.4.3. Library Guides

Library guides (also named libguides or research guides) are created by subject librarians around the world and they contain many links to relevant sources. Generally both paid for and free sources are mentioned in these guides. Of course there is no guarantee that any given library offers all the subscription-based sources mentioned. However, even without direct access it might still be useful to know that a specific source exists. More importantly, library guides usually hold many free sources as well. So, to get an overview of literature on 'the Arab spring', it is useful to search with Google on "library guide Arab spring". This will direct you, amongst others, towards the library guide of Cornell University with a very nice overview on articles worth reading and websites worth visiting (many of them digitally available for free): <http://guides.library.cornell.edu/content.php?pid=259276&sid=2139371> [OA]. Clearly this way of searching works for different topics as well, though not necessarily for all topics.

Some useful examples of quite extensive library guides are listed below [OA]:

Duke University Libraries <http://guides.library.duke.edu/content.php?pid=17491&sid=118862>

University of Pittsburgh Library System <http://pitt.libguides.com/content.php?pid=368590&sid=4360266>

Brown University Library <http://libguides.brown.edu/MES>

University of California, Los Angeles Library <http://guides.library.ucla.edu/content.php?pid=22907&sid=275978>

University of Michigan Library <http://guides.lib.umich.edu/islamicmsstudies> (focus on manuscripts)

University of Illinois Library <http://www.library.illinois.edu/ias/middleeasterncollection/index.html> (including a lot of information on national bibliographies)

1.4.4. Portals

A cross between a portal and a weblog is Access to Middle East and Islamic Resources AMIR <http://amirmideast.blogspot.nl/> [OA]. This weblog attempts to keep track of what's appearing in Open Access on Middle Eastern Studies. It is regularly updated and the posts are labelled. So when looking for a specific topic, click on the relevant label to view a list of posts on this topic.

The counterpart of AMIR for Ancient Near Eastern Studies is AWOL: Ancient World Online <http://ancientworldonline.blogspot.nl>. For those researchers working on for instance pre-Islamic Arabia this is an interesting source as well.

A very extensive portal on every aspect of Middle Eastern Studies is MenaLib <http://www.menalib.de/>. Created as a virtual library for Middle Eastern Studies it has a variety of goals including a subject guide for Middle Eastern Sources, access to dissertations and a Virtual Catalogue Middle East.

Another interesting portal created by Yale University is <http://www.library.yale.edu/ameel/>

2. SCHOLARLY OUTPUT

2.1. Specific bibliographies on the Middle East

A bibliography or – more general – database in library terms usually refers to metadata of a spectrum of publications (monographs, journal articles, conference papers etc.) that are organized according to subject. Generally these databases do not hold the actual content, they only hold the metadata, so it can provide you with information on publications on a certain topic.

Index Islamicus [LS] is a bibliography on publications in European languages on all aspects of Islam and the Middle East. This database content is offered on different platforms like Brill, ProQuest and Ebsco. Larger university libraries on Middle Eastern Studies will usually provide access through one of these platforms. One of the nice search features to mention here, that is available on the Brill platform, is using ~ (tilde). By adding ~ to a word, search results will include all words that are similar and will therefore include different transliterations. So *Ibn Batuta~* will also find *Ibn Battuta*, *Ibn Batouta* and even uncommon transliterations like *Ibn Batoutah* (this search options works for several of the Brill products).

Oxford Bibliographies: Islamic Studies [LS]. Oxford Bibliographies offers research guides including bibliographies on a variety of subjects including Islamic Studies. This source provides a very good oversight of the most important literature that should be consulted on a specific subject. So this is an ideal starting point for subjects that one is not very familiar with and also for teaching purposes. For more in depth research on a specialized topic it is probably too basic.

Mamluk Bibliography Online [OA]. <http://www.multidatonline.com/>
Specifically on Mamluk Studies the University of Chicago has developed a very good bibliography in a still ongoing project.

Bibliography of Arabic Books Online [LS]

This fairly new bibliography by Brill is a valuable addition to the existing indexes on Middle Eastern Studies because it focuses on books in Arabic (rather than Western scholarship about Arabic). The aim of the bibliography is to contain all books published before 1960 in Arabic.

Bibliography of Asian Studies [LS]

Though mostly aimed at the Far East, it holds information on Central Asia as well. It might also be an interesting source for interdisciplinary research on Asia or Islam.

2.2 Other bibliographies

Apart from the databases specifically on the Middle East there are many other databases on a variety of subjects that also include information on (Western scholarship) about the Middle East. For literary studies the **MLA** (Modern Language Association International Bibliography) [LS] is very useful. For linguistics the **Linguistic Bibliography Online** [LS] is recommended. Islam and other religions in

the Middle East can be searched through **ATLA Religion Database** [LS] and the **World Religion Database** [LS]. A useful bibliography for history of the Middle East is, amongst others, **Historical Abstracts** [LS].

2.3. E-journal portals

The databases/bibliographies described above only contain the metadata of journal articles and other publications, not the actual publication. They are very useful to find out what has been written on a certain subject, including books with very limited availability. In some cases however easy availability of a publication might play a part for instance for teaching purposes. In those cases it is easier to use e-journal or e-book portals where the publications are included. E-journal portals are generally only broadly categorized according to subject. So they might hold all the output from a specific publisher like the e-journal portals of **Brill**, **Cambridge**, **Oxford**, **Taylor & Francis**, etc. [all LS]. Another very large (non-profit) e-journal portal is **JSTOR** [LS]. JSTOR uses some categorization like a collection for arts and humanities, but e-journal portals are not so specifically tailored to one subject that there are portals exclusively for Middle Eastern Studies. The largest Open Access Journal portal is **DOAJ** (Directory of Open Access Journals) (<http://doaj.org/>). The advantage of searching through e-journal portals is immediate access to titles in the search results. The disadvantage is that search results usually do not contain all relevant titles in existence, as the available content is somewhat random.

2.4. Reference works and scholarly e-books

What is or is not digitally available as far as scholarly reference works and e-books are concerned is very much a matter of coincidence (as already mentioned in the introduction). Firstly some publishers are more active in making works available in digital form than others. Secondly purchasing e-books for libraries is not always straightforward. Some publishers do not offer individual e-books but only combined packages (so libraries end up paying for publications that they would not otherwise have selected). It also differs from one publisher to the next whether e-books are similarly priced to the printed edition or much more expensive. Lastly the platforms on which books are offered maintain very different strategies, so in some cases books can be easily downloaded; in other cases they can only be 'borrowed', thus not stored on individual computers. All these factors determine that the collection of e-books from libraries might seem rather unbalanced to the user.

Some of the most important reference works and e-books in Middle Eastern studies (most of these are also available in print, therefore I will not elaborate on them) are:

Encyclopaedia of Islam (1st, 2nd and 3rd edition (still under construction) [LS]

The other Brill encyclopaedias like **Encyclopaedia of the Quran**, **Encyclopaedia of Arabic Language and Linguistics**, **Encyclopaedia Women & Islamic Cultures** [LS]

Brockelmann Online [LS]

Oxford Reference [LS]

Cambridge Histories (e-books) [LS]

Cambridge reference online [LS]

Encyclopaedia Islamica <http://www.encyclopaediaislamica.com/> (in Persian OA available; the English version available on subscription through Brill)

Encyclopedia of Ancient History [LS]

The section **MENAdoc Sammlung** [OA] (<http://menadoc.bibliothek.uni-halle.de>) of MenaLib holds not only many dissertations but also many (Arabic and Western) out of print or hard to find books.

There are several large Open Access e-book portals like **Project Gutenberg** (<http://www.gutenberg.org/>), **Open Library** (<https://openlibrary.org/>), and the **Hathi Trust** (<http://www.hathitrust.org/>). Especially in this last source many publications in non-Western languages can be found.

Another very nice portal is **OAPEN** (<http://www.oapen.org>). This differs from the above mentioned portals in that the books provided are scholarly works that were directly published as Open Access books (rather than printed books that were later scanned and made available).

ProQuest Dissertations and Theses [LS] offers access to American dissertations. Libraries can purchase either just the metadata file or the resource offering the full text for most of the dissertations.

2.4.1. Repositories and Dissertations

Since the 'birth' of the Open Access movement many repositories have been set up. There are two kinds of repositories: institutional repositories and subject repositories. Institutional repositories are, as the name suggests, founded by institutes like universities or research institutes. The staff of these institutes can deposit their publications in such a repository. There are however a few obstacles. The principle of green Open Access assumes that researchers will deposit their articles which have already been published by a publisher. However, understandably, publishers do not always agree to this. Often they do allow an alternative version of the article, like a pre-print or a post-print, to be deposited. Sometimes publishers allow the original to be deposited, but only to be accessed after an embargo period. Then researchers also have their reasons for not posting their articles (like lack of time or lack of interest) so even though institutional repositories are useful and hold interesting publications, they are by no means complete as far as academic output is concerned. One thing that many repositories did succeed in on a large scale, is making PhD dissertations accessible. This increasing digital availability of PhD dissertations is certainly one of the big changes in the information landscape. Before, dissertations were typically very difficult to track down unless a commercial version was published. Libraries used to have exchange schemes for dissertations, but even so the availability was generally very limited. Now, despite the often very specialised subjects, we see many hundreds or even thousands of international downloads for single dissertations.

Apart from institutional repositories there also exist subject repositories. These operate from the idea that researchers are mostly interested in subjects, not in affiliations, the more so because the latter tend to change from time to time. Through this logic subject repositories came into existence. Though in many ways they make more sense than institutional repositories good quality subject repositories are not as wide-spread as one would wish. The above mentioned portal **MenaLib** <http://www.menalib.de/> also functions as a subject repository for Middle Eastern Studies.

The website **OpenDOAR** (Directory of Open Access Repositories) www.opendoar.org lists many repositories, though again it will not be exhaustive. Repositories are however usually harvested by several search engines, for instance Google (Scholar) will search most of these repositories. Many repositories are also harvested by the European Library (<http://www.theeuropeanlibrary.org>), making this a good place to search for (fairly recent) European dissertations as well. To find (American) dissertations and theses you can use the portal **PQDTOpen** ProQuest Dissertations and Theses Open (<http://pqdtopen.proquest.com/pqdtopen/search.html>).

3. PRIMARY SOURCE MATERIAL

Increasingly databases become available with (primary) source materials in them, for example databases with manuscripts, inscriptions, papyri etc. Because – where old materials are concerned – there are generally no copyright issues involved, it is relatively cheap (mostly scanning and platform cost) to set up these databases, and therefore quite a lot are made available in Open Access. However if funding could not be found, sometimes publishers have taken the costs of scanning the material upon them and these databases can be acquired.

3.1. E-Books in Middle Eastern Languages

This category falls between primary and secondary sources, because clearly it is possible that scholarly texts happen to be in a non-Western language. However most books that are digitally available probably fit better in the category of source texts like Classical literature or texts on Islam.

A very extensive source is **AskZad** [LS] offered on a ProQuest forum. This source holds around 25 thousand hard to find books. It also contains many other formats like academic journals, Arabic newspapers, and conference papers.

Al-Waraq (<http://www.alwaraq.net>) [OA] is a very big free library with a broad variety of texts. The website offers some search facilities so you can look for specific words in all the texts or a selection. It is a great and very extensive resource for Arabic texts.

Al-Maktaba al-Shamela (<http://shamela.ws/>) [OA] is another online library. Whereas al-Waraq seems mostly aimed at searching within texts, al-Shamela aims at downloading full books. The books are available as rar or zip files and need to be 'unpacked'.

Turkish e-books can be found through for instance the website **E-kitap** [OA] <http://ekitap.gov.tr/>

Persian e-books can be found through for instance the website **Ketabfarsi** [OA] <http://www.ketabfarsi.org>

Specifically Islamic Books can be found at the website **al-Muhaddith** [OA] <http://www.muhammadith.org>

Persian Texts in translation (without the original) are made available through **Omphaloskepsis** <http://omphaloskepsis.com>

Early printed books in Arabic script are digitalized by a variety of projects and libraries. An extensive list is available on the **MELCOM** portal <http://www.melcominternational.org/> under the tab Libraries and Collections.

Google Books also provides access to many books in many languages. If you go to the advanced search page http://books.google.com/advanced_book_search you can select on books that can be fully downloaded.

3.2. A selection of manuscript websites and portals

The list of websites offering free access to manuscripts is very long and moreover still growing steadily. So when looking for a particular manuscript it always serves to check the (library) website of the institution where the manuscript in question is preserved or –when in doubt – contact the curator or the department responsible.

However, several people have already attempted to provide lists of websites offering manuscripts. Firstly you can find information on many of the library guides that I referred to in the beginning. Two sites worth mentioning here separately are:

Again the weblog **Access to Mideast and Islamic resources (AMIR)** <http://amirmideast.blogspot.nl/>

And also the **MELCom website** <http://www.melcominternational.org> offers an extensive list. Moreover the MELCom site does not only list virtual manuscript collections but also provides information on manuscript catalogues, projects and virtual exhibitions.

3.3. Visual Arts

ARTstor [LS] is a elaborate portal for a large variety of arts. All images are of good quality and have a high resolution. The images can be used freely for non-commercial purposes like presentations for teaching and student papers. Re-use in publications that are widely distributed is not generally allowed, but ARTstor does offer a service called “Images for Academic Publishing” that intends to facilitate the process of re-use of their content. ARTstor offers a subject guide for Middle Eastern Studies. New content is constantly being added. www.artstor.org

Europeana [OA] is a portal funded by the European Union which provides access to a wealth of Open Access content that is generated by institutes around Europe. The scope of both the providers and the content is so broad that it would be hard to summarize, but at least the visual arts are well represented. Furthermore all material is available for free and quite a lot of the material can be freely re-used even in publications, so that makes this an interesting source as well. www.europeana.eu

Saudi Aramco World Digital Image Archive [OA] offers around 40.000 photographs. Access to this site is free, but signing up is required. <http://photoarchive.saudiaramcoworld.com/>. Of course for photographs on almost any topic it can also be worthwhile to search the very large archives of amateur photographers like **Flickr** (www.flickr.com) and **PBase** (www.pbase.com).

3.4. Islamic sources

There are many sites offering access to the Quran and Hadith. One very extensive site providing resources is <http://islam.uga.edu/hadith.html#library> [OA]. A searchable data-

base of hadith is provided by the University of Southern California <https://www.usc.edu/org/cmje/religious-texts/hadith/> [OA]. Probably the most complete website providing tafsir is www.tafsir.com [OA]. An extensive list of websites that can be of interest when studying Islam can be found at a website created by prof. Alan Godlas of the University of Georgia: <http://islam.uga.edu/>

3.5. Papyri

The **Arabic Papyrology Database** [OA] is, as far as I am aware, the most complete source for Arabic papyri. The database is built by several universities with the support of the Andrew Mellon Foundation and therefore the material can be made available for free. <http://orientw.uzh.ch:8080/apd/project.jsp>

For papyri in general the website **Papyri.info** (<http://papyri.info>) is very useful. There are plans to incorporate the APD within this system.

3.6. Inscriptions

In the case of (Arabic) inscriptions there are different databases and the way of assembling also differs. In some cases (current) country borders are a defining factor; in other cases the definition is determined by the use of a certain script or a civilisation.

The **Digital Archive for the Study of pre-Islamic Arabian Inscriptions** [OA] currently provides access to around six thousand inscriptions: <http://dasi.humnet.unipi.it/>

InscriptiFact [OA] is a broad database containing inscriptions from around all of the Near East, but mostly falling into the category of ‘Ancient Near East’. This database can be used free of charge, but registration is required: <http://www.inscriptifact.com>

Ottoman inscriptions are collected in the **Database for Ottoman Inscriptions**: <http://www.ottomaninscriptions.com>

An example of a database determined by geography is the **database Inscriptions of Israel/Palestine** <http://library.brown.edu/cds/projects/iip/search>. This database is mostly in the field of Ancient Near Eastern Studies.

3.7. Data collections

Increasingly research data are made available by the researchers after they have finished their research on those data. Though of course this is different from the primary sources discussed above, it is worth mentioning this trend here. Funding agencies now often demand that researchers provide a data management plan as part of their application. This plan must hold a vision on how data are stored while the research is taking place but more importantly what happens to the data after the research has finished. In this way funding agencies hope to decrease the chances of research fraud on the one hand and to optimize the use of data by offering the possibility to recycle them on the other. In the area of Middle Eastern Studies mostly scholars working in areas like sociology and anthropology of the Middle East will find themselves confronted with these developments. The website <http://databib.org/> offers a list of available data-databases. However the data on Middle

Eastern and Islamic Studies will be stored somewhere in multidisciplinary databases, so the mentioned list will help you track down these databases but you will have to search them individually to find out if there is something worth using inside. The storage of data does not directly indicate that these data are freely accessible and reusable. Often it will still be necessary to ask for permission to use these data.

3.8. Primary sources available through (paid) subscription

Some publishers also offer paid access to primary sources. Even if no copyright issues are involved regarding the content itself, the process of scanning and providing a platform with search options etc. still needs to offering the content free of charge to the user, paying for access creates possibilities to digitize primary source material. I will not go into this topic too much but just offer a few examples. For instance the core manuscript collections of Leiden University Library were digitized by Brill and are available as **MEMO 1** and **MEMO 2** (see for more information the primary sources that Brill offers: www.brill.com). Another example of paid primary sources are (the online editions of) the Cambridge Archive Editions.

3.9. Newspapers

Newspapers are an example of primary sources that do fall under copyright laws. For this reason many Western newspapers and (recent) newspaper archives are only available through library subscription. Older papers more often are freely available. The Wikipedia entry **List of online newspaper archives** (http://en.wikipedia.org/wiki/Wikipedia:List_of_online_newspaper_archives) offers a fairly good and updated overview for Western newspaper archives. For newspapers from the Middle East in Middle Eastern languages it is often easiest to visit the website of a specific newspaper and check whether archival information is available. There are some lists available mentioning newspapers per country like <http://www.arabic-media.com/arabicnews.htm> or <http://www.al-bab.com/arab/newspapers.htm>. Subscription databases holding newspapers are **ProQuest's Middle East Newsstand** [LS] and **Mideastwire.com** [LS]. This last service is mostly aimed at translating the most important news articles from a variety of Middle Eastern newspapers into English.

3.10. Way Back Machine (<https://archive.org/>)

Internet Archive is a very large archive that enables access to old versions of selected websites. Of course it is impossible to hold on to everything ever published on the internet, but with more and more digitally-born articles and data appearing daily, it is a good thing that there is an effort to archive at least some of this material. On a general note you can depend on it that if articles have a DOI (Digital Object Identifier) or a persistent handle (which will usually be the case if stored in a repository) that you can find them back, so refer to them as you would to printed material. However if you use internet information as data you do have to create an archive with these data to keep the research valid and verifiable. An article like the current article will very likely soon be confronted with the first dead links.

Keeping updated?

In this age of digitization much more information has become available and accessible than ever before. However our search strategies have generally not evolved as quickly as technology has. Tools like search engines and discovery systems are there to help us in this respect, but to really find specific information it is often necessary to go to specialized portals and resources. I have attempted in this article to explain some of the infrastructure of digital information in Middle Eastern Studies. In this way the reader may use general search engines like Google or Startpage or Yamli to lead them to, for instance, a manuscript database. Within that database one can look for more specific information on a particular manuscript. This way of approaching a search will often give much better search results. Training oneself in understanding the infrastructure and smart searching strategies will in the end probably work better than endlessly trying to keep track of and list new sources, because there are simply so many of them. Having said this, it would be very useful to develop more interaction between traditional publishing and new ways of knowledge distribution. For instance, including websites and weblogs in the process of referencing sources in journals on a regular basis would be a very good start.

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SOME DIGITAL RESOURCES FOR THE STUDY OF THE MIDDLE EAST

Ronald E. KON
Leiden University

Preliminary remarks:

The following can only be a first tentative and modest inventory of the wealth of constantly expanding (and disappearing or only temporarily available) material on the Internet. All the sites have been accessed today as a last check of availability. On that basis I slightly annotated the entries. No value judgement is being expressed, nor any hierarchy of importance suggested. With "the study of the Middle East" is meant the section that is not covered by the other specialists' fields within *Bibliotheca Orientalis*. And, of course, certain restrictions will be visible in the scope of this vast field of studies as covered by *BiOr*. I have not tried to be exhaustive in summing up web-based resources like (paid or free access, generally accessible or only so by logging in) online databases, websites, datasets, e-book and e-journal portals and other forms of organising and presenting material on the Internet. Only a glimpse of what the Arab, Turkish and Iranian world have available is touched upon. Users of university libraries will be helped by their respective specialists for more (re)search tools*). As far as possible I have tried

*) I gratefully acknowledge here the kind help of Mrs Liesbeth Zack of Amsterdam University, Rudolf de Jong of the NVIC at Cairo, and Joep Lameer who let me look over his shoulder while he was doing his research on Islamic philosophy.

to restrict myself to material that — as far as this criterion applies — is copyright protected. In the near future a more refined and regularly — and perhaps even interactively-updatable inventory than I can offer now might be called for. More neat and clear cut disciplinary divisions can be introduced then.

An inventory:

<http://www.alwaraq.net/> presents itself as an e-book library with more than 1.000 classical texts that “form the Arabic heritage pillars”.

http://www.arabworldbooks.com/E-Books/e_books.html offers electronic books on the Arab world in Word and pdf files in zip format for personal use.

www.almanhal.com is an e-book and e-journal portal quickly developing as a paid source. “Al Manhal offers full-text searchable electronic databases of books, journals, dissertations, and reports from the Arab world.”

<http://menadoc.bibliothek.uni-halle.de/ssg> is the digital Middle East and North Africa Special Area Collection of ULB Halle, containing at present more than 3050 volumes.

<http://menadoc.bibliothek.uni-halle.de/dmg/periodical/structure/2327> contains the digitally accessible volumes of *ZDMG* as of 1847.

http://poj.peeters-leuven.be/content.php?url=journal&journal_code=bior offers the digital version of *Bibliotheca Orientalis*.

<http://arabicorpus.byu.edu/index.php> is “the Arabic corpus for the rest of us”. One has to register before being granted access.

<http://www.ifao.egnet.net/bifao/> is the site of IFAO, containing much more than just their catalogue and publications.

<http://mamluk.lib.uchicago.edu/> describes itself as follows: “The Chicago Online Bibliography of Mamluk Studies is an on-going project of the Middle East Documentation Center at the University of Chicago, the aim of which is to compile comprehensive bibliographies of all primary sources relating to the Mamluk sultanate of Egypt and Syria, as well as all research and discussion—scholarly and popular—germane to the subject. The project takes the form of two bibliographies: the primary and the secondary.”

<http://www.ieiop.csic.es/publicaciones/listado.php?idcategoria=22> was not accessible, but is generally considered to be a useful site in Spanish.

<http://www.semarch.uni-hd.de/index.php43> describes its scope and importance as follows. The researcher will find “[a]uf den Seiten des Tondokumente-Archivs (SemArch) der Semistik an der Universität Heidelberg” digitally archived linguistic recordings. “SemArch ist ein von der DFG gefördertes Projekt zur digitalen Archivierung von Tonaufnahmen semitischer Sprachen und Dialekte und deren Publizierung im Internet.”

<http://terpconnect.umd.edu/~nlynn/AVIA/Level3/> is produced by the Center for Advanced Study of Language, University of Maryland, “for the urban Arabic dialects spoken in the United Arab Emirates, Jidda (Hijaz, Saudi Arabia), Jerusalem

(Palestinian Arabic), Baghdad (Iraq), Kuwait, Qatar and San‘a (Yemen)”. AVIA stands for Arabic Variant Identification Aid.

<http://www.semiticroots.net/> describes itself under its “About” tab as follows: “This repository is dedicated to documenting and modelling every single aspect of the Semitic languages. The main database holds a record of all known roots that have been entered so far, and gives many criteria by which to search and compare them.”

http://sydney.edu.au/arts/research_projects/sibawiki/homepage/ digitizes the works of the grammarian Sībawayh and other texts in the field of Arabic linguistics.

http://ejtaal.net/aa/#HW=169,LL=2_131,LS=2,HA=123 offers the 4th edition of the Arabic dictionary of Hans Wehr.

<http://bibliographies.brillonline.com/browse/index-islamicus> is where the researcher will find Index Islamicus Online, which is, as it reads on the site itself, “THE international classified bibliography of publications in European languages on all aspects of Islam and the Muslim world”. “Presently, Index Islamicus contains over 400,000 records, covering all the main Muslim areas of Asia and Africa, as well as Muslims living elsewhere and their history, beliefs, societies, cultures, languages and literatures.”

<http://www.al-eman.com/> offers —as the self styled *Mawqi‘ kulli l-muslimin*—“the site of all Muslims”- an encyclopaedic approach to texts on Islam.

<http://www.islamport.com/> offers texts of/on, a.o., the Qur‘ān, *tafsīr*, *ḥadīth*, *sīra*, *ṭabaqāt*, and *fiqh*, but does not restrict itself to these texts, as also texts on Arabic as a language can be found.

<http://www.muslimphilosophy.com/ip/hijri.htm> seems to be the most reliable site for the “conversion of Hijri A.H. (Islamic) and A. D. Christian (Gregorian) dates”, and in this sense a useful tool for, a.o., historians of the Middle East.

<https://www.fourmilab.ch/documents/calendar/> is also a calendar converter.

<http://www.noorlib.ir/View/en/Default> is an Iranian library website offering important works on Islamic philosophy.

<http://noorsoft.org/index.php?newlang=english> concentrates on Shi‘i Islam.

<http://plato.stanford.edu/>: “The Stanford Encyclopedia of Philosophy organizes scholars from around the world in philosophy and related disciplines to create and maintain an up-to-date reference work.” Much on Islamic philosophy will be found here.

www.dare.uni-koeln.de. Launched in February 2010 by the Thomas-Institut at Köln, “The Digital Averroes Research Environment (DARE) collects and edits the works of the Andalusian Philosopher Averroes”. “DARE makes accessible online digital editions of Averroes’s works, and images of all textual witnesses, including manuscripts, incunabula, and early prints. Averroes’s writings and the scholarly literature are documented in a bibliographical database.” “At the same time, DARE is a research platform, giving scholars who work on Averroes the opportunity to present their research and to discuss questions related to Averroes’s thought in the Forum. A collaborative, evolving, and open-ended project

hosted by DARE is the Averroes Encyclopaedia, designed to document Averroes's philosophical, scientific and technical vocabulary."

<http://ima.bibalex.org/IMA/presentation/author/list.jsf> is the "bibliothèque numérique" of the Institut du Monde Arabe at Paris.

<http://ema.revues.org/?lang=en> presents, in its own words "*Egypte/Monde arabe*" as "a social sciences review published in Cairo by the CEDEJ, and is aimed at professional researchers and non-researchers keen on understanding the tensions and changes affecting the contemporary Arab and Muslim world, and particularly Egypt." Although falling slightly outside the BiOr scope it was considered nevertheless worthwhile mentioning.

<http://www.academia.edu/> represents a "growing community of 11,472,852 academics" who share papers, can read analytics of profiles and papers. Besides, the site enables subscribers "to follow other people in your field". In this way it can be considered to be a helpful research tool.

<http://oapen.org/home>: "The OAPEN Foundation is a non-profit foundation dedicated to Open Access publishing of academic books. OAPEN provides a platform for the full text dissemination of Open Access books and provides services to publishers and libraries. OAPEN builds a quality controlled collection of Open Access books, mainly in the area of Humanities and Social Sciences, and develops services for publishers, libraries and research funders in the areas of dissemination, quality assurance and digital preservation."

<https://archive.org/index.php> "is a non-profit digital library offering free universal access to books, movies & music, as well as 419 billion **archived** web pages."

<http://cleo.openedition.org/>. As the site mentions: "[l]e Cléo est la structure qui développe le portail OpenEdition, un ensemble de plateformes de ressources électronique en sciences humaines et sociales."

For KONTEKST at Mheer, the Netherlands
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