

NEH Application Cover Sheet

Digital Humanities Start-up Grants

PROJECT DIRECTOR

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Field of Expertise: History: Ancient History

INSTITUTION

The Catholic University of America
Washington, DC UNITED STATES

APPLICATION INFORMATION

Title: *Developing a Protocol for the Study of Ancient Translations*

Grant Period: From 5/2014 to 5/2015

Field of Project: Languages: Ancient Languages

Description of Project: In this project we propose to begin to develop a protocol for computer-based, scholarly analysis of ancient translations. Although we intend the protocol to be extended to many languages, our project will focus on Greek and Syriac, which, because of their complexity, their dissimilarity, and their joint importance to literary culture, promise great difficulties and great rewards. Preparatory work, coupled with a two-day workshop, will bring together experts from far-flung fields (1) to determine a set of best practices to help scholars prepare conformant text/translation, morphology, and word alignment files that can be interoperably shared for research; (2) to explore the technological, linguistic, and scholarly challenges that face such a project; and (3) to plan further development, such as refinement of the project's standards, development of digital tools, extension to other languages, and so forth.

BUDGET

Outright Request	\$25,551.84	Cost Sharing	\$2,300.00
Matching Request		Total Budget	\$27,851.84
Total NEH	\$25,551.84		

GRANT ADMINISTRATOR

Dr. Robin Darling Young
Associate Professor
620 Michigan Ave. NE
Washington, DC 20064-0001
UNITED STATES

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Phone(W): 202-319-8698
Fax: 202-319-5704

APPLICATION FOR FEDERAL DOMESTIC ASSISTANCE - Short Organizational	
* 1. NAME OF FEDERAL AGENCY: National Endowment for the Humanities	
2. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 45.169	
CFDA TITLE: Promotion of the Humanities_Office of Digital Humanities	
* 3. DATE RECEIVED: 09/12/2013	SYSTEM USE ONLY
* 4. FUNDING OPPORTUNITY NUMBER: 20130912-HD	
* TITLE: Digital Humanities Start-up Grants	
5. APPLICANT INFORMATION	
* a. Legal Name: The Catholic University of America	
b. Address:	
* Street1: 620 Michigan Ave. NE	Street2:
* City: Washington	County/Parish:
* State: DC: District of Columbia	Province:
* Country: USA: UNITED STATES	* Zip/Postal Code: 20064-0001
c. Web Address: http:// cua.edu	
* d. Type of Applicant: Select Applicant Type Code(s): O: Private Institution of Higher Education Type of Applicant: Type of Applicant: * Other (specify):	* e. Employer/Taxpayer Identification Number (EIN/TIN): 53-0196583 * f. Organizational DUNS: 0419627880000 * g. Congressional District of Applicant: DC-001
6. PROJECT INFORMATION	
* a. Project Title: Developing a Protocol for the Study of Ancient Translations	
* b. Project Description: In this project we propose to begin to develop a protocol for computer-based, scholarly analysis of ancient translations. Although we intend the protocol to be extended to many languages, our project will focus on Greek and Syriac, which, because of their complexity, their dissimilarity, and their joint importance to literary culture, promise great difficulties and great rewards. Preparatory work, coupled with a two-day workshop, will bring together experts from far-flung fields (1) to determine a set of best practices to help scholars prepare conformant text/translation, morphology, and word alignment files that can be interoperably shared for research; (2) to explore the technological, linguistic, and scholarly challenges that face such a project; and (3) to plan further development, such as refinement of the project's standards, development of digital tools, extension to other languages, and so forth.	
c. Proposed Project: * Start Date: 05/01/2014 * End Date: 05/01/2015	

APPLICATION FOR FEDERAL DOMESTIC ASSISTANCE - Short Organizational

7. PROJECT DIRECTOR

Prefix: Dr.	* First Name: Joel	Middle Name:
* Last Name: Kalvesmaki	Suffix:	
* Title: Editor in Byzantine Studies Dumbarton Oaks	* Email: KalvesmakiJ@doaks.org	
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* City: Washington	County/Parish:	
* State: DC: District of Columbia	Province:	
* Country: USA: UNITED STATES	* Zip/Postal Code: 20007-2934	

8. PRIMARY CONTACT/GRANTS ADMINISTRATOR

<input type="checkbox"/> Same as Project Director (skip to item 9):		
Prefix: Dr.	* First Name: Robin	Middle Name: Darling
* Last Name: Young	Suffix:	
* Title: Associate Professor	* Email: youngnr@cua.edu	
* Telephone Number: 202-319-8698	Fax Number: 202-319-5704	
* Street1: 620 Michigan Ave. NE	Street2:	
* City: Washington	County/Parish:	
* State: DC: District of Columbia	Province:	
* Country: USA: UNITED STATES	* Zip/Postal Code: 20064-0001	

APPLICATION FOR FEDERAL DOMESTIC ASSISTANCE - Short Organizational

9. * By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties (U.S. Code, Title 218, Section 1001)

** I Agree

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

AUTHORIZED REPRESENTATIVE

Prefix: <input type="text" value="Mr."/>	* First Name: <input type="text" value="Ralph"/>	Middle Name: <input type="text"/>
* Last Name: <input type="text" value="Albano"/>	Suffix: <input type="text"/>	
* Title: <input type="text" value="Associate Provost for Research"/>	* Email: <input type="text" value="albano@cua.edu"/>	
* Telephone Number: <input type="text" value="202-319-5218"/>	Fax Number: <input type="text" value="202-319-4495"/>	
* Signature of Authorized Representative: <input type="text" value="Ralph Albano"/>	* Date Signed: <input type="text" value="09/12/2013"/>	

Supplementary Cover Sheet for NEH Grant Programs

1. Project Director Major Field of Study

2. Institution Information Type

3. Project Funding		<i>Challenge Grants Applicants Only (\$)</i>	
<i>Programs other than Challenge Grants (\$)</i>		Fiscal Year #1	<input type="text"/>
Outright Funds	<input type="text" value="25,551.84"/>	Fiscal Year #2	<input type="text"/>
Federal Match	<input type="text"/>	Fiscal Year #3	<input type="text"/>
Total from NEH	<input type="text" value="25,551.84"/>	Fiscal Year #4	<input type="text"/>
Cost Sharing	<input type="text" value="2,300.00"/>	Total from NEH	<input type="text"/>
Total Project Costs	<input type="text" value="27,851.84"/>	Non-Federal Match	<input type="text"/>
		Total	<input type="text"/>
		Matching Ratio	<input type="text"/> to 1

4. Application Information

Will this proposal be submitted to another NEH division, government agency, or private entity for funding? Yes No

If yes, please explain where and when:

Type of Application New Supplement

If supplement, list current grant number(s):

Project Field Code

Project/Performance Site Location(s)

Project/Performance Site Primary Location I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name:

DUNS Number:

* Street1:

Street2:

* City: County:

* State:

Province:

* Country:

* ZIP / Postal Code: * Project/ Performance Site Congressional District:

Project/Performance Site Location 1 I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name:

DUNS Number:

* Street1:

Street2:

* City: County:

* State:

Province:

* Country:

* ZIP / Postal Code: * Project/ Performance Site Congressional District:

Additional Location(s)

Developing a Protocol for the Study of Ancient Translations

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List of Participants

Robin Darling Young (Associate Professor, The Catholic University of America)

Joel Kalvesmaki (Editor in Byzantine Studies, Dumbarton Oaks)

Adam McCollum (Lead Cataloger, Eastern Christian Manuscripts, Hill Museum & Manuscript Library, Saint John's University)

Alberto Rigolio (PhD candidate, Oxford University)

Abstract

In this project we propose to begin to develop a protocol for computer-based, scholarly analysis of ancient translations. Although we intend the protocol to be extended to many languages, our project will focus on Greek and Syriac, which, because of their complexity, their dissimilarity, and their joint importance to literary culture, promise great difficulties and great rewards.

Preparatory work, coupled with a 2-day workshop, will bring together experts from far-flung fields (1) to determine a set of best practices to help scholars prepare conformant text/translation, morphology, and word alignment files that can be interoperably shared for research; (2) to explore the technological, linguistic, and scholarly challenges that face such a project; and (3) to plan further development, such as refinement of the project's standards, development of digital tools, extension to other languages, and so forth.

The project is innovative. It will harness existing but relatively undefined standards and technologies and place them in a well-defined, scholar-friendly protocol. It will address the problems of isolated datasets by providing a framework for scholars to share and study widely different translations. And the project will bring together in one conversation philologists, historians, computational linguists, and experts in digital humanities, to learn one from another.

The project holds great promise for work in the humanities. By carefully comparing dissimilar texts (each with multiple translations) in two dissimilar languages, it substantively assists scholarly efforts to recover works lost in their original language, to identify distinguishing marks of specific translators, and to use translations to document historical development. Because the project intends to be extensible and interoperable, its development will help scholars study, at an unprecedented depth, the history of literary works across multiple languages.

Narrative

Enhancing the humanities through innovation

In the course of late antiquity, particularly the fifth through eighth centuries, an enormous body of Greek literature was translated into Syriac, especially religious, philosophical, rhetorical and historical works, both classical and Christian. This translation activity offers fertile ground for research. Some texts now lost in the original Greek are preserved only in Syriac translation. In other cases multiple translations document cultural or institutional change. Many Syriac translations were the basis for highly influential translations in Armenian, Georgian, and Arabic.

Comparison of the two languages poses special difficulties that typify the semantic and computing difficulties one might expect to find in analyzing translations in other languages. Greek, one of the most important vehicles for Western literature, is a highly inflected, independent branch of the Indo-European family of languages. It is written left to right, uses a complex system of diacritical marks, and is supported in the Unicode standard across multiple, disparate planes. Like Greek, Syriac has an important place in culture. It is the best-attested dialect of Aramaic, a lingua franca used from the Achaemenid empire to the early medieval period, covering territory from ancient Antioch through Mesopotamia on to China via the Silk Road. But its structure greatly differs from that of Greek. A lightly inflected member of the Semitic language family (itself in the Afro-Asiatic phylum), Syriac is written right to left, has several conventions for writing (or omitting) sub/supralinear vowels, and has letterforms that change according to word position. Fortunately, Syriac is consolidated in a single Unicode plane.

By providing a protocol to allow close analysis of a variety of Greek and Syriac texts, the project hopes to support efforts (1) to recover lost Greek texts, (2) to identify habits of specific Syriac translators, (3) to deepen our understanding of Syriac translation practices in late antiquity, and (4) to enhance our understanding of the history of the medieval Near East and Mesopotamia. The project would promote extensible and interoperable rules and best practices, with the aim eventually to assist scholars studying the transmission of literary works across any set of languages.

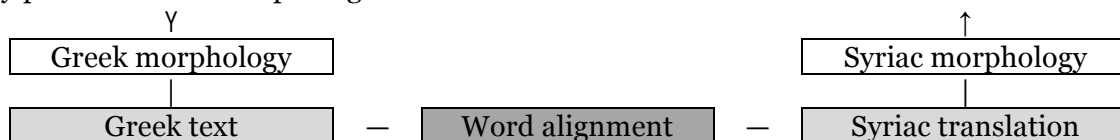
For our project we propose to work on digitized, public-domain editions of four important Greek works and their Syriac translations. The works are of differing styles and genres; each one was translated into Syriac more than once. Our project would deal with as many versions, and as much of those versions, as time permits.

- Aristotle's *Categories* (central to the Aristotelian corpus and its legacy)
- Gospel of Matthew (important for its affinity with Hebrew and Aramaic)
- The Epistle to the Hebrews (one of the most rhetorically polished New Testament works)
- Evagrius of Pontus's *Gnostic Trilogy* (4th-c. theoretical treatise that fused philosophy with Christian asceticism, highly influential in the medieval period both West and East; about half of this work is lost in the original Greek)

For each work we propose to develop a suite of files that fall into three types (see Work Plan and Staff below for scope and quantity of data for each type of file):

- text/translation (the Greek or Syriac texts proper)
- morphology (parts of speech, roots, inflections, declensions, etc.)
- word alignment (lists word and phrase correspondences)

Pairs of text-translations would be linked through their alignment files, allowing extensive and complex research. For example, someone starting with the morphological data of one text could study patterns in the morphological data of the other:



Text-translation pairs could be chained or collated to enable complex searches across different works and languages. The concept is elegant and simple, but it entails numerous linguistic problems that our project proposes to address. For example, how are word boundaries in each language to be defined? How much normalization should be expected in transcriptions? How should editorial interventions be treated? Grammarians differ over how to describe basic elements of language. How should such differences be accommodated? What challenges do accents, vowels, and direction of writing pose in the workflow?

We seek from the NEH's Office of Digital Humanities Level I support. The funds would pay for the development of prototype documents, a two-day workshop to discuss and develop the protocol, and a post-workshop period of reflection and refinement. See below for details.

Environmental scan

Documents (texts, morphology, word alignment; schemas). Because of its relative ease for editing, XML will serve as the basis for all document types. For the texts/translations, the conventions of the TEXT ENCODING INITIATIVE (see Appendix for URLs and other metadata associated with names in small caps), or a more rigorous modification such as EPIDOC, will be adopted. (A point of discussion in the workshop will be over how best to use TEI.) Although TEI allows for some markup for morphology, that data will be worked on separately, to assist in workflow and cross-document comparison. Schemas for the morphology and word alignment documents would be developed over the summer and refined in the workshop. To facilitate document creation and transformation, participants would use OXYGEN and free text processors that support regular expressions (e.g., TEXTWRANGLER, NOTEPAD++). The project will take note of document conventions used by other projects, most notably the PERSEUS PROJECT (undergirded by the ALPHEIOS PROJECT) for Greek and SYRIACA.ORG and the CENTER FOR THE PRESERVATION OF ANCIENT RELIGIOUS TEXTS for Syriac. The willingness of these projects to collaborate (expressed to the project director; see attached representative letter from Syriaca.org) will be key in reducing redundancy and facilitating interoperability.

Tools to assist in creating protocol-compliant files. A number of tools already help generate Greek morphology, most notably those that have been developed by the Alpheios Project. In Syriac, the SEDRA database developed by George Kiraz, now under further development in conjunction with CPART and Syriaca.org, is a rudimentary but important start, demonstrated by its derivative use at DUKHRANA.COM. Text-alignment tools such as ALPHEIOS TOOLS, GIZA++, PAIR, and PHILOLINE are important for helping to align words. Some of these tools will be tested in document preparation, but full assessment of how users of the protocol might employ these tools is reserved for the workshop.

Tools to assist in scholarly research and discovery. Because the source documents are in XML, our preliminary discovery tools will be XSLT stylesheets and an EXIST or SOLR database. Members of the workshop will actively discuss the benefits and drawbacks for more developed tools supporting, for example, visualization (such as MIT's EXHIBIT or MITHGRID [now under development]), statistical analysis (such as R), and linked open data (through, e.g., SPARQL endpoints) to accommodate scholarly inquiry.

History and duration of the project

The project emerged from recent scholarship on Greek-Syriac translations in antiquity (see Appendix). As part of his participation in a team led by Young analyzing and translating Evagrius's *Gnostic Trilogy* (to be published by Oxford), and that team's interest in restoring lost Greek text, Kalvesmaki spearheaded the current project, which has drawn the express interest of other scholars working on Greek-Syriac translations. The Catholic University of America, whose long-standing combined support of Greek and Syriac philology is unrivaled in North America, proved a natural sponsor. The project has received no funding to date.

Work plan and staff

May–Oct. 2014	Transcription of Syriac Evagrius (ca. 6000 words in 3 versions required). Creation of sample documents: texts/translations, morphology, word alignment. Drafting of schemas for all three types of documents. Documentation of lessons learned.
Oct. 2014	Two-day workshop in Washington, DC (see Appendix for draft agenda).
Nov. 2014– Mar. 2015	Written feedback from evaluators. Creation of a working draft specification of the protocol. Writing of white paper (final report).

Work under Phase 1 would be conducted primarily by Kalvesmaki, in collaboration with McCollum and Rigolio. Each participant would require an oXygen license. Of the three types of files, those for texts/translations are the least laborious to produce. Morphology and word alignment files—especially ones with accurate data—are time-consuming to prepare. We anticipate generating through automated methods uncorrected morphology files on each text/translation file, noting strengths and weaknesses of existing tools. We will prepare corrected morphology files for only a portion of each work, of a length sufficient to test the viability of the protocol. Outside experts in Syriac grammar (Dan King and Aaron Butts) have agreed to offer advice, and Young will attend Phase 1 meetings. Our priority is quality, not quantity. For word-alignment files, ideas on how to automate the process will be sketched, but the work will focus on writing accurate alignments of diagnostic portions of text-translation pairs. The sample word-alignment files will be of sufficient length to demonstrate the possibilities of the framework, and to generate questions for workshop discussion. Timekeeping records will be kept, for the workshop to discuss scholarly labor and how expedite it. For details on phase 1, see the Appendix.

Phase 2, the workshop proper, would be held at The Catholic University of America under the auspices of the School of Theology and Religious Studies in conjunction with departments in the School of Arts and Sciences (Semitic and Egyptian Languages and Literatures; Greek and Latin). Led by Kalvesmaki and Young, the workshop would draw a dozen scholars with expertise in philology, digital humanities, computational linguistics, and ancient history. At least two participants will be evaluators. See Appendix for a draft agenda and possible attendees.

Phase 3 would be conducted primarily by Kalvesmaki in association with Young, who will collate evaluations. The draft specification of the protocol would resemble the rough drafts that eventually become recommendations and standards in the WORLD WIDE WEB CONSORTIUM. The final report would detail (1) challenges, opportunities, and best practices for the proposed protocol and (2) current and prospective tools to assist in the (a) creation of and (b) research and analysis of protocol-conformant documents. As part of the peer-review process, participants will be asked to comment on the penultimate draft of the report, and unedited remarks by the evaluators will be attached to the final report.

Final product and dissemination

All participants of the project will agree to release their contributions under a liberal, open culture license (CREATIVE COMMONS Attribution 3.0 Unported). All final master files (XML, XSLT, XML schema, draft protocol and users' guide) will be made available through a suitable permanent repository (see Data Management Plan). Release of the material will be announced on numerous major academic listservs. Demonstrations of the protocol will be made in at least two scholarly conferences. The project director will write an article for at least one major digital humanities journal, and workshop attendees will be encouraged to publish and speak independently about the protocol.

National Endowment for the Humanities, Office of Digital Humanities
Start-Up Digital Humanities Grant application for Level I funding

Project *Developing a Protocol for the Study of Ancient Translations*

Applicant Institution *Catholic University of America*

Principal Investigator *Robin Darling Young*

Project Director *Joel Kalvesmaki*

Project grant period *2014-05-01 through 2015-03-31*

	Computational Details/Notes	Cost/unit	Unit	Project total
1. Salaries and Wages				
Principal Investigator Darling Young	Stipend			\$ 1,000.00
Proj. Dir. Kalvesmaki	one month salary @ \$71,000; hours to be allocated across grant period	\$ 71,000.00	0.0833333	\$ 5,916.67
2. Fringe Benefits				
PI	23% on funded portion	\$ 1,000.00	0.23	\$ 230.00
3. Consultant Fees				
Adam McCollum	Consultation, work on files (text/translation, morphology, word alignment) and documentation, 5 hpw for 12 weeks	\$ 30.00	60	\$ 1,800.00
Alberto Rigolio	Consultation, work on files (text/translation, morphology, word alignment) and documentation, 5 hpw for 12 weeks	\$ 30.00	60	\$ 1,800.00
4. Travel				
Workshop travel, Europe	One workshop attendee from Europe	\$ 1,500.00	1	\$ 1,500.00
Workshop travel, W. Coast	One workshop attendee from W. Coast	\$ 1,000.00	1	\$ 1,000.00
Workshop travel, E. Coast	Three workshop attendees from E. Coast	\$ 350.00	3	\$ 1,050.00
Workshop travel, local	Seven workshop attendees from DC area, at \$.50 per avg. 20 miles, 4 trips	\$ 40.00	7	\$ 280.00
Workshop accommodation	Five workshop attendees, three nights hotel	\$ 195.00	15	\$ 2,925.00
Workshop meals	Three meals for twelve attendees	\$ 12.00	36	\$ 432.00
Workshop coffee	Two days coffee for twelve attendees	\$ 10.00	24	\$ 240.00
Workshop reception	Hors d'oeuvres for ca. 40 people	\$ 15.00	40	\$ 600.00
Workshop final dinner	Local restaurant for twelve attendees, eight invitees	\$ 40.00	20	\$ 800.00
				\$ -
				\$ -
5. Supplies and Materials				
Filesharing services	Dropbox, 1 year with versioning, backup support	\$ 187.00	1	\$ 187.00
Software	oXygen XML, academic licenses for 2 participants	\$ 99.00	2	\$ 198.00
6. Services				
Transcriptions	Pages of BL manuscript transcribed, Evagrius's Praktikos	\$ 150.00	3	\$ 450.00
7. Other Costs				
Student Admin Assistant	45 hours across grant period	\$ 15.00	45	\$ 675.00
8. Total Direct Costs				\$ 21,083.67
9. Total Indirect Costs				\$ 4,468.17
10. Total Project Costs				\$ 25,551.84
11. Project Funding				
a. Requested from NEH	Outright:			\$ 25,551.84
	Federal Matching Funds:			\$ -
	TOTAL REQUESTED FROM NEH:			\$ 25,551.84
b. Cost sharing	Applicant's Contributions:			\$ -
	Public Lecture Hall	\$500	1	\$ 500.00
	Meeting Room	\$900	2	\$ 1,800.00
	Third-Party Contributions:			\$ -
	Project Income:			\$ -
	Other Federal Agencies:			\$ -
	TOTAL COST SHARING:			\$ 2,300.00
12. Total Project Funding				\$ 27,851.84

The Catholic University of America
Budget Justification

Title: Developing a Protocol for the Study of Ancient Translations

Principal Investigator: Robin Darling Young

Project Director: Joel Kalvesmaki

Period: 2014-05-01 through 2015-03-31

1. Principal investigator Robin Darling Young, at a stipend of \$1000, will be responsible for administering the fund, organizing and leading the workshop, and assembling the final report. Project director Joel Kalvesmaki, at 1/12th of his salary, will be responsible for leading the work of phase 1 (see Appendix for details), organizing and leading the workshop, and, after the workshop, writing the report and refining documentation and files.

3. Consultants Adam McCollum and Alberto Rigolio will be responsible for correcting Syriac transcriptions, for evaluating morphology files and developing refined prototypes, for advising on best practices for morphology and word alignment data, and for documenting the successes and problems in the course of their work. See Appendix for details.

4. The workshop will have twelve members, most of whom will be local to the Washington, DC area. One participant from Europe and one from the West Coast are reasonably anticipated, as are three participants from the East Coast. The workshop will close with a panel discussion and reception open to the public, to give members of the workshop an opportunity to share informally the work they have been doing. A closing dinner, after the reception, will allow workshop members to interact in depth with key people who were not able to attend the workshop (eight are expected) and to consolidate future direction of the project.

5. Dropbox provides a feature for versioning and backup of files, which will be critical to the success of this project: \$99/year for storage and \$3.99/mo (11 months) for each of unlimited file recovery and unlimited version history. McCollum and Rigolio will also need licenses to oXygen XML, the primary development tool for the XML, XML Schema, and XSLT files. Kalvesmaki already has a license.

6. Nearly all the texts chosen for the project are already transcribed. The exception is the *Praktikos* by Evagrius, which is about 6000 words per version (transcription of three versions is planned). The estimate is based upon an estimate given by Gorgias Press, which routinely services requests for Syriac transcriptions.

Biographies

Robin Darling Young is Associate Professor in the School of Theology and Religious Studies at The Catholic University of America, and specializes in the history and literature of late ancient Christianity in the East (Greek, Syriac, and Armenian). She has translated works from Greek and Syriac into English, and is most recently the translator of *The Letters of Evagrius of Pontus* (under contract with the CUA Press, Fathers of the Church series), a translator and editor in the *Gnostic Trilogy* project, and a co-editor and translator of *4 Ezra: A Commentary* (Walter de Gruyter, 2014). She is also associate editor of the Studies in Early Christianity monograph series of the North American Patristic Society.

Joel Kalvesmaki is Editor in Byzantine Studies at Dumbarton Oaks. Joel received a Masters (2004) and PhD (2006) in Early Christian Studies at the Catholic University of America. His research centers on Greek theological and philosophical texts from late antiquity. In addition to his responsibilities at Dumbarton Oaks for scholarly communication (both print and digital) he is chair of the ad hoc Committee for Digital Publication and Research for the North American Patristic Society, is editor of the digital-only scholarly reference work *Guide to Evagrius Ponticus*, and is Digital Humanities Advisor for Hill Museum and Manuscript Library (St. Johns University, Collegeville, MN). In his various projects Joel has developed extensive experience with HTML, CSS, jQuery, JSON, XML, and XSLT.

Adam McCollum is Lead Cataloger of Eastern Christian Manuscripts at the Hill Museum & Manuscript Library (Saint John's University, Collegeville, MN). He studied Greek, Latin, and Semitic languages at Hebrew Union College-Jewish Institute of Religion (Cincinnati, OH), where he earned a Ph.D. in 2009 with a dissertation Greek-Syriac translation technique. He has published translations and studies of Syriac and Arabic literature, and among other academic activities he curates online bibliographies for eastern Christian hagiography and for Old Georgian language and literature.

Alberto Rigolio is a D.Phil. candidate in Classical Languages and Literature at St. John's College, University of Oxford. Alberto has received a BA in Classics at the Catholic University, Milan, and an M.Phil. in Late Antique and Byzantine Studies at the University of Oxford. His research interests focus on the cultural history of the late Roman world, and his doctoral dissertation has addressed the Syriac translations of Plutarch, Lucian and Themistius. Alberto has been Summer and Junior Fellow at Dumbarton Oaks, and he has developed his expertise in Classical Syriac in Mor Gabriel, Turkey.

Data Management Plan

The project will develop and manage a suite of XML, XSLT, and XML Schema files, as well as accompanying documentation, reports, and workshop notes. The only type of data envisioned by the project are text files (UTF-8) or XML-friendly word processor files (e.g., Open Office or Microsoft Word .docx files), the sum of which during the course of the funding period is not expected to exceed 100 MB. All participants of the project will agree to release their contributing work under a liberal open culture license (Creative Commons Attribution 3.0 Unported).

Although each participant will contribute to the store of data, it is the responsibility of the project manager to ensure that research data is well administered and maintained. Such maintenance includes ensuring that each file has complete and accurate metadata in the header clearly indicating, among other items, document creator, time of creation, editorial principles followed, and essential metadata for documents upon which the current files is derived. Archived files will follow a naming and filepath scheme that clearly separates them from the current, master files.

In the early stages of the project, data files will be shared on a common server that supports versioned backups and is convenient to use (such as Dropbox). That server will be administered principally by Kalvesmaki as project director, but with appropriate rights assigned to project participants. Samples or clones of these files will populate a SOLR or eXist datastore, to develop transformations that test the potential of the protocol.

As work progresses the number of people contributing to and therefore accessing the data will increase, from a small group (phase 1) to the entire workshop (phase 2). With the release of the report at the end of phase three, all data and documentation will be divided: a public, permanent repository will contain the master versions of all documents, and a private repository (through GitHub or a similar service, open only to continuing members of the project) will hold unpublished, nonmaster versions, notes, and other files of interest only to developers. For permanent repositories the project has stable options in Syriaca.org, which has expressed its commitment (see attached letter), in Harvard University's DASH (Digital Access to Scholarship at Harvard), or in GitHub.

If for any reason Kalvesmaki as project manager can no longer attend to his duties, responsibilities for administration and maintenance of the data fall to Young and then to the School of Theology and Religious Studies at the Catholic University of America.

VANDERBILT UNIVERSITY

September 9, 2013

Office of Digital Humanities
National Endowment for the Humanities
1100 Pennsylvania Ave., NW
Washington, D.C. 20506

Re: Letter of Support for “Developing a Protocol for the Study of Ancient Translations”

Dear Mr. Bobley and Reviewers,

I am writing to enthusiastically express my support for the Digital Humanities Start-Up Grant application of Prof. Robin Darling Young and Dr. Joel Kalvesmaki for the project “Developing a Protocol for the Study of Ancient Translations”. This project will create digital standards for aligning, reconstructing, and analyzing ancient translations.

The recovery of lost texts has long been one of the most prized objectives for scholars of the ancient world. Recently, dazzling new technologies such as multispectral imaging and 3D scanning have begun to raise scholarly interest in how digital tools may allow us to recover ancient texts once assumed permanently beyond our reach. These developments (many of which have been funded by the NEH) are tantalizing and have energized the interest of ancient and medieval historians in the value of the digital humanities for the study of ancient literature.

As useful as these new digital tools are, their widespread adoption faces the same limitations as other “high end” digital tools. The functional barriers of equipment cost and technical expertise place their use beyond the majority of scholars. Fortunately, we are not limited to using only the most expensive digital tools in the reconstruction of lost ancient texts. Darling Young and Kalvesmaki’s project proposes to create simple but effective digital standards that build on existing non-digital methods of scholarship for the study of ancient texts.

The value of this proposal is that it will create digital standards that are readily accessible to textual scholars without the need for extensive equipment or support staff. By basing the digital standards on existing non-digital conventions, even those who have not previously worked in a digital environment will be able to easily understand and adopt these digital alignment tools. These standards will aid our recovery of lost ancient texts through the study of translations in two ways. First, they will accelerate existing non-digital methods of alignment. Second, they will allow greater visualization of whole corpora or even the diachronic study of translation technique that would not be possible without digital standards. In short, these tools will benefit scholars across many domains of ancient history, religion, and literature.

Besides the overall promise of this application, I would like to express my support for the value of this project for ongoing digital research in my field of late antiquity. I currently serve as the general editor of www.syriaca.org an NEH funded project for the digital study of Syriac and related cultures of the ancient and medieval Mediterranean world. We are working to create authority files for ancient Greek, Syriac, and Arabic authors and their works for use in linked open data environments. We are not producing corpora of texts, but are working to update the processing tools (including the SEDRA lexical database

produced by Dr. George Kiraz of the Beth Mardutho Institute) that would be used in such a corpus. In other words, the tools created by Darling Young and Kalvesmaki would complement our work and add further to the shared digital space for “Linked Ancient World Data” that has begun to coalesce around your funding of the LAWDI institutes at NYU. Even more specifically, we would be delighted to serve the academic users of Syriaca.org by linking to the data and tools developed by Darling Young and Kalvesmaki. In fact, since the results will be available under a CC license, we would also work with them to preserve archival copies in our repository.

In sum, this is a project very much worthy of funding. It also holds long term promise for a variety of fields, in particular one could imagine that it would be adopted in the field of biblical studies for the comparison of versions of the Hebrew Bible and New Testament.

In conclusion, I want to also state my confidence in both Prof. Darling Young and Dr. Kalvesmaki. I have known both of them personally for over five years and was aware of their work on Roman and Byzantine history before that. I have also corresponded with Dr. Kalvesmaki on digital research for several years and am confident that he will be an excellent resource for ensuring the project adheres to the emerging best practices for digital textual scholarship.

Sincerely,



David A. Michelson, Ph.D.

Assistant Professor of the History of Christianity
General Editor, www.syriaca.org

Vanderbilt University
411 21st Avenue South
Nashville, TN 37240

Phone: (615) 343-3990
david.a.michelson@vanderbilt.edu



The School of Theology and Religious Studies
Office of the Dean
Washington, DC 20064
202-319-5683
202-319-4967

National Endowment for the Humanities
Office of Digital Humanities
1100 Pennsylvania Ave., NW
Washington, D.C. 20506

12 September 2013

Dear National Endowment for the Humanities:

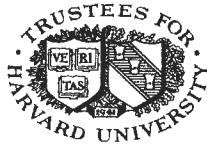
The School of Theology and Religious Studies is in full support of The Catholic University of America's NEH Grant Application project entitled *Developing a Protocol for the Study of Ancient Translations* for the project grant period of May 1, 2014 through March 31, 2015. Dr. Robin Darling Young, an associate professor of our school, will be the principal director of this program and Dr. Joel Kalvesmaki, editor of Byzantine Studies at Dumbarton Oaks Research Library will be the project director. Mr. Alberto Rigolio of Oxford University and Dr. Adam McCollum of Saint John's University will serve as consultants.

This unique project marks collaboration between the School of Theology and Religious Studies, the department of Greek and Latin and the department of Semitics. The chairs of each department have signaled to me their very strong support for this project, and we can expect dissemination across these two departments in the Center for the Study of Early Christianity in the School of Arts and Sciences. This important initiative marks how linguistic computer aided studies can expand our ability to apply a hermeneutical interpretive tool across varied disciplines. The School of Theology and Religious Studies and the School of Arts and Sciences would be eager to be the originating site of the benefits and developments this project will deliver.

Please feel free to contact me if you desire any additional information.

Sincerely,

Very Rev. Mark M. Morozowich
Dean



DUMBARTON OAKS
RESEARCH LIBRARY AND COLLECTION

Office of the Director

September 11, 2013

Brett Bobley
Office of Digital Humanities
National Endowment for the Humanities

Dear Mr. Bobley,

With this letter I wish to lend support to the NEH start-up digital project proposed by Catholic University of America "Developing a Protocol for the Study of Ancient Translations." The proposed topic, that of ancient translations, is critically important to humanities scholarship across multiple disciplines and fields, and addresses a set of questions important to a wide range of scholars that come through Dumbarton Oaks, both inside and outside our program of Byzantine studies.

Particularly important in the project is the effort to work closely with sample texts from two very different languages, to develop a common framework that can be extended into other languages. A good deal of excellent philological scholarship already exists on select texts and translations, but these remain in isolation. By working on a protocol whereby this scholarship can be exchanged, compared, and studied on an extensive scale, the project opens up horizons of enormous potential.

Catholic University of America, with its long history of excellence in philology, and its proximity to centers (such as our own) that have an interest in the success of the project, is an ideal host. As manager of numerous complex projects at Dumbarton Oaks—including the creation of an advanced, award-winning font that required his deep engagement with numismatics, sigillography, typography, technological standards, and the digital humanities in general—Joel Kalvesmaki is eminently qualified to direct the project.

Sincerely,

Jan Ziolkowski
Director, Dumbarton Oaks Research Library and Collection



THE CATHOLIC UNIVERSITY OF AMERICA

School of Theology and Religious Studies

Washington, DC 20064

202 319 6524

fax: 202 319 5704

September 9, 2013

Office of Digital Humanities
National Endowment for the Humanities
1100 Pennsylvania Ave., N.W.
Washington, D.C. 20506

This letter confirms that I am a committed participant in the project proposed for funding entitled "Developing a Protocol for the Study of Ancient Translations." The project, which will begin to develop a protocol for analysis of ancient translations through digital means, focusing on the transmission of texts from the ancient Greek language into Syriac, will be a vitally important contribution to the work of scholars everywhere.

Yours sincerely,

Robin Darling Young
Associate Professor

Alberto Rigolio
St. John's College, Oxford, UK

September 10, 2013

To whom it may concern,

I am delighted to write this letter to offer my commitment to the project *Developing a Protocol for the Study of Ancient Translations*. I will eagerly fulfill all responsibilities as outlined in the proposal and will be an active participant in the workshop.

I encourage the NEH to consider our proposal and am confident in its potential impact on the humanities, both within and beyond the field of Syriac translations from Greek. As the quantity and quality of academic publications show, Syriac translations from Greek have raised increasing scholarly interest during the last three decades. Given the sheer amount of translations and the variety of texts that were translated, however, scholars have mostly focused on specific texts and have thus proposed research approaches that run the risk to be effective only for well-defined *corpora* of material. The field still lacks encompassing methodologies of analysis, comparative research approaches that can securely identify complexes of translations, and a comprehensive view that relates in an organic fashion the translations not only to 'original' literature – 'original' being a modern label – but also, more broadly, to the cultural and social life of Late Antique, Byzantine and Renaissance times.

It is now necessary to bring different research strands together and to go deeper under the surface of the texts. Computer-aided tools will play a crucial role in revealing authorship, chronology, cultural origins and historical uses of the translations, for the texts rarely provide explicit information about their genesis, but they contain rich evidence at the level of textual analysis. Furthermore, in addition to the crucial need to render Syriac translations more readily accessible, as a cultural historian I can see the project's considerable potential to overcome traditional subject boundaries, and to provide a platform that brings together scholars who have arrived to Syriac translations through different academic paths, such as Classics, Patristic Studies, Syriac Studies, Theology, and Linguistics.

Yours faithfully,



Alberto Rigolio

101 Yellowhammer Cir.
Alabaster, AL 35007

September 11, 2013

Dr. Joel Kalvesmaki
Dumbarton Oaks
1703 32nd Street, NW
Washington, DC 20007

Dear Dr. Kalvesmaki,

I am happy to write this letter to express my commitment to the project for developing a protocol for the study of ancient translations, should the proposal be accepted by the National Endowment for the Humanities. Contingent upon the full funding of each stage of the project, as outlined in the application, I eagerly commit to fulfilling my responsibilities according to the proposed plan, schedule, and agenda. I encourage the NEH to consider the proposal and I am very confident in its potential impact on the humanities.

Sincerely,

A handwritten signature in black ink, appearing to read "Adam C. McCollum". The signature is fluid and cursive, with a horizontal line extending to the right.

Adam C. McCollum, PhD

Appendix 1: Draft workflow for Phase 1, creation of data prototypes

Work in phase one is broken into seven major stages. Four of these will involve Kalvesmaki only (or principally). The other three require work by Kalvesmaki, McCollum, and Rigolio, all working remotely, and interacting by email and Skype/video, with Young in attendance. The two sets of stages are interleaved. For even-numbered stages, the trio would conduct a regular online meeting at the beginning of each work week, with files circulated in advance. Those files would have embedded comments and questions from Kalvesmaki. Discussion of those points (and others raised) in each weekly meeting, to last about one hour, will form the basis of the week's work, which would be allocated among the three based on mutual agreement. The proposed schedule is subject to change.

Stage 1. *Four weeks, May 1–June 1.* Kalvesmaki commissions Syriac transcriptions; sets up Dropbox account; locates digital files for all texts and prepares TEI-compliant versions; begins framework for documentation. McCollum and Rigolio are kept abreast of development; they may interact or provide input if they wish, but nothing formal is expected during this stage.

Stage 2. *Two weeks, June 2–15: text/transcription files.* Types of issues to address: rules of normalization; canonical structuring (based upon conceptual work or physical manifestation?); TEI; Unicode, versioning. Rigolio and McCollum responsibilities: deploying oXygen; checking, testing, refining representative TEI-compliant files; participating in Kalvesmaki-led discussions about methodological and modelling issues/problems in metadata (e.g., FRBR, FRBRoo, TEI vs. EpiDoc, Canonical Text Services, varieties of grammars, etc.); contributing to developing documentation (especially outlining project principles); planning ahead for morphology.

Stage 3. *Three weeks, June 16–July 6.* Kalvesmaki refines base text/translation files, develops XML schema. Kalvesmaki prepares automatically generated morphology files for all texts in hand, using XSLT transformations. Rigolio and McCollum contribute to emergent questions about structure, assumptions, methodology in morphology files.

Stage 4. *Five weeks, July 7–Aug. 10: morphology files.* The team begins to assess automatically generated morphology files and to develop alternative prototypes. Many of the computer-aided files are expected to have multiple entries for single words, incorrect data, or missing data. Literary works are assigned to McCollum and Rigolio, whose responsibilities are then: systematically assessing strengths and weaknesses of computer-generated files; writing or editing accurate morphological data files for select portions of each text/translation; planning ahead to word alignment files. Detailed, scholarly work on morphology is expected to be laborious. The goal is to test the viability of the protocol, so the team will prioritize quality over quantity. Weekly meetings will be used to gauge the speed of work and to consider modeling and workflow issues. Kalvesmaki will refine documentation.

Stage 5. *Three weeks, Aug. 11–31:* Kalvesmaki refines morphology files and generates an XML schema for them. Kalvesmaki prepares a prototype for word alignment. Using the Alpheios suite as a basis or inspiration, Kalvesmaki prepares preliminary tools to assist Rigolio and McCollum identify word correspondences.

Stage 6. *Five weeks, Sept. 1–Oct. 5: word alignment files.* Literary works are assigned to McCollum and Rigolio, whose responsibilities are principally to create word alignment documents, ensuring complete and correct data within a discrete span of each work. Detailed, scholarly work on word alignment is expected to be laborious. As with morphology, the aim is to accumulate data of quality, not quantity. Weekly meetings will be used to gauge the speed of work and the issues encountered. Kalvesmaki will refine documentation and begin work on XSLT files to generate HTML reports that show the possibilities of the protocol.

Stage 7. *Two weeks, Oct. 6–20:* workshop preparation. Kalvesmaki refines all document types, XML schemas, XSLT files and begins to share these with participants in the workshop with computing experience. Final plans are put into workshop discussions.

Appendix 2: Draft agenda for Phase 2, a two-day workshop

To be held at The Catholic University of America in late October 2014.

Day 1

- Introductions
- Overview of the project and protocol
 - Research questions to be served
 - Proposed principles
 - Overview of summer experience in workflow: challenges, benefits
- Documents (I): texts (what flavor of TEI? Versioning? Schema rules? What to do about RTL? Issues with scripts and vowels? Normalization declarations)
- Documents (II): morphology (Greek; Syriac)
- Documents (III): text alignment (tokenization declarations)

Day 2

- Tools for creating documents (I): morphological analysis
- Tools for creating documents (II): text alignment
- Tools for researching documents:
 - answering individual questions (root X is translated into what other roots?)
 - answering big data questions (visualizations, scattergrams)
 - chaining translations
- Computational linguistics: caveats and exhortations
- Planning next steps (add a third language? which one? extend into syntax? semantics? how to administer and sustain the project? what tools could and should be developed?)
- Reception for Washington, DC scholars along with panel discussion presenting the work of the workshop

Proposed workshop attendees (subject to change):

- project participants McCollum, Kalvesmaki, Rigolio, Young
- one representative from Alpheios (Massachusetts)
- one computational linguist (e.g., Chris Manning, Stanford University)
- two evaluators: one language-specific scholar with experience in digital humanities (e.g., Kristian Heal, Brigham Young University) and one regional scholar with specialized experience in digital humanities (e.g., representative of MITH, George Mason, or the University of Virginia)
- two representatives of CUA's department of Greek and Latin
- two representatives from CUA's department of Semitic and Egyptian Languages and Literatures

Appendix 3: Digital Resources Mentioned

ALPHEIOS PROJECT is an independent, nonprofit organization for language learning.

<http://alpheios.net>

ALPHEIOS TOOLS are the software tools developed by the Alpheios Project

CENTER FOR THE PRESERVATION OF ANCIENT RELIGIOUS TEXTS (CPART), affiliated with Brigham Young University, is devoted to the recovery, study, preservation, and publication of ancient religious texts. <http://cpart.byu.edu/>

CREATIVE COMMONS is a nonprofit organization that enables the sharing and use of creativity and knowledge through free legal tools. <http://creativecommons.org>

DUKHRANA.COM is an online organization that provides tools to aid in the study of the Peshitta, the Bible in Aramaic/Syriac. <http://dukhrana.com/>

EPIDOC is an international, collaborative effort that provides guidelines and tools for encoding scholarly and educational editions of ancient documents. It uses a subset of the Text Encoding Initiative's standard for the representation of texts in digital form. <http://sourceforge.net/p/epidoc/wiki/Home/>

EXHIBIT, an initiative that began with the Massachusetts Institute of Technology, is a publishing framework for large-scale data-rich interactive Web pages. <http://www.simile-widgets.org/exhibit3/>

EXIST is a native XML database, an open-source database management system entirely built on XML technology. <http://exist-db.org/>

GITHUB is a web-based hosting service for software development projects that use the Git revision control system. <https://github.com/>

GIZA++ is a statical machine translation toolkit that is used to train IBM Models 1-5 and an HMM word alignment model. <https://code.google.com/p/giza-pp/>

MITH, the Maryland Institute for Technology in the Humanities, is a leading digital humanities center that pursues disciplinary innovation and institutional transformation through applied research, public programming, and educational opportunities. <http://mith.umd.edu/>

MITHGRID is a JavaScript framework for building data-oriented, event-driven browser applications. It is now under development at MITH. <http://mith.umd.edu/mithgrid-demonstration-development/>

NOTEPAD++ is a free source code editor which supports several programming languages running under the MS Windows environment. <http://notepad-plus-plus.org/>

OXYGEN is a multi-platform XML editor, XSLT/XQuery debugger and profiler with Unicode support. <http://oxygenxml.com/>

PAIR (Pairwise Alignment for Intertextual Relations) is a simple implementation of a sequence alignment algorithm for humanities text analysis designed to identify similar passages in large collections of texts.

PERSEUS PROJECT, a digital library hosted by the Classics Department at Tufts University, assembles digital collections of humanities resources. <http://www.perseus.tufts.edu>

PHILOLINE (for PhiloLogic alignment) is an experimental model designed to perform all-against-all comparisons in documents loaded into a PhiloLogic database.

<https://code.google.com/p/text-pair/>

R is a free software programming language and a software environment for statistical computing and graphics. <http://www.r-project.org/>

SEDRA is a lexical database for Syriac. <http://syrcom.cua.edu/Projects/Complete.html>

SOLR is a standalone enterprise search server with a REST-like API. Stored (“indexed”) XML, JSON, CSV or binary documents can be queried via HTTP GET to receive XML, JSON, CSV or binary results. <http://lucene.apache.org/solr/>

SPARQL is an RDF query language, able to retrieve and manipulate data stored in Resource Description Framework format.

SYRIACA.ORG is an online reference resource for the study of Syriac authors, texts, manuscripts, and historical research. <http://syriaca.org/>

The TEXT ENCODING INITIATIVE is a consortium which collectively develops and maintains a standard for the representation of texts in digital form. Its chief deliverable is a set of Guidelines which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics. <http://www.tei-c.org/index.xml>

TEXTWRANGLER is a simple, free text editor for the Macintosh.
<http://www.barebones.com/products/textwrangler/>

WORLD WIDE WEB CONSORTIUM is an international community where Member organizations, a full-time staff, and the public work together to develop Web standards.
<http://www.w3.org/>

Appendix 4: Select Scholarship on Greek-Syriac Translations

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