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List of Participants

It would be impractical to list all registered members of the *Pleiades* Community together with all team members of the 40 other projects with which we collaborate through the Pelagios network. This list does include all persons listed in the "Staff" section of the proposal (bold), as well as all writers of letters (bold), others who assisted in the development of the proposal, and all published contributors as of the date of submission (some contributors' affiliations may be out of date).

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Abstract

This proposal responds to new provisions in the Implementation Grant guidelines that invite “substantive changes to the design, technical architecture, and dissemination and preservation strategies” of established digital humanities projects. We seek support to renovate the *Pleiades* gazetteer of the ancient world (<http://pleiades.stoa.org>). *Pleiades* provides open access to the most comprehensive geospatial dataset for antiquity available today. It serves as an indispensable component of at least 40 other important digital humanities projects, ranging from online editions of primary sources for students to expert systems supporting advanced research in fields like archaeology, epigraphy, and numismatics. It also constitutes a core resource for classroom activities focused on ancient geography. We will retool the software that now underpins *Pleiades* to provide better performance and enable support for the broader ancient and medieval worlds, thereby better positioning this widely used resource for sustainability and service to the past-oriented Humanities.

Although *Pleiades* is valued by scholars, students, and the public, its potential impact and long-term sustainability are being held back by the limits of its architecture. The current system, although considered a crucial hub in the maturing web of Linked Open Data for ancient studies, regularly manifests slow downloads and intermittent timeouts, thus undermining the confidence of users and blunting the effectiveness of project contributors (including university students undertaking class projects). The site’s problems also inhibit bulk addition of new data and impede large-scale, programmatic use of content by others. New methodological approaches are not fully supported by the *Pleiades* data model. Consequently, several content expansion initiatives suggested by other scholarly projects are blocked, preventing *Pleiades* from meeting needs beyond its present competency in the Greco-Roman sphere, including: the ancient Near East, Egypt, and Central Asia; early Medieval Europe; the early Islamic Empire; and the Indian subcontinent. In short, the software framework we chose ten years ago and last updated five years ago can no longer easily scale up to meet performance, capacity, and reusability demands engendered by the project’s success and prospects.

We propose, therefore, to transform *Pleiades* from an overloaded website into a collection of related applications, refashioned to overcome the limitations outlined above. We will split the current monolithic system into four parts whose performance and capacity can be managed independently and we will refine the structure of the database in order to document and analyze relationships between the ancient places we catalog. A new search-and-browse interface will serve users quickly and reliably. An upgraded contribution and editing environment, coupled with a simplified bulk-data addition feature to be used by the Managing Editors, will streamline content creation, curation, and review. A robust Application Programming Interface (API) will accommodate not only commercial search engines, but also existing and new automated harvesters and dynamic cross-site applications operated by other digital humanities projects. Daily exports will be upgraded to produce complete copies of all published *Pleiades* content in an easily used, open format, thereby ensuring that third parties can download and use the entire gazetteer in other systems and that the Managing Editors can deposit these files quarterly in institutional and subject-oriented digital archives for long-term availability. We will emerge from the funded work with new, reliable software and strong institutional commitments that will help us minimize cost and deliver innovation and scholarly value for years to come.

Statement of Innovation

Pleiades has an established record of pioneering work in open review, public humanities, past-oriented geospatial computing, and cross-project interoperability on the Web. We will now publish a vocabulary of geographic relationships for use in databases and web applications, develop a novel online service that digital systems can use to look up historical place-names, and demonstrate innovative, replicable techniques for performance improvement and capacity scaling of digital humanities web resources.

Statement of Humanities Significance

Pleiades publishes authoritative information about ancient places and spaces, providing unique services for finding, displaying, and reusing it under open license as part of a revolutionary network of digital humanities projects. We will extend this set of data and services from its current footprint in the Greco-Roman sphere to additional temporal and spatial domains, collaborating with other projects to lay the groundwork for a geospatial services network for the study of all of ancient Eurasia.

Narrative¹

Humanities Significance

Pleiades (<http://pleiades.stoa.org>) has an established track record of contributions to Humanities research, pedagogy, and outreach. It performs for the ancient Mediterranean historical-cultural sphere all the functions of a traditional scholarly gazetteer, identifying and describing ancient places and spaces for the benefit of scholars, students, and the general public. But it does so on an unprecedented scale, continuously enabling and drawing upon the work of individuals, groups, and their computational agents as the hub of a growing international scholarly communications network. *Pleiades* has successfully demonstrated the practical value of combining web-enabled public participation with peer review and editorial oversight in order to update and refresh continually an important Humanities reference work. It has also refashioned the very definition of such works by extending the notion of “readership” to encompass innovative third-party digital applications that draw upon *Pleiades* over the World-Wide Web for spatial data in immediately actionable forms and that depend upon it for geographic authority control across datasets. We elaborate these achievements in the “History” section, demonstrating that *Pleiades* and its partners have created one of the first truly interoperating, cross-institutional online research environments for the Humanities. This track record has inspired others to re-imagine the role of geospatial information in digital humanities applications, to harness technologies like Linked Open Data (LOD) for expressing scholarly citation practices on the Web, and to look beyond narrow sustainability models focused on cost recovery.²

Briefly in the proposal abstract and more fully in the “Innovations” section, we address critical issues that prompt our present application for funding, which we have titled simply “Pleiades 3”. A decade of user growth and organic diversification of functions has outstripped the capacity of our web application to respond promptly and reliably even as more users and external projects look to *Pleiades* as a source of information and a venue for publication. This maturing and diversifying community of users is also demanding more expressive ways to model and analyze relationships (spatial, political, temporal, causal, etc.) between the ancient places *Pleiades* identifies and describes. What we propose here is much more than a technology refresh: it is an intellectual response -- expressed in software and services -- to a pair of major transformations in the scholarly environment we serve and inform.

First, since the birth of the *Barrington Atlas of the Greek and Roman World* at the close of the 20th century and *Pleiades*’ genesis from it in 2005, the study of the ancient world has been transformed.³ No longer is the centrality of Greece and Rome taken for granted, as the connections of the Mediterranean

¹ Space constraints imposed by the NEH Guidelines for this proposal preclude the inclusion of all supporting materials in the appendices. Footnotes are used to provide links to additional relevant documents online. Some screen shots are included in the appendices; others are available at <http://pleiades.stoa.org/screenshots/>.

² Linked Open Data (LOD) is a family of data formats, technologies, and practices, promulgated by the World-Wide Web consortium and used by *Pleiades*, *Wikipedia*, *Europeana.eu*, national and state governments, museums, and other entities around the world to publish structured data on the Web. LOD facilitates the connection and enrichment of shared concepts and objects of interest across multiple datasets, so that the significance of individual data items can be contextualized in multiple ways by multiple parties for the benefit of all, and so that actionable links can be made between related resources to support computationally enabled discovery and analysis. See Heath 2011 and Elliott 2014.

³ *Barrington Atlas*: Talbert 2000. Reviews include: Wilford 2000 and Cartledge 2001.

with the Near East, Central Asia, and South Asia come to be emphasized; and no longer are the Arab conquests of the seventh century seen as a border, as the Byzantine and Islamic worlds are deeply connected to antiquity. Moreover, long-building methodological shifts in the consideration of “place” and “space” have borne fruit. No longer do we usually focus our studies solely on manifestations of state, religion, and economy (e.g., cities, sanctuaries, fortifications, and ports); our horizons have expanded to include the exploration of human interaction with and within things like streetscapes, dialect distributions, and viewsheds.⁴ Scholars working in this larger and more nuanced “antiquity” have been pushing *Pleiades* to grow with them, to accommodate their varied geographies. Already we have worked with projects on the Syriac world, early Islam, and Central Asia. Our community members are eager to encode and interrogate not just the descriptive attributes of ancient places, but the potentially rich array of relationships between them. The Managing Editors maintain a list of datasets offered to *Pleiades* by their creators that have not yet been incorporated.⁵ Not only must *Pleiades* be refashioned to handle much greater scale, it must recreate its infrastructure around this broader vision.

Second, the development of an interoperable network around *Pleiades* has transformed our basic conception of *Pleiades* from being a sole provider of access to its database through a single interface. Building on ideas articulated and methods prototyped during an early phase in the history of *Pleiades*, over forty external digital publications and Humanities databases have banded together under the banner of the Pelagios Project to share data with each other on the basis of common geographic reference points, thereby enabling new modes of discovery and shared services for visualization and contextualization.⁶ *Pleiades* is the lynchpin in each of these exchanges, which are described in more detail in the “History” section of this narrative. One factor motivating those who seek an expansion of *Pleiades*’ spatial and cultural footprint is the opportunity to join the Pelagios network. Pelagios is one important example of *Pleiades*’ new role as a supplier of geographic information for multiple uses, many of which we cannot possibly foresee. *Pleiades*’ future is not as a web site but as a body of structured information and associated services undergirding the study of the entire ancient and early medieval old world, freely and conveniently available in an open access scholarly and instructional ecosystem. A technical transformation is necessary to fully enable this expanded mission.

The “Innovation” section of the proposal lays out our recipe for the retooling of *Pleiades*. This recipe addresses the most urgent needs articulated by the *Pleiades* community: streamlined dissemination mechanisms, display support for mobile and tablet devices, expanded coverage, flexible relationships, comprehensive and customized access to data, and accelerated content creation and review. Meeting these needs will usher in a new chapter in our scholarly communication story, broadening access to ancient geography and encouraging not only individual engagement by external persons, but the integration of third-party technological mechanisms at all levels. Successful completion of the work proposed herein will continue a tradition of excellence that provides not only a unique scholarly resource to the Humanities, but also a practical example of sustainability for other projects.

⁴ The roots of the “spatial turn” in the Humanities are older (e.g., Tuan 1975 and see Goldi 2011), but their methodological flowering, enabled by technology (e.g., Knowles 2002, 2008, 2014) are contemporaneous with, and in some cases informed by, *Pleiades*. A “viewshed” is a geographic area visible from a particular vantage point.

⁵ See <http://pleiades.stoa.org/docs/content-development-projects/bulk-data-sources>.

⁶ Elliott 2009. Pelagios Project: <http://pelagios-project.blogspot.co.uk/>. See further letter from Isaksen attached.

Innovation: Methods and Digital Technology

The *Pleiades* community needs faster and more reliable ways to use, create, and share information. Their needs are as yet unmet because of the shortcomings of an aging, monolithic software application that cannot perform its functions quickly enough at current levels of demand, thus slowing users and standing in the way of desired revisions that might slow it even more. At present, a single host computer provides all *Pleiades* services. Consequently, when more than a few users interact with *Pleiades* simultaneously, it is not uncommon for the components of the system to compete internally for limited resources like access to the central processors. It does not matter whether the users in question are search bots, individual web page visitors, active contributors, volunteer reviewers, or users of an external application like the *Dickinson College Commentaries* or *ISAW Papers*; concurrent demands on the database, search catalog, and web application framework quickly mount.⁷ Resource scarcity is exacerbated when export files are generated because additional copies of our application framework must be activated for such tasks. Moreover, our web application framework (Plone) is now several releases behind current recommendations.⁸ Experts in the Plone community tell us that the version we use has several documented performance deficiencies that have since been corrected and that some of these are likely responsible for high processor load rates we see in our performance data.

Users experience *Pleiades* resource scarcity in the form of slow response times and sometimes error messages instead of content. The average time necessary for a *Pleiades* place page to load fully in a user's browser is 5.61 seconds. Users do get about 20% of our pages in under 1 second, but 33% take 1-3 seconds, and the remaining 47% take much longer than the two-second maximum recommended by most user experience practitioners.⁹ Conventional mechanisms for mitigating such delays have proved ineffective. For example, code that caches frequently requested pages in server memory in order to avoid repeated visits to the database provides little benefit because demand for *Pleiades* content is broad and flat: our "most popular" page accounts for less than a tenth of a percent of our page views. Current code structure and component versions prevent us from easily splitting elements of the system across multiple machines or fully realizing the benefits of simply upgrading hardware.

The solution? Rather than scrapping the entire system and starting over, we will disentangle our architecture, taking a modular approach to meeting the needs of each major class of user. After two years of consultation with our users, experts in the Plone community, developers working for our external partners, and the software engineer who originally implemented the *Pleiades* system (Sean Gillies, now an Associate Editor), we have adopted the strategy presented here: splitting *Pleiades* into a family of

⁷ *ISAW Papers* (<http://isaw.nyu.edu/publications/isaw-papers>) and the *Dickinson College Commentaries* (<http://dcc.dickinson.edu/>) are examples of third-party sites that make use of an open-source plugin that requests *Pleiades* data for all places mentioned in a document whenever that document is loaded in a web browser in order to display popups containing maps and descriptive information to the user.

⁸ <http://plone.org>. *Pleiades* uses version 3.3.5 (March 2010); the most recent Plone release is 4.3.4 (November 2014).

⁹ Data on *Pleiades* page load timing and view frequency is collected using Google Analytics and server logs. Figures reflect the 12 months preceding proposal submission. The "two-second rule" derives from a study that found: "forty-seven percent of customers expect to wait no more than two seconds for a Web page to render" (Forrester 2009). Given the maturation of broadband Internet access since 2009, user expectations are likely even higher today.

applications, each deployed with its own memory and processor allocations, so that execution of one component has minimal effect on others and we can adjust resources to meet changing demands.

The proposed improvements span all aspects of the *Pleiades* dissemination mission. We will continue to use the well-known and easily parsed Comma-Separated Value (CSV) format for nightly export of content from *Pleiades*, but extract the code that creates it from Plone so that we can make it reflect comprehensively the contents of the database without negative impact on web performance.¹⁰ To enhance the performance of the *Pleiades* API, we will also repackage and extend the code that produces the five different serialization formats we provide for each place record: KML (for Google Earth), Atom (for feed readers and web syndication), the two most common syntaxes of the LOD-oriented Resource Description Framework (RDF+XML and Turtle), and GeoJSON (a format for exchanging spatial data with external web applications).¹¹ We will take the opportunity to respond to one of the most frequently repeated requests of our external partners by making the GeoJSON serialization comprehensive, just like the upgraded nightly CSV export. In revising the code that creates each of these formats, we will alter it to write each discrete resource to a separate file on disk only when a change is made to the corresponding record in the database, instead of the current strategy of repeatedly generating serializations from the database each time they are requested by an external user (a time-consuming and compute-intensive task). This change will also make it possible for us to use a “disk caching” strategy for the content we deliver through the API, rather than the ineffective memory-based caching strategy we use now. Standard server software can quickly handle many thousands of requests per minute for static files, thereby making it possible for us to reduce our current 5.6-second page load average to less than a single second for every format of every place record, even when multiple requests are received from multiple users in a very short amount of time. We will deploy a new interface for our human users that makes no additional demands on the database or Plone infrastructure by adapting open-source code already written by the Duke Classics Collaboratory (DC3) and extending it with full-featured maps and responsive styling for tablet and mobile systems.¹² The DC3 code uses the *Pleiades* GeoJSON format and already boasts a fast, innovative place name search function that runs entirely in each user’s browser. We will supplement both the API and the new user interface with server-based faceted search capabilities underpinned by the high-performance Apache Solr search engine.¹³ Faceted search will enable more advanced users to find content quickly by incrementally filtering their search results using attributes other than name (e.g., type, date, and spatial location). Atop Solr we will reimplement the reconciliation API functions originally prototyped for *Pleiades* in 2010-2011 but never widely publicized because of limited capacity.

Offloading the consumer mission as outlined above will immediately decrease some of the load on Plone, which will continue to provide the interactive editing and reviewing functions essential to the *Pleiades* publication workflow. By upgrading to the latest version of Plone, we will gain more performance

¹⁰ See LOC Formats, CSV. Metadata and access to the *Pleiades* dump files: <http://pleiades.stoa.org/downloads>.

¹¹ Serialization is the process of converting data structures in a running computer application into a form that can be stored or exchanged. Keyhole Markup Language (KML): LOC Formats, KML. Atom Syndication Format: Nottingham 2005. Resource Description Framework (RDF): W3C 2014. RDF+XML: Gandon 2014. RDF Turtle: Prud'hommeaux 2014. Geographic JavaScript Object Notation (GeoJSON): LOC Formats, GeoJSON. *Pleiades* played a leading role in the GeoJSON specification effort, beginning in 2009.

¹² DC3’s “Pleiades Static Search” can be used online at <https://ryanfb.github.io/pleiades-static-search/> and has been released under open license at <https://github.com/ryanfb/pleiades-static-search>. See attached letter from Sosin.

¹³ <https://lucene.apache.org/solr/>. Faceted search and its implementation is well explained in Seeley 2009.

improvements that have been added to the code base since the version we currently use was released. We will also gain the ability to equip the system with performance-monitoring capabilities provided by the *New Relic* application analytics platform by adding and configuring a plugin that is already widely used in the Plone community.¹⁴ The *New Relic* service will enable us to identify the most time-consuming operations remaining following the upgrade so that we can introduce targeted improvements to remedy them. Having streamlined, upgraded, and optimized Plone and our other software components, we will be in a position to enhance the database, interfaces, and serializations by adding support for more nuanced place relationships than we currently handle and publishing a formal specification for them so that other projects can benefit.¹⁵ The new, distributed architecture will also make it straightforward to create for the Managing Editors a script that can take tabular data and upload it as draft content in the *Pleiades* database, either marking entries as updates for existing place records or creating entirely new records as necessary. The Editorial College will then be able to review them using the familiar but now much faster Plone-based workflow.

History of the Project and Start-Up Phase Results

Like any good gazetteer, *Pleiades* (<http://pleiades.stoa.org>) is an organized spatial reference work for use in research, publication, and teaching. Jointly operated by the Institute for the Study of the Ancient World at New York University and by the Ancient World Mapping Center at the University of North Carolina at Chapel Hill, it constitutes the most accurate and comprehensive geographic dataset for the ancient Mediterranean world, identifying and describing nearly 35,000 places, spaces, territories, and regions.¹⁶ It serves scholars and students alike as a ready reference and a guide to associated bibliography for places encountered in primary sources and secondary literature. As a database fronted by a web application, *Pleiades* transcends the familiar structure of print gazetteers (alphabetical lists of placenames), to provide its users with multiple modes of discovery: thematic browsing, hyperlinks, and a search engine. *Pleiades* publishes not just for individual human users, but also for search engines and for the burgeoning array of computational research and visualization tools that support work in fields like computational linguistics, digital text encoding, computational text analysis, natural language processing, named entity recognition, and Geographic Information Systems (GIS).

The present project has its origins in the Classical Atlas Project (CAP), a 12-year effort that produced the *Barrington Atlas of the Greek and Roman World*. In acknowledgement of this heritage, *Pleiades* is named after the daughters of Atlas in Greek mythology. CAP, which had received funding from the NEH and other sources, redressed a critical gap in research tools for the Classics that had been identified in the early 1980s: historical cartography was so neglected as a subdiscipline of ancient studies that there existed no comprehensive, up-to-date scholarly reference atlas for Greek and Roman civilization.¹⁷ An NEH Preservation and Access Research and Development grant (PA-51873-06, PI: Talbert) launched *Pleiades* in Chapel Hill in 2006.¹⁸ It culminated in 2008 having funded conceptual and experimental work to develop the data model now used, proving our hypothesis that off-the-shelf GIS data models were

¹⁴ <https://newrelic.com/>. Plone plugin: <https://github.com/collective/collective.newrelic>.

¹⁵ Only simple relationships are currently supported (Gillies 2013). The planning document for new relationships: <http://pleiades.stoa.org/docs/content-development-projects/relationships-beyond-simple-connections>.

¹⁶ At the time of writing, *Pleiades* has published 34,764 records for places and spaces that include information about 30,168 associated toponyms and 38,676 associated spatial location geometries.

¹⁷ Bagnall 1980.

¹⁸ Final reports from all referenced grants available at: <http://pleiades.stoa.org/docs/reports/>.

inadequate for the task and that a custom database was required.¹⁹ From 2008-2010, a JISC/NEH Transatlantic Digitization Collaboration Grant (PX-50003-08; PI Bagnall) with a team at King's College, London used the *Pleiades* prototype to explore modes of cross-project geographic linking. Its findings, adapted to the more suitable LOD model, formed the conceptual foundation for the Pelagios Project. From 2010 to 2014, *Pleiades* moved into its implementation phase, supported by a combination of institutional funds and an NEH Preservation and Access Humanities Collections and Reference Resources grant (PW-50557-10, PI: Elliott). This grant facilitated the complete digitization of the *Barrington Atlas* materials, incorporating work already done with separate funds by Prof. Michael McCormick and his students for Harvard's *Digital Atlas of Roman and Medieval Civilization*.²⁰

Pleiades content is updated collaboratively by volunteers around the world who work under the supervision of a volunteer Editorial College, filling a gap in the scholarly communications fabric for the typically small, highly technical notes and bits of geographic data that are otherwise unlikely to see the light of day in conventional, narrative-focused publications.²¹ Through *Pleiades* these volunteers also provide authority control for ancient places. Just as the Library of Congress issues “authority files” to help improve discoverability in library catalogs by standardizing subject terms, names, and titles, *Pleiades* assigns a stable identifying number to each place and to each record about a place. The use of numbers, rather than “standard” or “preferred” placenames, permits *Pleiades* to itemize places that never had a formal name in antiquity (e.g., a particular courtyard, road segment, or bridge) or whose ancient name has been lost from our sources over the intervening centuries. The PIDs are incorporated into the page address in a uniform way that is easy to remember and to encode, thereby forming for each place a Uniform Resource Identifier (URI), a standard mechanism for identifying documents and objects on the world-wide web.²² So, for example, *Pleiades* assigns the PID 29573 to an ancient region known as “Gedrosia”. The URI for the *Pleiades* page for this Gedrosia is <http://pleiades.stoa.org/places/29573>. This practice facilitates citation and linking for individual users and establishes a simple, permanent reference number for each place that can be used anywhere such references are valuable.

In fact, by establishing an authoritative gazetteer and associated open information services, *Pleiades* has started a revolution: a constellation of online publications treating the histories, languages, texts, and artifacts of antiquity that make use of *Pleiades* to contextualize their holdings interoperably across the Web. Operating under the aegis of the UK-based Pelagios Project, over 40 teams from 8 different countries have incorporated *Pleiades* URIs into their datasets, thereby identifying places mentioned in texts and the origins and findspots of artifacts.²³ Several of these projects use *Pleiades* data to provide their users with links, dynamic maps, and other services. All of them publish the pairwise matches between their own records and *Pleiades* place records (over a million so far) as open data for other parties to use and other systems to harvest. *Pleiades* uses this data too, creating lists of related content on every place page by comparing the URI for the place in question against the data published by Pelagios partners. For example, at the time of this writing the related content list on the *Pleiades* page for Delphi in Greece included links to: 20 articles and images in the on-line *Ancient History Encyclopedia*, 29 coinage

¹⁹ Gillies 2010.

²⁰ <http://darmc.harvard.edu/icb/icb.do>.

²¹ Editorial policy: <http://pleiades.stoa.org/docs/editorial-guidelines>.

²² More specifically, *Pleiades* uses HTTP URIs: Berners-Lee 1999, Jacobs 2004, Berners-Lee 2005, Sauermann 2008.

²³ Pelagios partners and their datasets: <http://pelagios.dme.ait.ac.at/api/datasets>. See Isaksen letter.

records from the American Numismatic Society, 121 archival excavation photographs in the databases of the German Archaeological Institute, 624 passages from ancient texts published in the *Perseus Digital Library* at Tufts University, over 7,000 records for named historical persons born at Delphi from the *Lexicon of Greek Personal Names* at Oxford University, and more.²⁴

Environmental Scan

As an established project, Pleiades is well known in both digital humanities and ancient studies circles. Its leadership is familiar with related geospatial technologies and data sources. In preparing this proposal, we have checked our knowledge against a search of the *Geospatial One-Stop Portal*, as mandated by the proposal guidelines, as well as the *NEH Funded Projects Query Form*.

We have already discussed our relationship to Pelagios and its partners and pointed to documentation of third-party datasets that have been identified for incorporation into *Pleiades*. There are other active geographic projects, like *The Syriac Gazetteer*, the *China Historical GIS*, *Regnum Francorum Online*, the *Digital Atlas of the Roman Empire*, *al-Thurayyā*, and *DARMC*, that will continue to create and publish data that partly overlaps and partly extends beyond *Pleiades*.²⁵ The NEH-funded World-Historical Gazetteer Project only treats places relevant to the last 500 years. The digital gazetteer recently launched by the Library of Congress only provides for dates since 1700 and, for the spatial footprint of *Pleiades*, largely repeats the contents of *GeoNames* and *OpenStreetMap* (q.v., below).²⁶ Our leadership maintains contact with all of these projects in order to limit duplication of effort, identify areas for collaboration, and provide advice based on our experience. One recent outcome of this on-going dialog is the *Pelagios Gazetteer Interconnection Format*, a specification for sharing data about places across gazetteers that is modeled on the *Pleiades* RDF serialization.²⁷ We also pay attention to the open-source software produced by these projects, and by efforts like the joint New York Public Library/LOC Gazetteer software and the *Arches Heritage Inventory and Management System*, but as yet see no compelling reason to abandon our core database structure and editorial workflow management system for another.²⁸

We are sometimes asked why *Pleiades* is needed at all, given the existence of resources like *Wikipedia*, *GeoNames*, *OpenStreetMap*, and the new LOD version of the *Getty Thesaurus of Geographic Names*.²⁹ *Pleiades* recognizes the value (and variation) of these resources for toponymy, spatial coordinates, and established roles in varied reference architectures, and we already incorporate references (or have plans to do so) for all four. *GeoNames* consists of data from a variety of national mapping agencies and commercial gazetteers, sometimes incorporating historical names. The *TGN* was originally compiled from published atlases and subsequently augmented from other sources. Both lack *Pleiades*' rigorous support for contested, unlocated, and unnamed places and are less closely tied to primary sources and disciplinary

²⁴ <http://pleiades.stoa.org/places/540726/>.

²⁵ *The Syriac Gazetteer*: <http://syriaca.org/geo/>. *CHGIS*: <http://www.fas.harvard.edu/~chgjs/>. *RFO*: <http://www.francia.ahlfeldt.se/>. *DARE*: <http://imperium.ahlfeldt.se/>. *Al-Thurayyā*: <https://maximromanov.github.io/2014/11-20.html>.

²⁶ Library of Congress Digital Gazetteer: <http://loc.gazetteer.us/>.

²⁷ <https://github.com/pelagios/pelagios-cookbook/wiki/Pelagios-Gazetteer-Interconnection-Format>.

²⁸ *Arches*: <http://archesproject.org/>.

²⁹ *Wikipedia*: <https://www.wikipedia.org/>. *GeoNames*: <http://www.geonames.org/>. *OSM*: <http://www.openstreetmap.org/>. *Getty TGN*: <http://blogs.getty.edu/iris/getty-thesaurus-of-geographic-names-released-as-linked-open-data/>.

literature. *Wikipedia* and its automatically generated LOD version *dbpedia.org* provide individual pages of information (often with spatial coordinates attached) about many ancient places, but their editorial policies on notability and original research preclude comprehensive treatment of the myriad small, contested, and unlocatable places that *Pleiades* documents alongside the more "famous" places.³⁰ *OpenStreetMap* as yet has no operating conceptual framework or technological support for places that do not exist on the ground today, limiting its relevance to extant archaeological remains (*Pleiades* does interoperate with *OSM* to facilitate cross-citation in such cases).

Work Plan

We divide our work plan into 6 phases. Three user focus events are discussed sub "Evaluation".

Phase 1 Sep - Dec 2015	PI: set up project financials and administration, hire Unnamed Developer, initiate subcontract with Jazkarta, issue purchase orders for development servers and <i>New Relic</i> services.
Phase 2 Jan - May 2016	Jazkarta: set up development environment, separate serialization generation from Plone framework, technical planning for Plone upgrade. PI/Unnamed: make CSV and GeoJSON formats comprehensive and replace consumer UI with "Pleiades Static Search".
Phase 3 Jun - Dec 2016	PI/Unnamed: implement Solr and faceted search. Jazkarta: Plone upgrade and <i>New Relic</i> instrumentation.
Phase 4 Jan - Jun 2017	Team: modification of UI, database, deployment architecture and resource allocation to support new relationships and respond to user priorities and collected performance data. Bulk additions script. Jazkarta finishes work.
Phase 5 Jul - Jan 2018	PI/Unnamed: continued UI, API, resource allocation refinements. Testing and refinement of bulk additions script. Unnamed finishes work.
Phase 6 Feb - Aug 2018	PI: normalize site management operations and train other editors as necessary; solicit final assessments for users; final report and white paper.

Risk assessment and mitigation

The most significant risk we face is the all-too-common discovery that one of the technical components of the software work is more complex, difficult, and costly than presently anticipated. It is our judgment that the Plone upgrade is the aspect of the project where this is most likely to happen, given the need to catch up several versions and the quantity and complexity of the customizations that we will need to migrate forward. We have tried to mitigate this risk in advance by identifying a highly qualified subcontractor (Jazkarta, Inc.) to manage the work and by undertaking a separate Plone upgrade with them (the Plone-based ISAW website has just been through this process with Jazkarta). We have designed the work plan so that tasks assigned to Jazkarta on which the Unnamed Programmer and the PI are dependent get done first, ensuring that a longer-than-anticipated upgrade will not stymie parallel work. Jazkarta's agile and iterative development methodology, in which we are already practiced, ensures that project leadership

³⁰ <http://en.wikipedia.org/wiki/Wikipedia:Notability>; http://en.wikipedia.org/wiki/Wikipedia:No_original_research.

will become aware of problems quickly and we will be able to identify remediation steps as early as possible.

A second source of risk is in the identification and hiring of the Unnamed programmer. The current work plan assumes an initial 3-4 month period for this task; however, an extra 3-4 months' delay will not adversely affect outcomes nor require a no-cost extension. In the event of such a delay, the PI may elect to delay the user focus meeting schedule so as to start with the Association of Ancient Historians meeting in the spring of 2016, continue with SCS/AIA in January 2017, and identify and schedule a subsequent AAH or other professional meeting as the third, sometime in early-to-mid 2017.

Evaluation

Pleiades has a long history of evaluating effectiveness and identifying priorities in a collaborative, community-based fashion. We use our community mailing list, scheduled "mapping parties" on Internet Relay Chat, Skype, and Google Hangouts, and ad hoc meetups at conferences to share ideas and solicit feedback from our users. We will continue to use all of these mechanisms during the period of performance. We will also conduct three user focus sessions during which a group of 8-10 current and prospective *Pleiades* users will spend a day before or after a major conference talking over successes and challenges, evaluating the effects of recent software changes, and setting priorities for the next round of development. The PI, in consultation with the Editorial College, will identify and recruit these individuals in advance of the events. During the events, we will identify "champions" for particular issues or upgrades whom we will consult subsequently for more feedback as relevant improvements are made. These individuals will also be asked to provide written input to the final report and white paper. Priorities, use cases, and other actionable information arising from these meetings will be documented in performance reporting and on the *Pleiades* blog in the interest of transparency and by way of example.

The three conferences we have identified for focus meetings are: the Joint Annual Meetings of the Society for Classical Studies and the Archaeological Institute of America (SCS/AIA; January 2016, San Francisco); the Annual Meeting of the Association of Ancient Historians (AAH; May 2016, Tacoma, Washington); and SCS/AIA (January 2017, Toronto, Canada). The PI, in consultation with the Editorial College and *Pleiades* partners, may elect to hold the third user focus event at another venue such as the annual meeting of the American Schools of Oriental Research or the annual Byzantine Studies Conference. We have budgeted funds to support travel by the Unnamed Programmer to all 3 of these events and by two Jakarta programmers to the latter two events. As the PI is already scheduled to attend these meetings using ISAW operations funds, he will extend his stay and lead the meetings at no cost to the grant. We have also budgeted to provide 8 users at each event with an additional night of lodging and day of meals and incidentals in order to facilitate their participation.

Staff

The project will be directed by **Tom Elliott**, ISAW's Associate Director for Digital Programs and Senior Research Scholar. His educational background and experience as an ancient historian, software developer, and project manager makes him ideally suited to continue leading *Pleiades*, an undertaking he has fostered for over fifteen years. As budgeted, he will devote 10% of his annual work during the period of performance to tasks identified in this proposal. This commitment is in addition to the 10% research time granted him by ISAW in the context of his appointment as a Senior Research Scholar, time not billed to the grant that he will continue to devote to content-related work in *Pleiades*.

ISAW/NYU will engage an **Unnamed Programmer** to work on tasks as listed in the work plan. This individual must have significant skills in Python-language programming, Linux development, and data serialization formats used by *Pleiades*. We are confident, based on past experience, that we will be able to identify and engage such an individual at the rates and commitment levels indicated in the budget.

Plone-related programming and configuration tasks will be carried out under subcontract by **Jazkarta, Inc.** As indicated in Jazkarta's letter of commitment and bid package, they will bring extensive experience with Plone to bear on this project, ensuring a positive outcome.

One of the great strengths of the *Pleiades* community is its **Editorial College**. These volunteers are led by Senior Editors Roger Bagnall and Richard Talbert, whose experience with ancient geography, cartography, and research methods spans decades. It includes early-to-mid career scholars and professionals whose pedagogical and research activities dovetail with *Pleiades* in a variety of ways, as illustrated by their letters. They will continue -- at no cost to the grant -- the all-important tasks of developing and refining editorial policy, mentoring and supervising contributors, and advising the PI.

Final Product and Dissemination

The final product will be disseminated in three ways: live data at pleiades.stoa.org, quarterly archival deposits of all geographic data in standard formats as described in the Data Management Plan, and regular releases of all software components via the ISAW Github group, with copies of each release automatically deposited in the EU-funded Zenodo.org digital repository. All *Pleiades* data, both live on the site and in archival deposit, is governed by a Creative Commons Attribution license; all *Pleiades* software is open-source, governed either by GNU Public License or BSD License.³¹

The *Pleiades* project blog and the *Pleiades* Community mailing list will continue to be the primary mechanisms through which the project director and the Editorial College communicate with our users. We have an established history of publication, conference presentation, workshop participation, and project consultation, which we anticipate continuing. In the interest of providing a well-documented example for other projects, our whitepaper will address all significant technical successes, as well as any failures or unexpected changes in direction, with emphasis on the feedback provided through our user focus meetings and by other members of the community external to the core project team.

³¹ Creative Commons Attribution: <https://creativecommons.org/licenses/by/3.0/us/>. GNU Public License: <https://www.gnu.org/copyleft/gpl.html>. BSD License: <http://opensource.org/licenses/BSD-2-Clause>.

Sustainability Plan

Annually recurring operating costs for *Pleiades* are low. They consist of commercial leased hosting costs and 7 hours/week of salary and fringe support for each of the Managing Editors. All other labor on the project is provided by volunteers in the course of their regular, academic activities or their personal time. The current contract for *Pleiades* hosting costs \$2,530 per year, and we budget an additional \$1,000 annually for on-call systems administration support at a rate of \$200/hr. These costs have been written into, and undertaken by, the ISAW annual operations budget since 2010, a practice that will continue. So have the costs for one of the Managing Editors (Elliott). The other Managing Editor is, by established practice and agreement, the Director of the Ancient World Mapping Center at the University of North Carolina at Chapel Hill, with associated costs covered by that institution. Both institutions have frequently gone beyond these basic steps in supporting the project. Both have repeatedly employed student workers on various projects that contribute new and improved content to *Pleiades*. Both have built and are building other digital humanities capabilities that depend upon and exploit *Pleiades*.

In the original Sustainability Plan for *Pleiades* we estimated that a technology refresh, requiring additional, external financial support, would be required every 4-6 years. The current proposal is consistent with this estimate, our software stack being essentially the same as it was in 2008 (the last Plone release in 2010 was a bug fix). ISAW intends to undertake fundraising efforts to establish a recurring account for these longer-cycle costs as part of its digital infrastructure budget.

Pleiades embodies a philosophy of broadly shared cost and benefit in Humanities endeavor, predicated upon ubiquitous openness and embedded in the daily scholarly duties, avocational practices, and institutional commitments of a heterogeneous community. We see the financial, social, and intellectual aspects of the project as fundamentally intertwined. This community approach -- a hybrid of technical innovation, “crowdsourcing”, open access, and time-honored editorial practice -- is the model of sustainability we pledged to test in our original NEH proposal, and it is working well. Readers of this proposal will find that we privilege the word “community” over the word “audience.” We feel that the latter implies an old-fashioned model of the Humanities that elevates a few magisterial experts over a largely passive and implicitly inferior body of staff, students, and lay persons. This model is fundamentally at odds with the interactive and emancipatory potential of Internet technology and the ideals of American society. It also forces one into an increasingly myopic and often unsuccessful pursuit of “cost recovery” in order to maintain the positions of experts and their subordinate technical and research staff. The *Pleiades* community, by contrast, includes not only established scholars, but students at every level from secondary school through doctoral studies, as well as members of the general public. We value intellectual rigor and enforce high standards of citation, evidentiary proof, and peer review, just as experts have always claimed to do. We invite critical scrutiny of the myriad achievements of our contributors, consumers, and partner project members as documented on the *Pleiades* “Credits” and “Partners” pages and reflected in the Letters of Commitment and Support appended to this proposal.¹

We have high confidence in the on-going support of the *Pleiades* community and its supporting

¹ Credits: <http://pleiades.stoa.org/credits>. Partners: <http://pleiades.stoa.org/docs/partners>. As of the time of writing, registered contributors on the *Pleiades* website numbered 280 individuals.

institutions if needed improvements are made in a timely manner. But we would be remiss if we did not also take steps to mitigate the impact of a less rosy scenario arising someday. Perhaps financial challenges or institutional mission changes down the road will lead NYU or UNC-CH to rethink a commitment to *Pleiades*. Perhaps societal, technological, or methodological changes will undermine user interest in *Pleiades* or render some of its technological components obsolete. Should such circumstances arise, *Pleiades* must be positioned to reorganize or degrade gracefully. Our data management plan outlines the most important way in which we are addressing this issue: the release of our content regularly, under open license, in well-known formats, via multiple third parties. Beyond that, the technological intervention proposed in this document will make it easier for us to sunset one component while maintaining or expanding others, to transfer components to new institutional partners, and to carry out future upgrades on individual components rather than taking on the whole edifice at once. All of these factors seem likely to reduce institutional stress, cost pressure, and overall threat to project longevity.

The *Pleiades* community is confident that, with NEH support for this grant, the project and its services will play a long and fruitful role in the digital humanities landscape.

Data Management Plan

The *Pleiades* data management plan conforms to, and in many respects goes beyond the requirements of, New York University's *Policy on Retention of and Access to Research Data*, dated March 1, 2010.¹

Pleiades manages a variety of data classes that are necessary to support the description of ancient geography and to manage the activities of our scholarly community.² Upgrades planned for this project will refine the data model by adding support for relationships between places and associated documentation, but all existing content will be migrated with no loss of information. Data objects are versioned now, will continue to be versioned, and the versioning history of all data objects will also be migrated with no loss of information. Other datasets subject to this plan include blog posts, help documents, and other content published on the *Pleiades* web site, as well as conventional server access and error logs. *Pleiades* code is published on-line, and is also subject to this plan.³

In accordance with NYU policy, copies of all *Pleiades* research data will be retained by the PI for a minimum of 5 years following the final reporting of the project. Copies of some datasets will be retained for longer periods under various custodies (see below).

Server access and error logs will be retained in their native formats. Although they do not include personally identifiable information, they contain IP addresses and other sensitive information, and so will not be released publicly. Under terms of the NYU data retention policy, they will be retained and made available by the PI to appropriate individuals in the context of an audit, dispute, sponsor request, FOIA request, or other matter as directed by the Senior Vice Provost for Research (or a designee).

Pleiades geographic data is published over the web from the system in a number of standard formats, and we will maintain the full suite of these going forward. Individual data serializations for each *Pleiades* place, as described in the “Innovations” section, are disseminated using HTTP via stable URIs. The current nightly export to CSV format will continue to be disseminated via the *Pleiades Downloads* page at <http://pleiades.stoa.org/downloads/>. It will be enhanced to include all published data items and their attributes, thereby constituting a complete, application-neutral copy of the gazetteer in a widely used, non-proprietary open format that is easy for digital repositories and collaborating third parties to maintain and use. Textual information in all files is encoded using the standard UTF-8 (Universal Character Set Transformation Format 8-bit). This export package is currently accompanied by a ReadMe.txt file explaining the content and its expected use. The PI, in collaboration with the Managing Editors, will enhance this metadata with the addition of appropriate documentation in accordance with ISO 19115:2003 “Geographic information – Metadata (corrigendum 1)” as recommended by the Federal Geographic Data Committee (FGDC).

Pleiades is currently hosted on a leased server in a redundant data center located near Denver, CO. Our present contract provides for a dual, high-performance disk array configured as RAID 1, which provides

¹ NYU policy: <https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/retention-of-and-access-to-research-data.html>.

² See further: *Pleiades Data Model*: <http://pleiades.stoa.org/help/pleiades-data-model>.

³ <http://pleiades.stoa.org/software/>.

for operational redundancy. The vendor provides comprehensive daily backups that are tested for restoration readiness on a quarterly basis (we see the raw test results on these). The contract also provides for 15-minute response time on-call emergency service and repair/restoration in the event of hard drive or other equipment failures. We believe that similar arrangements, adjusted as necessary over time to support performance of the web application and manage costs, are adequate to ensure data integrity and access to live *Pleiades* content.

In addition, we will implement a preservation strategy for *Pleiades*' geographic content by putting processes and agreements in place to effect the regular alienation and backup of the comprehensive *Pleiades* export in CSV format in multiple external hands. These provisions will ensure long-term access even in the event of a catastrophic event involving our datacenter, the demise of the project, or changed priorities on the part of New York University. The Ancient World Mapping Center at the University of North Carolina at Chapel Hill already copies the *Pleiades* CSV export to its own servers daily, and will continue to do so during and after the period of performance. The Perseus Digital Library at Tufts University has pledged to download and maintain copies in a similar manner, alongside its backups of its own data, beginning in September 2015.⁴ ISAW's digital programs team will continue to make quarterly deposits of the latest version of this file to NYU's Faculty Digital Archive (<http://archive.nyu.edu>), a formal, institutional archive operated by the NYU Library system that provides automated bit fixity testing and repair, geographically separated replication, and the assignment and maintenance of persistent identifiers for deposits. FDA deposits will be made with the addition of Dublin Core metadata conforming to NYU specifications.⁵ We will make parallel deposits of the CSV export and of all our software releases to the Zenodo.org research output repository, which is funded by the European Union and managed by CERN. Zenodo.org will preserve and assign a Digital Object Identifier (DOI) to each. The Managing Editors are actively cultivating additional, complementary partnerships, likely to include both informal holding of copies and formal archival deposit.⁶

As described in the "Significance" section, *Pleiades* assigns stable identifiers to all objects of interest in its dataset and serializes these identifiers into stable HTTP URIs. As a matter of policy, the *Pleiades* Managing Editors are committed to the persistence of these URIs with the support of ISAW, which budgets for the on-going registration of the pleiades.stoa.org domain. As a hedge against longer-term technological changes that might render the resolution of HTTP URIs and Internet domain names obsolete, *Pleiades* embeds the full URIs in every dissemination and archival format, thereby enabling future computational or manual reconstruction of connections to other datasets.

⁴ Crane letter.

⁵ FDA URIs conform to the *Handle Specification*: <http://www.handle.net/>. Dublin Core: <http://dublincore.org/>.

⁶ Discussions underway with the German Archaeological Institute and The Digital Archaeological Record (tDAR: <http://www.tdar.org/>).



P.O. BOX 390592, CAMBRIDGE, MA 02139
(888) 756-6348

February 13, 2015

Tom Elliott, Ph.D.

Associate Director for Digital Programs and Senior Research Scholar
Institute for the Study of the Ancient World (NYU)

Dear Dr. Elliott:

I understand that you are submitting a proposal for funding to the National Endowment for the Humanities for a project entitled "Pleiades 3" for the three-year period beginning in September 2015. On behalf of the entire team at Jazkarta, Inc., I am happy to commit to participation in Pleiades 3, subject to successful award and execution of an appropriate contract with NYU. It has been a pleasure to work with the ISAW team over the past year on your departmental website upgrade; we are looking forward to the additional challenges and opportunities represented by Pleiades 3.

As you know, we have taken some time to talk with you and your colleagues about the project, to read through your draft proposal, and to take a look at the code and system as it is now configured. These activities inform the statement of work and provisional budget, attached. Please let us know if you need any additional information.

Best of luck with the proposal effort!

Sincerely yours,

A handwritten signature in black ink that reads "Nate Aune". The signature is written in a cursive, flowing style.

Nate Aune, President, Jazkarta, Inc.

Statement of Work

Jazkarta, Inc. will use an agile, iterative approach to software development on this project, as described in the attached corporate summary. We will undertake collaborative design, development, test, and deployment activities in the following areas consistent with priorities defined and resources allocated by ISAW/NYU's Principal Investigator on an iteration-by-iteration basis:

1. Establish and revise development, test, and production environments on managed and cloud systems leased by ISAW/NYU.
2. Refactor existing components in the Pleiades code so that they can run as separate processes and write content to disk:
 - CSV export (pleiades-dumps):
 - JSON serialization
 - KML serialization
 - Atom serialization
 - RDF serializations (RDF/XML and Turtle)
3. Upgrade Plone to the latest stable version, to include modifications to the PleiadesEntity product and other components as necessary to effect the upgrade
4. Instrument the upgraded Plone instance using the Plone collective.newrelic package and configuration of same
5. Perform performance analysis and additional modification of the upgraded and instrumented Plone instance to identify and surmount performance problems, to include reconfiguration of development and production server environments in order to effect optimum resource allocations
6. Create bulk ingest script for adding and updating content in the database.
7. Modify database schema and user interface to support use of robust relationships in Pleiades content; migrate database content as necessary to conform to updated schema.
8. Other complementary work as identified and accepted.

Jazkarta, Inc. will also provide two developers from its Pleiades project team to participate in user focus meetings, as follows:

- Tacoma, Washington: Spring 2016
- Toronto, Canada: January 2017

Budget

Because everyone on a Jazkarta project - designers, project managers, Python developers and web developers - has a uniformly high level of skill and experience, we charge a uniform rate of \$150/hour for all our work.

The following non-binding estimates of costs and hours are based on engineering judgment and past experience after consultation with ISAW/NYU personnel and preliminary analysis of Pleiades published code. As in all significant software projects, it is likely that some tasks will take fewer hours than expected and others will take more than estimated. The agile software development approach, which we have used effectively with ISAW/NYU and our other clients, ensures that costs, benefits, and priorities are examined iteration-by-iteration, ensuring timely decision-making and reallocation of effort as appropriate.

Estimates correspond to numbered items in the Statement of Work:

1. Setup: 24 hours = \$3,600
2. Refactor exports and serializations: 108 hours = \$16,200
3. Upgrade Plone: 240 hours = \$36,000
4. New Relic Integration: 24 hours = \$3,600
5. Performance analysis and tuning: 90 hours = \$13,500
6. Bulk ingest script: 30 hours = \$4,500
7. Database schema modifications and associated data migrations: 60 hours = \$9,000
8. Other: 24 hours = \$3,600

Subtotal: 600 hours = \$90,000

ISAW/NYU has asked us to use the same basis for calculating travel costs as they have used for their personnel. We find these calculations acceptable, and therefore budget as follows:

- Two persons for two nights + one travel day to SFO and return: \$1,879
- Two persons for two nights + one travel day to YYX and return: \$2,767

Travel subtotal: \$4,646

PROJECT TOTAL: \$94,646



About Jazkarta

Prepared for: Tom Elliott, Institute for the Study of the Ancient World

Date: 13 February 2015

About Jazkarta

The following information serves as a brief introduction to Jazkarta, Inc. For additional information, please visit our website at <http://jazkarta.com>.

Team

Jazkarta is a web development and consulting firm specializing in Plone consulting, support, and training. Our developers are leading engineers in the Plone and Python community, with many combined years of experience architecting, developing, theming, troubleshooting, tuning, optimizing, and deploying Plone sites and web applications. Our team includes Plone core contributors, members of the Plone Framework Team and the Plone Foundation Board, and authors of books and articles. We have created dozens of open source projects and taught classes on a variety of subjects including Plone, Python, and agile project management. Please see <http://www.jazkarta.com/about/team/> for more information about our team.

Process

We use an agile, iterative approach to our software development projects. Agile methodologies are recommended for complex software projects where priorities and requirements can shift during the implementation process. This approach is based on defining system features - called "user stories" - as usable bits of functionality. The user stories are estimated and prioritized, and then implemented in a series of one week work "iterations". Each iteration includes planning, design, coding, and testing of a set of user stories, and at the end of each iteration a working product is demonstrated to stakeholders.

The agile process encourages teamwork and frequent communication between developers and clients, who jointly decide how to bundle the user stories into iterations based on their priority and difficulty. This allows the team to address the highest priorities and biggest risks early, while offering subsequent opportunities to modify the plan in response to new information. Rather than trying to freeze a plan and schedule, the work proceeds in a manner that encourages dialog and shifts focus to what is most important at each point in the project.

For more information on our process, please see <http://www.jazkarta.com/about/agile>.

Experience

We have extensive expertise creating websites for non-profit and educational institutions. See www.jazkarta.com/clients for a description of our recent projects. The following Plone projects are particularly relevant.

- NYU ISAW - This website redesign is currently a work in progress, but should be live at <http://isaw.nyu.edu/> by summer. Site features include a Plone version upgrade, mobile-friendly site redesign, customized workflows, and site stabilization.

Jazkarta Inc.

- [Dumbarton Oaks](#) - Site features include online exhibits, bibliographies, many custom content types including Byzantine seals and rare books, an intranet, maps, and faceted search
- [University of Minnesota Press](#) - Site features include bibliographies, faceted search, a pressroom, and complex custom content types
- [The Mountaineers](#) - Site features include maps, faceted search, complex landing pages, and extensive use of groups for granular control of editing permissions
- [KCRW](#) - Site features include extensive multimedia support, tiled layouts, and a mobile-first design

The following Jazkarta open source Plone add-ons may also be of interest.

- <https://github.com/jazkarta/collective.exhibit> - Make online exhibits from Plone content
- <https://github.com/collective/collective.citationstyles> - Add Citationstyles.org styling to Plone bibliographies
- <https://github.com/jazkarta/collective.zoomit> - Pan and zoom large images
- <https://github.com/jazkarta/collective.timelines> - Make timelines out of dated Plone content

Résumés

Roger Bagnall (New York University): Senior Editor

Jeffrey Becker (Oxford, MS): Associate Editor

Sarah Bond (Iowa State University): Associate Editor

Tom Elliott (New York University): Project Director and Managing Editor

Sean Gillies (Mapbox, Inc.): Associate Editor

Ryan Horne (University of North Carolina at Chapel Hill): Managing Editor

Adam Rabinowitz (University of Texas at Austin): Associate Editor

Richard Talbert (University of North Carolina at Chapel Hill): Senior Editor

Brian Turner (Portland State University): Associate Editor

**Curriculum Vitae
Roger Shaler Bagnall**

Institute for the Study of the Ancient World
New York University
15 East 84th St.
New York, NY 10028
(212) 992-7833; fax (212) 992-7809; roger.bagnall@nyu.edu

Education

1964-1968	Yale University: B.A., 1968
1968-1972	University of Toronto: M.A., 1969; Ph.D., 1972
1970-1971	American School of Classical Studies at Athens (Associate Member)

Selected Academic Honors and Awards

American Council of Learned Societies Study Fellowship (1976-77); National Endowment for the Humanities, Fellowship (1984-85); American Numismatic Society: Elected Fellow (1987); John Simon Guggenheim Memorial Fellowship (1990-91); Christ Church, Oxford, Fowler Hamilton Visiting Research Fellowship (1995-96); Académie Royale des Sciences, des Lettres, et des Beaux-Arts de Belgique, Membre associé (elected 1997); National Endowment for the Humanities, director of Summer Seminars for College Teachers (1987, 1990, 1999); American Academy of Arts and Sciences (elected 2000); American Philosophical Society (elected 2001); J.H. Gray Lecturer, University of Cambridge (2003); Andrew W. Mellon Foundation, Distinguished Achievement Award (2003); Sather Professor of Classical Literature, University of California at Berkeley (fall 2005); Directeur d'études invité, Ecole Pratique des Hautes Etudes, Paris (2006); Corresponding Fellow of the British Academy (2006); Phi Beta Kappa Visiting Scholar (2007-8); Alexander S. Onassis Foundation Visiting Scholar, Athens (2009-10); Haecker Lecturer, University of Heidelberg (2010).

Academic Appointments

1972-1974	Florida State University, Tallahassee: Assistant Professor of Classics
1974-	Columbia University: Assistant Professor to Professor, Classics and History (1974-2006) Jay Professor of Greek and Latin and Professor of History (2006-07) Professor Emeritus and Adjunct Senior Research Scholar (2007-) Acting Chair, Classics (1985-86, 2003); Chair (1994-2000) Dean, Graduate School of Arts and Sciences (1989-93)
2004 (fall)	American University in Cairo, Visiting Professor of Coptic Studies
2005 (fall)	University of California, Berkeley, Sather Prof. of Classical Literature
2007-	Institute for the Study of the Ancient World, New York University Professor of Ancient History and Leon Levy Director (2007-)

Professional Offices and Service (selected)

American Society of Papyrologists: Secretary-Treasurer (1974-79); Director (1980-83, 1987-89); Vice-President (1989-93); President (1993-97)

American Philological Association: Secretary, Committee on Basic Research Tools (1979-80); Secretary-Treasurer (1979-85); Project Director, Preservation Microfilming Project (1984-88); Member, Finance Committee (1985-88); member, Board of Directors (1988-91); member, Classical Atlas Committee (1989-2000); Vice President for Research (2009-13)

Comité International de Papyrologie: Member (1992-2001); President (2007-13)

Wells College, Trustee (2006-10)

Summer Seminar in Papyrology (American Society of Papyrologists; at Columbia University), co-director (2006)

Selected Publications

The Administration of the Ptolemaic Possessions outside Egypt (Columbia Stud.Class.Trad. 4, Leiden 1976)

Columbia Papyri VII: Fourth Century Documents from Karanis (Am.Stud.Pap. 20, Missoula 1980) (with N. Lewis)

Consuls of the Later Roman Empire (APA Philological Monographs 36, Atlanta 1987) (with Alan Cameron, Seth R. Schwartz, and K.A. Worp)

Egypt in Late Antiquity (Princeton 1993; paperback 1996)

The Demography of Roman Egypt (Cambridge 1994) (with Bruce W. Frier)

Reading Papyri, Writing Ancient History (London 1995) (Chinese and Italian editions, 2007)

The Kellis Agricultural Account Book (P.Kell. IV Gr.96) (Dakhleh Oasis Project Monographs 7, Oxford 1997)

The Hellenistic Period: Historical Sources in Translation, 2nd ed. (Oxford 2004) (with P. S. Derow)

Chronological Systems of Byzantine Egypt, 2nd ed. (Leiden 2003) (with K. A. Worp)

Women's Letters from Ancient Egypt, 300 BC-AD 800 (Ann Arbor 2006) (with R. Criboire)

Egypt in the Byzantine World (ed.) (Cambridge 2007)

The Oxford Handbook of Papyrology (ed.) (New York 2009)

Early Christian Books in Egypt (Princeton 2009)

Everyday Writing in the Greek East (Berkeley 2010)

The Encyclopedia of Ancient History (Blackwell 2013), 13 vols., general editor

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EDUCATION

The University of North Carolina at Chapel Hill, Ph.D., Classical archaeology, 2007.
The University of North Carolina at Chapel Hill, M.A., Classical archaeology, 2003.
Franklin & Marshall College, A.B., Classical archaeology and Latin, departmental honors, 1999.

PROFESSIONAL EXPERIENCE**Professional positions and appointments**

2014- Contributing Editor, Roman and Etruscan Art, Smarthistory at Khan Academy
2013- Associate Editor and reviewer, [The Pleiades Project](#)
2011-2013 Managing Editor and reviewer, [The Pleiades Project](#)
2012-2013 Lecturer in Classical Archaeology. Department of Classics, The University of North Carolina at Chapel Hill
Spring 2012 Visiting Lecturer. Department of Classics, The University of North Carolina at Chapel Hill
2011-2013 Acting Director, Ancient World Mapping Center, The University of North Carolina at Chapel Hill
2010-2011 Visiting Assistant Professor of Classical Archaeology, Joukowsky Institute for Archaeology & the Ancient World, Brown University
2009; 2010 Assistant Director, Summer Program in Archaeology. American Academy in Rome
2009-2010 Visiting Assistant Professor. Department of Classics, McMaster University
2008-2009 Visiting Assistant Professor. Department of Archaeology, Boston University
2007-2008 Visiting Assistant Professor. Department of Classical Studies, The College of William & Mary
Spring 2007 Visiting Instructor. Department of Classics, The University of North Carolina at Chapel Hill
2006-2007 Acting Director. Ancient World Mapping Center, The University of North Carolina at Chapel Hill

Archaeological Fieldwork

2007-2012. The Gabii Project (Italy). Managing director and co-principal investigator.
2004-2006. Università di Roma “La Sapienza” Meta Sudans / Palatine NE excavations. Field archaeologist (2004); trench supervisor (2005-06). Director, Clementina Panella.
2002-2003. Field research, Villa delle Grotte (Grottarossa). Director, Nicola Terrenato.
1999, 2001. Cecina Valley Survey excavations at Podere Cosciano (Pomarance). Field archaeologist. Director, Nicola Terrenato.

PUBLICATIONS**Books**

In prep. *A history of Roman urbanism* (an English translation of P. Gros and M. Torelli, *Storia dell'urbanistica: il mondo romano 2nd ed.* Laterza, 2007). (Under contract as translator and co-editor with Princeton University Press; English)
2015. J. Armstrong and **J. Becker**. *The Archaeology of Archaic Central Italy*. (ms. proposal submitted to Oxford University Press.)
2012. **J. Becker** and N. Terrenato. edd. *Roman Republican Villas: Architecture, Context, and Ideology*. Papers and monographs of the American Academy in Rome. University of Michigan Press. ISBN-13: 978-0-472-11770-3. [Reviews: [BMCR 2013.02.30](#); [Antiquity 87 \(2013\)](#); [AJA 117.13 \(2013\)](#)]

Peer-reviewed Articles and Chapters

2014. M. Mogetta and **J. Becker**. “Archaeological research at Gabii, Italy: the Gabii Project Excavations, 2009-2011.” *American Journal of Archaeology* [118.1:171-88](#).
2013. “Italic architecture of the earlier first millennium BCE.” In *The Blackwell Companion to Roman Architecture*, edited by R. J. Ulrich and C. Quenemoen, 6-27. Malden MA: Wiley-Blackwell. ISBN-13: 978-1-4051-9964-3.

2013. "Villas and agriculture in Republican Italy." In *The Blackwell Companion to the Archaeology of the Roman Republican Period*, edited by J. DeRose Evans, 309-22. Malden MA: Wiley-Blackwell. ISBN-13: 978-1-4051-9966-7.
2011. **J. Becker** and J. Nowlin. "Orientalizing infant burials from Gabii, Italy." *BABESCH* 86:27-39.
2009. **J. Becker**, M. Mogetta, and N. Terrenato. "A new plan for an ancient Italian city: Gabii revealed." *American Journal of Archaeology* 113.4:629-42.
2006. "The rediscovery of the Villa delle Grotte at Grottarossa and the prehistory of Roman villas." *Journal of Roman Archaeology* 19:213-20.

Invited Articles and Chapters

2013. **J. Becker** and C. M. Melisch. "Gabii und Rom – zwei antike Zentren in Mittelitalien." *Archäologie in Deutschland* 1/2013:58-60.
2010. N. Terrenato, A. Gallone, **J. Becker**, and S. Kay. "Urbanistica Ortogonale a Gabii: Risultati delle nuove prospezioni geofisiche e prospettive per il futuro." In *Lazio e Sabina VI: atti del convegno. Sesto incontro di Studi sul Lazio e Sabina*, edited by G. Ghini, 237-48. Rome: Edizioni Quasar. ISBN-13: 978-88-7140-433-2.
2009. N. Terrenato and **J. Becker**. "Il sito di Monte delle Grotte sulla via Flaminia e lo sviluppo della villa nel suburbio di Roma." In *Suburbium II: il Suburbio di Roma dalla fine dell'età monarchica alla nascita del sistema delle ville (V-II sec. a.C.)*, edited by V. Jolivet, C. Pavolini, M. A. Tomei, and R. Volpe, 393-401. (Collection de l'École française de Rome; 419). Rome: École française de Rome. ISBN-13: 9782728308200.
2005. "Investigating early villas: the case of Grottarossa." In *Papers in Italian archaeology VI: Communities and Settlements from the Neolithic to the Early Medieval Period. Proceedings of the 6th Conference of Italian Archaeology held at the University of Groningen, Groningen Institute of Archaeology, The Netherlands, April 15-17, 2003* 2 v. (BAR Int. Ser. S1452), edited by P. A. J. Attema, A. J. Nijboer, and A. Zifferero, 813-21. Oxford: ArchaeoPress. ISBN-13: 978-1841718903.

MAPS

2014. Comprehensive digital map accompanying D. Roller *The Geography of Strabo*. Cambridge: Cambridge University Press.
- 2006-2007; 2011-2013. Digital map-making on commission using ArcGIS 10.0, Adobe Illustrator, and Adobe Photoshop.
- 2012-present. Contributions to '[Antiquity à la carte 2.0](#)' online application, Ancient World Mapping Center.
2011. R. J. A. Talbert, B. D. Turner, **J. Becker**, et al. *A Map of Roman Asia Minor Around 100 C.E.* with digital gazetteer.
2011. Contributions to R. J. A. Talbert et al. *Routledge Wall Maps for the Ancient World series (7 maps)*.

REFEREEING

- 2013-. Manuscript referee, *American Journal of Archaeology*.
2012. Evaluation of grant proposal for Social Sciences and Humanities Research Council of Canada.

AWARDS

- 2011-2012. Etruscan Foundation Research Fellowship, "Tracing indigenous urbanism in Latium". \$7,500
- 2005-2006. General dissertation completion fellowship. The Graduate School of Arts and Sciences, The University of North Carolina at Chapel Hill.

PROFESSIONAL SERVICE

- 2012-present. Member, Interest Group for Geospatial Studies, Archaeological Institute of America.
- 2009-2010. Lecturer, National lecture pool, Archaeological Institute of America.
2009. Member, local organizing committee, 8th Roman Archaeology Conference. University of Michigan, Ann Arbor. April 3-5.
- 2004-2005. Departmental Senior Teaching Fellow, Department of Classics, The University of North Carolina at Chapel Hill.
- 2001-2006. North Carolina Society of the Archaeological Institute of America: Publicity coordinator (2001-04); Program Coordinator (2004-06); delegate to AIA council (2005-06).
2003. Conference assistant, "Current Issues in State Formation: the Mediterranean and Beyond." Department of Classics, The University of North Carolina at Chapel Hill. October 17-18.
- 2002-2005. Member, Student Affairs Interest Group (SAIG) of the Archaeological Institute of America.

Sarah E. Bond

Assistant Professor of Classics, University of Iowa
 Department of Classics
 210 Jefferson Building
 Iowa City, IA 52242-1418

Languages: Latin, Greek, Italian (high proficiency), French (reading), German (reading)

Education :

May 2011 PhD in Ancient History: University of North Carolina, Chapel Hill, NC

May 2007 M.A. in Ancient History: University of North Carolina, Chapel Hill, NC

May 2005 B.A. in Classics, History with high honors, as a distinguished major
 Minor in Classical Archaeology: University of Virginia, Charlottesville, VA

Employment

August 2014-Present Assistant Professor of Classics, Classics Department, University of Iowa, Iowa City, IA

Aug. 2012-May 2014 Assistant Professor of History, History Department, Marquette University, Milwaukee, WI

July 2011-July 2012 Mellon Junior Faculty Fellow in Classics and History, History and Classics Departments,
 Washington and Lee University, Lexington, VA

Aug. 2005-May 2011 Graduate Instructor and Teaching Assistant in History, History Department, University of North
 Carolina at Chapel Hill, Chapel Hill, NC

Publications

with T.H.M. Gellar-Goad, "14. Roman Foul Bodies. The satiric tradition," in *Disability in Antiquity*, edited by Christian Laes (London: Routledge) [Under Contract].

with Peter Martens, "The Atlas is Dead. Long Live the Atlas," *Journal of Early Christian Studies* [Submitted for Journal Review in January 2015].

"'As Trainers for the Healthy': Masseurs, Anointers, and Healing in the Late Latin West," *Journal of Late Antiquity*: Special ReMeDHe Issue, edited by Kristi Upson Saia and Heidi Marx-Wolf [Submitted for Journal Review in September 2014].

"Curial Communiqué: Memory, Propaganda, and the Roman Senate House," in *Aspects of Ancient Institutions and Geography: Studies in Honor of Richard J.A. Talbert*, Impact of Empire Series, edited by Lee L. Brice and Daniëlle Sloopjes (Leiden: Brill, December 2014), 84-102.

"Ignominy and Monetarii: Mint Workers in the Later Roman Empire" in *Work, Labor and Professions in the Roman World*, edited by Koen Verboven, Christian Laes, and Peter Van Nuffelen [Final Chapter Submitted to Editors in September 2014; Book Proposal Accepted by Oxford University Press].

"Altering Infamy: Status, Violence, and Civic Exclusion in Late Antiquity," *Classical Antiquity*, 33.1 (April 2014), 1-30.

"Mortuary Workers, the Church, and the Funeral Trade in Late Antiquity," *Journal of Late Antiquity* 6.1 (Spring, 2013), 135-151.

Manuscripts

Taboo and Trade: Sordid Professions in the Roman Mediterranean
 [Currently Under Contract and Submitted with Final Review Revisions to the University of Michigan Press on December 31, 2014]

Popular Publications and Outreach

Online Articles:

with Matthew Neujahr, “Divine Reverie: Revelation, Dream Interpretation, and Teeth in Antiquity,” *The Appendix* (July, 2014).

“Map Quests: Geography, Digital Humanities and the Ancient World,” *Bible History Daily* (June 4, 2014).

Op-Editorials:

Sunday, May 15, 2011 “Erasing the Face of History,” *The New York Times*.

Research Projects:

Director, The Collegium Project, a digital humanities initiative between Marquette University and Washington and Lee University.

Co-P.I. with Paul Dilley (U.Iowa), Terra Biblica and Big Ancient Mediterranean Digital Humanities Projects

Contributor, U.S. Epigraphy Project, Brown University, Providence, Rhode Island.

Editor, Pleiades Project, Ancient World Mapping Center, UNC-CH and the Institute for the Study of the Ancient World, NYU.

Awards and Honors:

December 2014	Obermann Center for Advanced Studies Interdisciplinary Research Grant for the project: “Developing the <i>Terra Biblica</i> and <i>BAM</i> (“Big Ancient Mediterranean”) Online Resources.”
Summer 2013, 2014	Visiting Scholar at the American Academy in Rome
Summer 2013	Summer Faculty Fellowship Awardee, Marquette University
July 2011-2012	Mellon Junior Faculty Fellowship Research and Travel Grant
Fall 2010	University of North Carolina-King’s College London Research Grant Awardee
Spring 2009	Medieval and Early Modern Studies Dissertation Fellowship
June 2008	Mowry Dissertation Grant, History Department University of North Carolina at Chapel Hill
May ’05, ’06, ’08, ’09	Nomination for Excellence in Teaching Assistance (TA Award) University of North Carolina at Chapel Hill
Summer 2007	Internship, Epigraphische Datenbank Heidelberg University of Heidelberg, Heidelberg, Germany
May 2007	Herbert Benario Travel Award, Classical Association of the Midwest and South
2006	National Honor Society Recipient
2004-6	Distinguished Scholar in History, University of Virginia
2004 – 2005	Harrison Research Scholar, University of Virginia Research conducted at the Baths of Diocletian, Rome, Italy
2004	Kate Cabell Cox Scholarship Recipient

CURRICULUM VITAE

Tom Elliott (tom.elliott@nyu.edu)

Associate Director for Digital Programs and Senior Research Scholar

Institute for the Study of the Ancient World, New York University

15 East 84th Street, New York, NY 10028, U.S.A.

<http://www.paregorios.org>

EDUCATION

- Ph.D. 2004: Ancient History, University of North Carolina at Chapel Hill (UNC-CH)
 - Dissertation (2004): Epigraphic Evidence for Boundary Disputes in the Roman Empire
- M.A. 1997: Ancient History, UNC-CH. Second field: Spatial Analysis
 - Thesis (1997): Diocletianic Census Inscriptions from the Aegean Islands and Asia Minor
- B.S. 1989: Computer Science, Duke University, *cum laude*. Second major: Classical Studies

HONORS, AWARDS AND GRANTS

- Principal investigator:
 - *Pleiades: Content and Community for Ancient Geography*, NEH Preservation and Access Humanities Collections and Reference Resources grant: 2010-2014
 - *Linked Ancient World Data Institute*, NEH Institutes for Advanced Topics in the Digital Humanities grant: 2011-2014
 - Subaward: *The Syriac Reference Portal: New Access to Sources for the History of the Middle East* (Vanderbilt University/NEH): 2012-2014
 - Subaward: *Supporting the Digital Latin Library Planning Process* (American Philological Association/Andrew W. Mellon Foundation): 2012-2013
 - Subaward: *ISAW Participation in the Corpus of Campā Inscriptions Project*, (École française d'Extrême-Orient/Toyota Foundation): 2010-2012
 - *Epigraphic Interoperability Workshops*, NEH/DFG Symposia and Workshops Program (with the Seminar für Alte Geschichte und Epigraphik at Heidelberg University): 2009-2010
 - Subaward for *Integrating Digital Papyrology* (Duke University/Mellon Foundation): 2009-2010
 - Co-PI with Gary Bishop, UNC-CH Computer Science: Blind Audio/Tactile Mapping System (Microsoft Corporation): 2006-2007
- Proposal co-author and Project Director/Manager:
 - Digital Corpus of Literary Papyri, NEH/DFG Bilateral Digital Humanities Program grant, 2013-2016
 - Subawards for *Integrating Papyrology 2 and 3* (Duke University/Mellon Foundation): 2010-2012
 - *Concordia*, NEH/JISC Transatlantic Digitization Collaboration Grant (with King's College, London): 2008-2010
 - *Pleiades: Creating an Interactive Internet Archive for Ancient Geography*, NEH Preservation and Access Research and Development grant: 2006-2008
 - NEH Challenge Grant for endowment support of the Ancient World Mapping Center: 2001-2007
- External fellow: Institute for Advanced Technology in the Humanities, UVA, 2005
- Morehead Fellow, UNC-CH College of Arts and Sciences, 1995-1997
- Small Mowry Award, UNC-CH Department of History, Summer 1996
- Meritorious Service Medal, USAF, October 1992
- USAFROTC Scholarship, Duke University, 1985-1989

SOFTWARE, LANGUAGES AND SKILLS

- Python; C/C++; XML (including XHTML, TEI, MODS, Atom, RDF), schema creation (DTD/RelaxNG), XSLT 2.0, CSS; VBA (extensive MSOffice automation programming); SQL; Perl; Pascal; ACSL
- Adobe Photoshop, Illustrator, Acrobat, Framemaker; Apache Cocoon; CVS/SVN/HG/Git/SourceSafe; ESRI ArcGIS (ArcCatalog, ArcMap); Microsoft Office Suite, including Visio and Access (database and query design, VBA automation); Filemaker Pro; OpenOffice suite; Oxygen XML editor; Plone; QGIS
- Reading skills in modern French, German and Spanish, as well as ancient Greek and Latin

WORK HISTORY

2/2008 - present: Associate Director for Digital Programs, Institute for the Study of the Ancient World, NYU
Envisions, plans and implements digital projects to support the Institute's research, teaching and outreach missions.

2/2006 - 1/2008: Pleiades Project Director, Ancient World Mapping Center, UNC-CH
Strategic and day-to-day management, design and development of the Pleiades Project, an NEH-funded effort to create an on-line workspace for ancient geography.

8/2000-2/2006: Director, Ancient World Mapping Center, UNC-CH
Supervised staff of 4-6 undergraduate and graduate research assistants to establish and carry out the missions of the Center. Managed day-to-day operations, consultation with scholars and students, commissioned and course-related mapping projects. Raised funds for Center initiatives and endowment.

8/1995-1/2004: Graduate Student, Department of History, UNC-CH (multiple part-time positions)
Part-time and volunteer positions, including: web editor for the American Society of Greek and Latin Epigraphy, graduate assistant on the UNC Digital Library Project and the UNC History Department's Technology in the Undergraduate Survey program, Project Manager for the Interactive Ancient Mediterranean, and Research Assistant to the Classical Atlas Project.

11/1992 - 8/1995: Computer Scientist, AEGIS Research Corp., Huntsville, AL
Served as lead developer and program manager on a number of visual and engineering simulation projects, including simulations for guidance-aided fuzing (sic) experiments and the standard trainer and simulation testbed for the U.S. Army's Avenger Weapons system.

6/1989 - 10/1992: Communications and Computer Systems Officer, USAF, Grissom AFB, IN
In successive posts as Chief of Communications Maintenance, Chief of Communications Operations, and Base Closure Planning Officer, supervised over 60 technicians and operators, and administered annual operations budgets ranging from \$3 - \$5 million in support of communications, computer, and flight operations of the 305th Air Refueling Wing of the Strategic Air Command.

SELECT PUBLICATIONS AND PRESENTATIONS

- Chapter: "Cumulative Bibliography of Works by Richard J.A. Talbert", pp. 12-25 in L. Brice and D. Sliotjes (eds.), *Aspects of Ancient Institutions and Geography: Studies in Honor of Richard J.A. Talbert*, Brill, 2015.
- Chapter: "Epigraphy and Digital Resources," pp. 78-85 in C. Brunn and J. Edmondson (eds.), *The Oxford Handbook of Roman Epigraphy*, 2015.
- Online Resource: *demarc: Epigraphic Evidence for Boundary Disputes in the Early Roman Empire*, Department of History, University of North Carolina at Chapel Hill 2004; github.com 2012-, <https://github.com/paregorios/demarc>.
- Online Resource: "Peutinger Map Names and Features, With Commentary and User's Guide," with R. Talbert, 2010, Cambridge University Press, 2010, <http://www.cambridge.org/us/talbert/talbertdatabase/prm.html> (= Appendix 7 to R. Talbert, *Rome's World, The Peutinger Map Reconsidered*, Cambridge, 2010).
- Online Resource: *EpiDoc Guidelines: Ancient Documents in TEI XML*, with G. Bodard et al., 2002-, <http://www.stoa.org/epidoc/gl/latest/>.
- Journal Article: "Digital Geography and Classics," with S. Gillies, in *Digital Humanities Quarterly* 3.1 (Winter 2009), <http://www.digitalhumanities.org/dhq/vol/3/1/000031.html>.
- Chapter: "Constructing a Digital Publication for the Peutinger Map," R. Talbert and R. Unger (eds.), *Cartography in Antiquity and the Middle Ages: Fresh Perspectives, New Methods*, Brill, 2008.
- Chapter: "Bringing an Ancient Map of the Roman World into Modern GIS: Cartographic and Historical Perspectives Revealed," with R. Talbert, in A. Knowles and A. Hillier (eds.), *Placing History: How Maps, Spatial Data, and GIS are Changing Historical Scholarship*, ESRI Press, 2008.
- Chapter: "Mapping the Ancient World" with Richard Talbert in Anne Knowles (ed.), *Past Time, Past Place: GIS for History*, ESRI Press, 2002.

SEAN GILLIES

ENGINEER @ MAPBOX, INC.

EDUCATION

1992–1995

Colorado State University, M.S., Atmospheric Science.

1987–1991

University of Utah, B.S., Physics.

PROFESSIONAL EXPERIENCE

2013–Present

Engineer @ Mapbox, Inc., Washington, DC

2008–2013

Software Engineer @ Institute for the Study of the Ancient World (ISAW), New York University, New York, NY

2006–2008

Software Developer @ Ancient World Mapping Center, University of North Carolina, Chapel Hill, NC

2002–2006

GIS Consultant and Developer @ Geospatial Solutions, Fort Collins, CO

1999–2002

Image Analyst and Developer @ Information Integration & Imaging LLC, Fort Collins, CO

COMPUTING

I work on software, data modeling, data formats, and protocols for putting geographic information on the Web. I am an expert Python programmer and am also capable in C/C++, Javascript, bash, and SQL. I know a wide range of web technologies, including HTTP, HTML, XML, and RDF. See <https://github.com/sgillies> for an overview of my recent activities.

PROJECTS

Fiona, Rasterio, and Shapely

I am the primary author of Fiona, Rasterio, and Shapely, Python libraries of computational geometry methods and methods for reading and writing geospatial raster and vector datasets.

GeoJSON

I am one of the authors of the GeoJSON format specification and am currently the editor of the GeoJSON Internet Draft.

GeoJSON-LD

I am the lead of the GeoJSON-LD project, a linked data vocabulary for GeoJSON terms, JSON-LD contexts for GeoJSON data, and a linked data vocabulary for describing temporal, event-like

Pleiades

I am an associate editor of Pleiades, a gazetteer and linked data graph of ancient places built by the community of ancient world scholars.

My Blog

Since 2005, I have written about programming and other computing topics on my blog.

Et Cetera

I contribute to a number of other Python, C, and Javascript projects involving spatial analysis and spatial database indexing, such as GeoPandas, GDAL, Cardboard, and Rtree.

TEACHING

Linked Ancient World Data Institute (2012–2013)

I served on the faculty of the Drew University and New York University's institute and taught scholars of the Ancient Mediterranean and Ancient Near East how to apply linked data principles to their work.

Institute for Enabling Geospatial Scholarship (2010)

I served on the faculty of the University of Virginia Scholars Lab's institute and taught developers and designers how to spatially enable web projects and build service-oriented GIS infrastructure.

SPEAKING

September 2014

Fiona and Rasterio: data access for Python programmers and future Python programmers
FOSS4G 2014, Portland, OR

July 2014

Rasterio: Geospatial Raster Data Access for Programmers and Future Programmers SciPy
2014, Austin, TX

May 2013

GeoJSON is Spectacularly Wrong FOSS4G North America Conference 2013, Minneapolis, MN

April 2011

Pleiades: the un-GIS for ancient geography AAG 2011, Seattle, WA

PUBLICATIONS

Elliot, T. and Gillies, S. "Digital Geography and Classics". *Digital Humanities Quarterly: Changing the Center of Gravity: Transforming Classical Studies Through Cyberinfrastructure*, Volume 3 Number 1, 2009.

Ryan Horne

Curriculum Vitae

Department of History
417 Hamilton Hall
Chapel Hill, North Carolina 27599

605 Jones Ferry Rd Apt. DD09
Carrboro NC, 27510
rmhorne@email.unc.edu
607-221-5382

EDUCATION

- Ph.D. History, University of North Carolina, Chapel Hill, 2015 (expected)
Dissertation: *Imperial Power and Local Identity in Greek Garrison Communities: The Phourarchia and the Polis*
Committee: Richard Talbert (chair), Wayne Lee, Fred Naiden, Kenneth Sams, Joshua Sosin
- M.A. History, University of California, Santa Barbara, 2010
- B.A. / B.S History and Information Sciences and Technology, Pennsylvania State University, 2005

PROFESSIONAL EXPERIENCE

- 2014 Director, Ancient World Mapping Center, History Department, University of North Carolina, Chapel Hill

FELLOWSHIPS & AWARDS

- 2014 Holsenbeck Fund, University of North Carolina, Chapel Hill
- 2013 Raymond Faherty Research Grant for Military History, University of North Carolina, Chapel Hill
- 2013 George B. Tindall Graduate Fellowship for Summer Research, University of North Carolina, Chapel Hill
- 2013 Semple Award, Classical Association of the Middle West and South
- 2012 Wadell Fund, University of North Carolina Chapel Hill
- 2012 Mowry Dissertation Fellowship, University of North Carolina Chapel Hill
- 2011 Clein Fund, University of North Carolina Chapel Hill
- 2009 Drake Fund, University of California, Santa Barbara

PUBLICATIONS

Book Reviews

- 2013 Review of John Lendon. *Song of Wrath: The Peloponnesian War Begins*. The History Teacher, Volume 46, No. 2 (February 2013) p. 303-304

- 2009 Review of John Hale. *Lords of the Sea: The Epic Story of the Athenian Navy and the Birth of Democracy*. *The History Teacher*, Volume 43, No. 1 (November 2009) p. 146-147

Web Publications

- 2014 *Beyond Maps as Images at the Ancient World Mapping Center*. ISAW Papers 7.9, <http://dlib.nyu.edu/awdl/isaw/isaw-papers/7/horne/>

Web Applications

- 2015 Forthcoming: Bond, Sarah and Dilley, Paul, and Horne, Ryan. *Terra Biblica and BAM* (“Big Ancient Mediterranean”) Online Resources, University of Iowa.
- 2014 Strabo Digital Mapping Application in support of Roller, Duane W. 2014. *Geography of Strabo: an English Translation, with Introduction and Notes*. Cambridge: Cambridge University Press.
<http://awmc.unc.edu/awmc/applications/strabo>
- 2014 AWMC Map Tiles
A series of geographically accurate, publicly accessible map tiles of the Ancient World.
<http://awmc.unc.edu/wordpress/tiles/>
- 2012 AWMC API
A web-based interface for interacting with the digital resources of the Ancient World Mapping Center.
<http://awmc.unc.edu/api/>
- 2012 Antiquity À-la-carte
A web-based GIS and interactive digital atlas of the Ancient World.
<http://awmc.unc.edu/wordpress/alacarte/>
- 2011 Tabula Peutinger Map
Revised code in support of Talbert, Richard J. A., Tom Elliott, Nora Harris, and Martin Steinmann. 2010. *Rome's World: The Peutinger Map Reconsidered*. Cambridge: Cambridge University Press.
<http://peutinger.atlantides.org/map-a/>

INVITED TALKS

- 2014 “New Pathways Through the Ancient World: HGIS, Linked Data, and the Web,” Wake Forrest Digital Humanities Kitchen, October 24, 2014
- 2012 “Mapping Digital Prosopographies,” Meeting of The California Consortium For the Study of Late Antiquity, October 5, 2012

ADAM THOMAS RABINOWITZ

EDUCATION

Swarthmore College	Greek, History (with distinction)	B.A., 1995
University of Michigan, Ann Arbor	Greek, Classical Archaeology	M.A., 2000
University of Michigan, Ann Arbor	Classical Art and Archaeology	Ph.D., 2004
Dissertation title	"Symposium, community and cultural exchange in Archaic Sicily and South Italy."	
Committee	Professor Emeritus John Pedley (co-chair), Professor Sharon Herbert (co-chair), Professor Sara Forsdyke, †Professor Sabine MacCormack (Notre Dame), Professor Malcolm Bell III (University of Virginia)	

PROFESSIONAL EXPERIENCE

2014-present	Associate Professor, Dept. of Classics, The University of Texas at Austin
2006-2014	Assistant Professor, Dept. of Classics, The University of Texas at Austin
2004-present	Assistant Director, Institute of Classical Archaeology, The University of Texas at Austin
2004-2006	Lecturer, Dept. of Classics, The University of Texas at Austin

SELECTED PUBLICATIONS

1. **Rabinowitz, A.**, "It's about time: historical periodization and Linked Ancient World Data", in T. Elliott, S. Heath, and J. Muccigrosso, *Current Practice in Linked Open Data for the Ancient World* (ISAW Papers 7, 2014), <http://dlib.nyu.edu/awdl/isaw/isaw-papers/7/rabinowitz/>.
2. **Rabinowitz, A.**, "GeoDia: or, Navigating archaeological time and space in an American college classroom", in G. Earl, T. Sly, A. Chrysanthi, P. Murrieta-Flores, C. Papadopoulos, I. Romanowska, and D. Wheatley, eds., *CAA 2012: Proceedings of the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, England* (Amsterdam: Pallas Publications, 2013), 263-272.
3. **Rabinowitz, A.**, M. Esteva, and J. Trelogan, "Ensuring a future for the past: long-term preservation strategies for digital archaeological data", in L. Duranti and E. Shaffer, eds., *Proceedings of The Memory of the World in the Digital Age: Digitization and Preservation. An international conference on permanent access to digital documentary heritage, 26-28 September 2012, Vancouver, British Columbia, Canada* (Vancouver: UNESCO, 2013), 941-954.
4. Trelogan, J., **A. Rabinowitz**, M. Esteva, and S. Pipkin, "What do we do with the mess? Managing and preserving process history in an evolving digital archaeological archive", in F. Contreras, M. Farjas, and F. J. Melero, eds., *CAA 2010: Fusion of Cultures. Proceedings of the 38th Annual Conference on Computer Applications and Quantitative Methods in Archaeology, Granada, Spain, April 2010* (Oxford: Archaeopress, 2013), 597-600.
5. **Rabinowitz, A.**, and L. Sedikova, "On whose authority? Interpretation, narrative, and fragmentation in digital publishing", in E. Jerem, F. Redo, and V. Szeverényi, *On the Road to Reconstructing the Past: Proceedings of CAA 2008* (Budapest, 2011), 134-140.
6. Esteva, M., J. Trelogan, **A. Rabinowitz**, D. Walling, and S. Pipkin, "From the site to long-term preservation: a reflexive system to manage and archive digital archaeological data", *Archiving 2010* (Proceedings of the Archiving Conference, vol. 7: Den Haag, the Netherlands, 2010), 1-6.
7. **Rabinowitz, A.**, C. Schroer and M. Mudge, "Grass-roots imaging: a case study in sustainable heritage documentation at Chersonesos, Ukraine", in B. Frischer and L. Fisher, *Making History Interactive: Proceedings of CAA 2009* (Budapest, 2010).
8. **Rabinowitz, A.**, S. Eve, and J. Trelogan (2007). "Precision, accuracy, and the fate of the data: experiments in site recording at Chersonesos, Ukraine", in J. Clark and E. Hagemester, eds., *Digital Discovery: Exploring New Frontiers in Human Heritage, CAA 2006* (Budapest), 243-256.

SELECTED PAPERS AND PRESENTATIONS

1. "Managing Time: PeriodO, a Linked Data approach to the interoperability of periodized data", Library of Congress workshop "Fostering Transatlantic Dialogue on Digital Heritage and EU Research Infrastructures: Initiatives and Solutions in the USA and in Italy", December 2, 2014.
2. "Periods, Organized (PeriodO): a Linked Data gazetteer to bridge the gap between concept and usage in archaeological periodization", 2014 Computer Applications and Quantitative Methods in Archaeology Conference, April 24, 2014.
3. "Digital archaeology and the hundred-year archive: experiments in field recording, dissemination and long-term data preservation at Chersonesos (Crimea, Ukraine)", 114th Annual Meeting of the Archaeological Institute of America, January 6, 2013.
4. "Challenges in the publication and long-term preservation of digital excavation data", International Academic Conference "Cultural Heritage Protection: Problems and Perspectives", October 2, 2012.
5. "Ensuring a future for the past: long-term preservation strategies for digital archaeological data", UNESCO conference "Memory of the World in the Digital Age: Digitization and Preservation" September 28, 2012.
6. "The fault is not in our databases, but in ourselves: messy data, metadata, and interoperability", Federated Archaeological Information Management Systems (FAIMS) workshop, August 17, 2012.
7. "From the site to long-term preservation: a reflexive system to manage and archive digital archaeological data", Archiving 2010 Conference, June 2nd, 2010.
8. "What do we do with the mess? Managing and preserving process history in evolving digital archaeological archives", 2010 Computer Applications and Quantitative Methods in Archaeology Conference, April 9th, 2010.
9. "First but not out: the Byzantine levels at Chersonesos in historical and archaeological context", 111th Annual Meeting of the Archaeological Institute of America, January 7th, 2010.

GRANTS AND FELLOWSHIPS

NEH Digital Humanities Start-Up Grant: Periods, Organized (PeriodO): a gazetteer of period assertions for linking and visualizing periodized data (Co-PI with Ryan Shaw), 2014-2015, National Endowment for the Humanities

NEH Digital Humanities Implementation Grant: Archaeological Resource Cataloguing System, MATRIX/Michigan State University, PI Jon Frey (project partner, as director of Chersonesos excavations), 2014-2017, National Endowment for the Humanities

NEH Digital Humanities Start-Up Grant: Data Sustainability and Advanced Metadata Management for Scientific Imaging, Cultural Heritage Imaging (project partner, as director of Chersonesos excavations), 2014-2015, National Endowment for the Humanities

AHRC (UK) Follow-on Proposal: Hestia2: Reading texts spatially (web development consultant), 2013-2014

Instructional Technology Grants: An Interactive Spatial Timeline of the Ancient Mediterranean, 2008-2009, UT Liberal Arts Instructional Technology Service; GeoDia, 2009-2010, UT LAITS

SYNERGISTIC ACTIVITIES

Associate Editor, Pleiades (pleiades.stoa.org)

Member, Editorial Board of Open Context (opencontext.org)

Member, Scientific Committee, Fasti Online (fastionline.org)

Member, Editorial Board of the Bryn Mawr Classical Review

Member, Technical Advisory Board for Federated Archaeological Information Management Systems (FAIMS) project (www.fedarch.org)

Participant, Linked Ancient World Data Institute, 2012

Richard J.A. **TALBERT** was born in England in 1947. He was a scholar of The King's School, Canterbury, and of Corpus Christi College, Cambridge, where he gained a Classics 'Double First' (1968) and a PhD (1972) which was the basis of his *Timoleon and the Revival of Greek Sicily* (Cambridge, 1974; reissued 2006). After he moved to teach ancient history at Queen's University, Belfast (1970), his research extended into Roman history and to a landmark study *The Senate of Imperial Rome* (Princeton, 1984; reissued 2008), which won the American Philological Association's Goodwin Award of Merit. He also edited a basic *Atlas of Classical History* (Routledge, 1985), and served as Senior Adviser of Studies in Arts and as Assistant Dean of Theology. He was Herodotus Fellow at the Institute for Advanced Study, Princeton, for 1978-79. In 1985 he became professor of history at McMaster University (Canada) and then department chair, before moving in 1988 to his present position as William Rand Kenan, Jr., professor of history at the University of North Carolina, Chapel Hill (also adjunct professor of Classics).

Talbert's current research focuses primarily on Greek and Roman worldview, travel, and mapping. A commission by APA to create a comprehensive classical atlas – the first in over a century – resulted in the *Barrington Atlas of the Greek and Roman World* (Princeton, 2000; App for iPad 2013), for which he recruited almost 200 scholars and raised over \$4.5 million. The establishment of Chapel Hill's Ancient World Mapping Center followed <awmc.unc.edu>. Talbert led the Center's initiatives to secure National Endowment for the Humanities support for 'Pleiades' (an ongoing web-based collaborative system to update the atlas), and to produce seven *Wall Maps for the Ancient World* (Routledge, 2011). Volumes he has (co-)edited include *Space in the Roman World: Its Perception and Presentation* (LIT, 2004); *Oxford Companion to World Exploration* (2007); *Cartography in Antiquity and the Middle Ages: Fresh Perspectives, New Methods* (Brill, 2008); *Geography and Ethnography: Perceptions of the World in Pre-Modern Societies* (Wiley-Blackwell, 2010); *Highways, Byways, and Road Systems in the Pre-Modern World* (Wiley-Blackwell, 2012); *Ancient Perspectives: Maps and their Place in Mesopotamia, Egypt, Greece, and Rome* (Chicago, 2012). His major study *Rome's World: The Peutinger Map Reconsidered* was published by Cambridge U.P. in 2010 (paperback 2014; web component at: www.cambridge.org/us/talbert). He is currently completing *Roman Portable Sundials: The Empire in Your Hand*, and (co-edited with F. Naiden) *The Oxford Handbook of Communications in the Ancient World*. He is preparing *Transformations in Mapping the Classical World*. With G. Parker he is writing *Travel in the Roman Mind*.

Talbert's Penguin Classic *Plutarch on Sparta* (1988) was expanded in 2005. A joint work with M. Boatwright and D. Gargola, *The Romans: From Village to Empire*, appeared from Oxford in 2004 (expanded 2nd edition with N. Lenski, 2012), abridged as *A Brief History of the Romans* (2006; expanded 2nd edition 2014). Talbert takes the lead in co-editing the UNC Press series *Studies in the History of Greece and Rome*. Since 2000 he has been the *American Journal of Philology's* associate editor for ancient history, and has co-edited two special issues: *Classical Courts and Courtiers* (2011), and *Moses Finley in America: The Making of an Ancient Historian* (2014). For the (online) fifth edition of the *Oxford Classical Dictionary* in preparation, he is area editor for geography. He has served on the Council of the Classical Association of Canada, and as President of the Association of Ancient Historians (1999-2002). He was awarded APA's Medal for Distinguished Service in 1999. He was Resident professor at the American Academy in Rome (1991), and chaired the Advisory Council to its School of Classical Studies (2006-12). He taught at the University of Alabama in Huntsville as Eminent Scholar in the Humanities (spring 1993), and has been visiting professor of Classics at Princeton University (spring 1997). He directed a NEH Institute on the early Roman empire (Chapel Hill, 1991), and co-directed (with M. Maas) three NEH Seminars at the American Academy in Rome (2000, 2006, 2012).

Richard Talbert has held a Guggenheim Fellowship, an American Council of Learned Societies Senior Fellowship, a Harley Research Fellowship, and a Goheen Fellowship at the National Humanities Center. Cambridge conferred on him its Doctorate of Letters (Litt.D., 2003), and he has been elected a Corresponding Member of the German Archaeological Institute (DAI, 2005). He organized the 16th series of Nebenzahl Lectures in the History of Cartography at the Newberry Library, Chicago (2007). He has been directeur d'études invité at the Ecole Pratique des Hautes Etudes, Paris (2011), and professeur invité at the Université de Reims (2013). A Festschrift *Aspects of Ancient Institutions and Geography* was presented to him in 2014 (ed. L. Brice and D. Slootjes; Brill).

Brian David Turner

Curriculum Vitae

February 2015

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[www.sites.google.com/a/pdx.edu/
brianturner/](http://www.sites.google.com/a/pdx.edu/brianturner/)

EDUCATION

Ph.D., History, University of North Carolina at Chapel Hill, 2010

Dissertation: *Military Defeats, Casualties of War and the Success of Rome*

M.A., Classics, Queen's University, Kingston, Ontario, Canada, 2005

B.A. (Honours), Classical Studies, Queen's University, Kingston, Ontario, Canada, 2003

PROFESSIONAL APPOINTMENTS

Assistant Professor, Portland State University, Department of History, 2011 - present

Associate Editor, *Pleiades: An Online Workspace for Ancient Geography* (NEH funded),
2009 - present

Acting Director, Ancient World Mapping Center, UNC-Chapel Hill, 2009 – 2011

Graduate Research Assistant and Research Specialist, *Pleiades: An Online Workspace for
Ancient Geography*, (NEH funded) 2006 - 2007

PUBLICATIONS

Articles and Book Chapters

“Limitless Empire: The Public Commemoration of Soldiers’ Origins.” In *Roman Frontier
Studies: Proceedings of the XXII International Limes Congress in Ruse, Bulgaria, 2012*,
eds. L. Vagalinski, N. Sharankov, and S. Torbatov (tentative title: forthcoming).

“The Provinces and Worldview in Velleius Paterculus.” In *Aspects of Ancient Institutions and
Geography: Studies in Honor of Richard J. A. Talbert*, edited by Lee L. Brice and
Daniëlle Slootjes, 260-279. Leiden: Brill, 2014.

“War Losses and Worldview: Re-Viewing the Roman Funerary Altar at Adamclisi.” *American
Journal of Philology* 134.2 (2013): 277-304.

Book Reviews

Common Sense Geography: Implicit knowledge structures in ancient geographical texts, by
Klaus Geus and Martin Thiering, eds. *Brym Mawr Classical Review* (2015.01.20),

Geography in Classical Antiquity, by Daniela Dueck. *Classical Journal Online* (2013.08.05).

Brill's New Pauly Historical Atlas of the Ancient World: Brill's New Pauly. Supplements 3, by A.
M. Wittke, et al., eds. *Journal of Hellenic Studies* 132 (2012): 203-205.

Other Publications

Assistant Compiler, "The Roman Empire around 200 C.E." *Routledge Wall Maps for the Ancient World*, Routledge, 2010.

Research in Progress

Co-Editor with Jessica H. Clark, *Brill's Companion to Loss and Defeat in the Ancient World* (tentative title)(Leiden: Brill, under contract).

PRESENTATIONS AND CONFERENCE PARTICIPATION

Papers and Presentations (* indicates invited lecture)

* "Warfare and War Losses in Ancient Rome," Annual Reed College Latin Forum, Portland, OR, 2013

"Provinces and Empire: Cartography and Worldview in Velleius Paterculus," Annual Meeting of the Classical Association of the Canadian West, Edmonton, AB, 2013

"Military Diplomas and Mapping the Roman Empire," Annual Meeting of the Classical Association of the Pacific Northwest, Eugene, OR, 2013

"Limitless Empire: Soldiers' Origins on the Roman Funerary Altar at Adamclisi," XXII International Limes Congress, Ruse, Bulgaria, 2012

"A Map of Asia Minor Around 100 C.E." XXII International Limes Congress, Ruse, Bulgaria, Poster Session, 2012 (also presented at the Annual Meeting for the Archaeological Institute of America, Poster Session, Philadelphia, PA, 2012)

* "Mapping Empire: The Commemoration of Roman Soldiers," Archaeological Institute of America, Portland, 2012

"HGIS and Ancient History," Annual Meeting of the Association of Ancient Historians, Chapel Hill, NC, 2012

"Envisioning Empire: The Roman World of Velleius Paterculus," Annual Meeting of the Classical Association of the Canadian West, Victoria, BC, 2012

"The *Clades Variana* and Roman Responses to Defeat," Annual Meeting of the Association of Ancient Historians, Vancouver, BC, 2009

Panels Organized

"The Other Side of Victory: War Losses in the Ancient World." Annual Meeting of the Society for Classical Studies, New Orleans, LA, 2015

"HGIS (Historical Geographic Information Systems): Questions, Applications." Annual Meeting of the Association of Ancient Historians, Chapel Hill, NC, 2012

Letters of Support

Ruth Mostern (University of California, Merced)
Katherine Weimer (Rice University)

February 12, 2015

Dear Colleagues,

It is with the greatest enthusiasm that I write in support of this proposal for Pleiades 3. I am a spatial historian (author of *Dividing the Realm in Order to Govern: The Spatial Organization of the Song State, 960-1276 CE*, published by Harvard University Press in 2011), a historical gazetteer developer (*The Digital Gazetteer of the Song Dynasty*, online at songgis.ucmerced.edu), the co-editor of a forthcoming essay collection about methods and exemplary practice in historical gazetteer design (*Placing Names: Enriching and Integrating Gazetteers*, with Merrick Lex Berman and Humphrey Southall, under review at Indiana University Press), and co-PI on a current NEH DH Start-Up grant to scope a global gazetteer for the past 500 years. This is, in short, a field with which I am very familiar.

In that context I can say that Pleiades has set the pace in this field as THE state-of-the-art historical gazetteer project for almost a decade. From the perspective of content, infrastructure, and uptake of linked open data standards, it is the initiative that everyone else in this field seeks to emulate. The long track record of success assures me that this proposal to restructure the Pleiades system to scale up performance and capacity will be successful. I am, moreover, positive that all of the work will be carefully documented and made available open source, as all of Pleiades' past work has been, and that Tom Elliot will, as he has always done, make himself generously available to other gazetteer developers in this community. In short, I am certain that this work will be completed at the highest standard of excellence and that it will be highly impactful far beyond the world of ancient Mediterranean digital humanities.

To put this another way, I anticipate that this proposal may face criticism for focusing too much on information technology mechanics and for being insufficiently humanistic. I hope that does not occur. I consider those concerns unfounded, because all other historical gazetteer developers look to Pleiades as their model, and improvements to Pleiades benefit us all. Moreover, I have become convinced over many years that historical gazetteer development is intellectually meaningful and high-stakes work in the humanities. A gazetteer is not only a work of reference; it is also a genre that confronts ontological questions that lie at the heart of all our fields. What is a place? How much does a place have to be transformed (in location, name, character) before it is a different entity than it was before? How can we harmonize different descriptions of the "same" place? From this point of view, the upgrades proposed herein are not mere technical

fixes. They will allow all spatial humanities practitioners to get a purchase on questions like these from a new angle and in the context of a newly robust and integrative system.

There is another element of this proposal that inspires my enthusiastic support. My own area of specialty is medieval China and the Silk Road. While I have admired the content of Pleiades from afar, I have never had reason to use it in my own research or integrate it into my infrastructure, since my own work does not touch the ancient Mediterranean. For that reason, I am delighted that this proposal promises to extend Pleiades into Central Asia, the Islamic world, and India. That will make it possible to develop a gazetteer of the Silk Road—a long-time dream of mine and a potentially high-impact project—and to link Pleiades into the China Historical GIS as well as my own Digital Gazetteer of the Song dynasty. In short, it takes us most of the way to a gazetteer of ancient and medieval Eurasia, and that is a thrilling development.

Again, I support this proposal with great enthusiasm. Please do not hesitate to contact me with any questions: rmostern@ucmerced.edu.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ruth Mostern', with a long, sweeping horizontal stroke extending to the right.

Ruth Mostern

Associate Professor of History
Interim Director of the Center for the Humanities
Co-Director of the Spatial Analysis and Research Center
Chair of the Interdisciplinary Humanities Graduate Group
University of California, Merced



The Fondren Library

Feb. 5, 2015

Dear NEH Review Panelists,

I enthusiastically support the Pleiades project request for support through the Digital Humanities Implementation Grant program. I am interested in seeing this project expand and succeed on many levels: first, its positive impacts on the work done in libraries and, secondly, for its role in the Digital Humanities community.

My background is as a map and GIS librarian and metadata creator, and researcher of map and spatially referenced materials, including geoparsed text and creation of place based (map) search interfaces. I appreciate how places are represented in library collections and find creative methods to exploit digital technologies to bring spatial interpretations to library exhibits. Two such endeavors are the map search interface to the Geologic Atlas of the United States¹, and Mapping Historic Aggeland². These projects were completed at Texas A&M University Libraries where I was employed until my recent move to Rice University. Both of these digital collections required clear identification of places, accurate gazetteers and digital webmap or GIS technologies. This work, and a growing understanding of many humanities scholars use of maps and GIS, led me to consider the larger importance of place name identification and description across multiple disciplines. That, in turn, led me to co-found an international specialty group, "GeoHumanities"³, a special interest group of the Alliance of Digital Humanities Organizations among whose goals are to build collaborations for those in DH working with geographic places, many involving gazetteer use and development. Worldwide, humanists are engaged on research involving places (which require accurate place name identification).

As a librarian, I deeply appreciate the role of authoritative resources to scholarship. The detailed information contained in Pleiades is a supporting link between humanists and librarians in that the places are defined, and described at a level of detail not contained in traditional library catalog records, and are interactive in a way that traditional gazetteers are unable to provide. Geographic place name identification and disambiguation has huge implications with libraries, for proper cataloging of books, maps and other place-based works, as well as digital, interactive tools, such as with GIS (geographic information systems). Pleiades supports and extends the library dataset as an exemplar of Linked Open Data in gazetteer development. Multiple international research groups in history, geography, and

¹ <http://oaktrust.library.tamu.edu/handle/1969.1/2490>

² <http://evans.library.tamu.edu/about/collections/map-gis-collections-services/historic-aggeland.html>

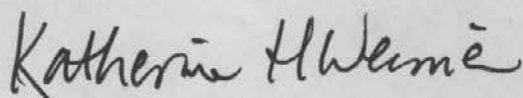
³ <http://geohumanities.org>

archaeology as well as libraries, are working on gazetteer development with the goal to merge multiple existing gazetteers, or provide a single search of multiple interfaces. Pleiades is a leader and model for other specialty gazetteers. Enhancing Pleiades technical infrastructure will allow the project to have a leading role in this eventual 'unified gazetteer' realm.

My understanding of the current funding request is to build the capacity, responsiveness, sustainability and reliability for the project. This is a critical need. Demands for the resource continue to grow, and its consumers include scholars far beyond the current Pleiades users to those working toward collaborating and merging their gazetteer content. The Linked Open Data community is built on reliable and authoritative resources, such as Pleiades.

The Pleiades project is a leader in data modeling and LOD, as well as content provider regarding the ancient world. Its successes to date are many; however, to continue its growth trajectory requires upgrades to its technical infrastructure, which I do hope that the NEH will support.

Sincerely,

A handwritten signature in black ink that reads "Katherine H. Weimer". The signature is written in a cursive, flowing style.

Katherine H. Weimer, MLIS

Head, Kelley Center for Government Information,
Data and Geospatial Services
Fondren Library
Rice University
Houston, TX

Letters of Commitment (Editorial College)

Roger Bagnall (New York University)

Jeffrey Becker (Oxford, MS)

Sarah Bond (University of Iowa)

Sean Gillies (Fort Collins, CO)

Ryan Horne (University of North Carolina at Chapel Hill)

Adam Rabinowitz (University of Texas at Austin)

Richard Talbert (University of North Carolina at Chapel Hill)

Brian Turner (Portland State University)

INSTITUTE FOR THE STUDY OF THE ANCIENT WORLD

Roger S. Bagnall
Leon Levy Director

17 February 2015

Dr. Tom Elliott
Institute for the Study of the Ancient World
New York University
15 East. 84th St..
New York, NY 10028



Dear Tom,

I write in support of your planned application to the National Endowment for the Humanities for funding to revolutionize the technical infrastructure of Pleiades. I offer this support in two roles: first, as one of the Senior Editors, a role in which I am willing to continue for the duration of the grant period, and which is largely advisory and strategic in character. Second, as director of ISAW. The Institute commits itself to supporting the costs of hosting Pleiades on an external server (or servers) for the duration of the grant period, and I expect it to be willing to do so for the indefinite future, in the terms that your sustainability statement lays out. In a rapidly changing technological world, of course, it is hard to know beyond a certain point even what the options will be. More generally, I accept the responsibility to include the somewhat broader and greater needs for long term maintenance and refreshing of Pleiades in my development portfolio.

Apart from ISAW's web site, nothing we do digitally is more central to, or emblematic of, our mission than Pleiades, and the current application moves importantly to align Pleiades with the geographical and temporal breadth that is embedded in that mission. I see the present proposal as marking a major watershed in Pleiades' history, not so much in terms of openness to a broader mission (which has long been present) but in creating the infrastructure to make that realistically possible. I am also excited by the vision of opening up the data to even wider reuse by other resources and projects than is already the case, and by the decoupling of the different functions of database and the use of the data from one another. This is in my view a model for a direction that many such databases concerned with antiquity need to go, as they recognize that others may have equally valid, or even better, applications for using the data. This openness to the reuse of both data and code is central to ISAW's vision of scholarly communication, and it is a major reason why Pleiades is such an important resource in our vision.

Yours sincerely,

Roger S. Bagnall
Leon Levy Director

JEFFREY A. BECKER
135 EAGLE POINT LOOP • OXFORD MS 38655 U.S.A.

February 12, 2015

Dear NEH reviewers:

I am writing to you in order to express my enthusiastic and ongoing support for the *Pleiades* project and to encourage your serious consideration of its phase three funding proposal. I am a current *Pleiades* stakeholder, occupying a tripartite role as editor, reviewer, and contributor. I have been a formal member of the *Pleiades* community for more than five years and envision continuing to work with *Pleiades* and its related data for the rest of my productive lifetime. As of this writing I have edited approximately 10,000 place, location, and name resources.

I am a Mediterranean archaeologist who, at the moment, finds himself teaching secondary school Latin while pursuing an ongoing research agenda as an independent scholar. In addition to past university teaching appointments I have served three terms (2006-2007; 2011-2013) as the acting director of the Ancient World Mapping Center at the University of North Carolina at Chapel Hill. Since 2009 I have committed extensive amounts of time to *Pleiades*, both in order to create and curate data as well as to coordinate data resources for the completion of AWMC-led projects, notably the recent dissemination of a seamless digital mapping of toponyms in the text of the ancient geographer Strabo that accompanies an authoritative print translation by D. Roller (Cambridge, 2014). My own particular interests within *Pleiades*, beyond overall data refinement, have focused on the entries for UNESCO World Heritage sites, geospatial coordinates for physical geography features inherited from the *Barrington Atlas of the Greek and Roman World* (Princeton, 2000), and Western Mediterranean archaeological sites with evidence for megalithic architecture (presently focused on central and southern peninsular Italy and the island of Sardinia). This work on curation of megalithic architecture will contribute to a planned hybrid publication focused on fortification walls in the ancient Mediterranean.

The proposed work for the third phase of *Pleiades* is very important. The project has already established itself as a mainstay of digital humanities and the number of partner projects and the data sharing that is taking place is truly remarkable. With *Pleiades* references becoming standard, stable identifiers, the need for a more robust platform is all the more important as more partners will want to contribute batches of data and an ever-growing group of users already want to join in the process of data curation and creation. The intellectual networking and person-to-person engagement through the medium of *Pleiades* is not only significant but is an exciting outgrowth of a project that grew from an initial

interest in “mapping the ancient world from A to Z”. The digital platform of *Pleiades*, thus, is fostering valuable human partnerships and collaboration that will carry on well into the twenty-first century.

I feel that *Pleiades* is essential for the humanities, not only because of its particular and useful dataset but also because of the model it provides - one that encourages collaboration and exchange, and one that is, theoretically, infinitely extensible. This latter point is especially important in showing us that the “digital” humanities do not replace or supplant traditional approaches, rather they expand and supercharge those approaches -- showing scholars, students, and enthusiasts that connectivity and interrelatedness not only defines our present digital environment but also offers us one of our best opportunities for modeling the spatial dynamics of the vast ancient world, all the while continuing the grand traditions of humanistic inquiry.

By continuing to support *Pleiades*, the NEH would further the aims of its own mission statement. As a project that harnesses the best of traditional scholarship to the latest digital resources, *Pleiades* has set a standard within the field of ancient studies and should serve as a model for projects in other fields as well. For all of these reasons I urge you to lend support to *Pleiades* and its ongoing, valuable work.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey A. Becker", is enclosed in a thin black rectangular border.

Jeffrey A. Becker Ph.D. RPA
jeffrey.becker@gmail.com



**COLLEGE OF
LIBERAL ARTS & SCIENCES**

Department of Classics

210 Jefferson Building
Iowa City, Iowa 52242-1409
319-335-2323 Fax 319-335-3884

Dear NEH Reviewers,

I write in order to support the Pleiades Project's NEH application. I am writing not only as a project collaborator, but also as a professor who uses the site in the classroom and a digital humanist who relies on Pleiades data for her own digital projects. I am passionate about continuing to support and promote the widespread use of the site, and believe that NEH funding will allow the project to improve on a site that is already used by thousands in a myriad of ways.

Currently, I am an editor for Pleiades.stoa.org. I intend on continuing to serve in my role as editor during the project period of performance and beyond. As an assistant professor at Marquette University, I first began as a reviewer at Pleiades in 2013, reviewing ancient sites contributed by collaborators as well as visitors to the site. I became closely acquainted with the extensive, rigorous review received by all of the material posted on the site. In August of 2014, now at the University of Iowa, I became an editor for the site and began to contribute by not only continuing to review submitted site coordinates and sources, but also editing help documentation, contributing to weekly Skype meetings wherein we worked with out other project collaborators, and helping to plan integration with other digital projects from around the globe. This experience has shown me how deeply embedded Pleiades is within the online community of digital humanists that specialize in classical antiquity, and revealed what a pivotal service the site provides to a litany of projects.

Independent of my role as an editor for Pleiades, I am also a professor at the University of Iowa who extensively integrates Pleiades data into my teaching and uses it for instructional workshops exploring digital geographical methods. Almost every class I teach—from my Ancient Medicine seminar to my large Roman Civilization lecture class—uses Pleiades data in some way. My Ancient Medicine class used it to map the route of the Plague of Justinian in the sixth century CE and my Ancient Economy class uses its data to accurately trace trade routes and roads used by merchants, artisans, and soldiers. In September of 2014, I gave my yearly workshop on methods in digital mapping, and showed 20 students and faculty how to use the site and integrate it into their syllabi. At least 3 other professors have let me know they have adopted the site as part of their curriculum in at least one of their classes. It is an incredible tool to have at our disposal as teachers and mentors.

Finally, I use Pleiades as a digital humanist in charge of her own projects. Currently, I am a principal investigator on a project called The Collegium Project, which maps Greco-Roman voluntary associations. The project uses and relies upon Pleiades data and maps in order to visualize the sites and material evidence for early trade guilds, early Christian communities, and even athletic clubs. Another project I am involved in, the Big Ancient Mediterranean (BAM), is funded by the University of Iowa and seeks to map the places mentioned in early Christian texts written before the reign of Constantine in the early 4th century. Although the project is just beginning, it already relies on Pleiades data as a secure geographic base with which we can accurately map sites mentioned in the documents. I simply cannot imagine the work and man-hours that would be required in making these projects successful if we did not have the fantastic support of the Pleiades Project.

To say that Pleiades has transformed the field of pre-modern geography is to put it mildly. It is the metric by which all other ancient atlases, digital or print, must measure themselves. It is also a model for open access by exemplifying how a digital project can and should share their data. I could not be more proud to be a part of the Pleiades collaborator team. Notably, the dedication of our group does not stem from any kind of salary. The only payment the collaborators receive is the knowledge that we are a part of a project relied on by many; one that provides excellent, free, innovative, and vetted knowledge to web users and makes the topography of the ancient and early medieval Mediterranean accessible to all. I encourage the review panel to recommend the Pleiades Project for funding so that we may continue to maintain and improve upon this digital world and encourage others to traverse it.

Sincerely,

A handwritten signature in black ink that reads "Sarah E. Bond". The signature is written in a cursive style and is positioned above a solid horizontal line.

Sarah E. Bond
Assistant Professor
Department of Classics
University of Iowa
Sarah-Bond@uiowa.edu

February 17, 2015

Dear NEH Reviewers,

I fully support the renovation of Pleiades and am confident in the plan laid out in this proposal. As explained, Pleiades struggles to meet the needs of the community of digital projects that it supports, and must be transformed from a single website to a true technical platform. Separating the high volume API aspects of Pleiades from its lower volume yet very computationally intensive editorial workflow aspects is the key to this transformation. Based on my experience with developing a high volume commercial web mapping platform at Mapbox, I believe the proposal's plan to do so is technically sound and will be successful.

I am pleased to continue to serve as an Associate Editor of Pleiades and look forward to the successful renovation of this essential tool.

Sincerely,

A handwritten signature in black ink that reads "Sean Gillies". The signature is written in a cursive, flowing style with a large initial 'S'.

Sean Gillies



UNC
COLLEGE OF
ARTS & SCIENCES

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

DEPARTMENT OF HISTORY

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To: The National Endowment for the Humanities

Dear Sir/Madam,

I am pleased to write in my capacity as director of the Ancient World Mapping Center (AWMC) at the University of North Carolina at Chapel Hill and managing co-editor of Pleiades to fully endorse and support the grant proposal submitted by the Pleiades project to the National Endowment for the Humanities. By supplying the project with funding to perform necessary infrastructure updates, the NEH will ensure the survival and continued transformative effect of a critical component of traditional and digital scholarship.

Pleiades is an indispensable resource, without which the research and work of the AWMC would prove impossible. Pleiades data serves as the foundation for all of the center's efforts, including our extensive collection of traditional commissioned maps in print volumes, our expanding series of wall maps, and our digital projects including Antiquity à-la-carte, Benthos, and Strabo Online. All of our future efforts depend on the continued functioning of Pleiades. Of particular note, our upcoming collaboration with Oxford University Press to create a web-based mapping application in support of the *Oxford Classical Dictionary* is based on Pleiades data combined with text-mining techniques. Finally, as the AWMC is devoted to the study of ancient geography, Pleiades is an invaluable repository for our research, which is then propagated throughout the larger linked-data community. For example, the partnership between Pleiades and AWMC has resulted in the release of the only geographically accurate, freely accessible electronic map of the Ancient world. With over 70,000 views a month, the resounding success of this project would simply have been impossible without the extensive reach of Pleiades.

Beyond its use to established projects and mature scholars, Pleiades has proven to be invaluable for my own graduate work. My dissertation, an examination of Greek garrison communities and their relations to imperial powers, could not have been completed without the extensive geospatial database curated by Pleiades and the feedback from the excellent cadre of scholars surrounding the effort. Pleiades serves as an unparalleled forum for graduate, undergraduate, and junior scholars to both benefit from and contribute to a critical digital humanities project, and it forms a community which I will be honored to remain involved with long after the completion of my graduate studies.

As crucial as Pleiades is, the limitations of its infrastructure are increasingly apparent. Heavy use from researchers and educators often leads to noticeably slow loading times, and further resources are needed to incorporate new research, initiatives,

and upgrades suggested by users and the editorial college. The Pleiades team, lead by Tom Elliott, have amply demonstrated their technical abilities and subject mastery, and any outside observer should have the highest confidence that funding Pleiades will lead to nothing short of the continued evolution of a transformative digital humanities project.

Sincerely,
Ryan Horne
Director, Ancient World Mapping Center
PhD Candidate, University of North Carolina, Chapel Hill



February 2, 2015

National Endowment for the Humanities
400 7th Street SW
Washington, DC 20506

To whom it may concern:

I am writing to express my fervent support for the Pleiades project proposal for a Digital Humanities Implementation Grant from the NEH's Office of Digital Humanities, and to confirm my commitment to continue to participate as a member of the Pleiades Editorial Board for the duration of the grant (and well beyond!). In my experience, "fervent" is a word that rarely appears in letters of support or recommendation – yet I was unable to find another term that captured the extent of my enthusiasm for the project and the degree to which the Pleiades gazetteer has become a critical component of my teaching, my research, and my own Digital Humanities activities. Simply put, Pleiades is a cornerstone of the infrastructure for digital approaches to the ancient world, especially those involving Linked Open Data. Our reliance on it, as a disciplinary community, is outstripping its existing technical resources, and a broadening audience demands a simpler and more powerful user interface. Support for a serious and comprehensive renovation of the project's information architecture and the streamlining of user experience would have a tremendous impact on the Digital Humanities ecosystem, both in the US and internationally. Pleiades has the potential – and the demonstrable user base – to become a hub for Linked Data approaches not only to the ancient Greek and Roman world, but to the medieval, Islamic, and pre-modern Asian worlds. These areas are starting to demand the same infrastructure the Classical world already enjoys: for example, at my own institution, a Mellon Foundation-funded workshop on the role of Linked Open Data in digital medieval projects will be held this spring. Scaling up will also position Pleiades to play an important role in the data-harmonization efforts of the European Union: for example, the ARIADNE project, which seeks to model archaeological data across a vast set of diverse databases, also relies on URI-based gazetteers like Pleiades for its more structured, ontology-based approach to heritage information.

As a Classical archaeologist, I was acquainted with Pleiades' analogue predecessor, the Barrington Atlas, as soon as it was published – and almost as quickly became frustrated with it, as I attempted to map some of the places it mentioned in a GIS I was building for my dissertation. But I only became aware of Pleiades around the time I began to work on a digital pedagogical project involving a spatial timeline of the ancient Mediterranean (GeoDia: <http://geodia.laits.utexas.edu>). It was an enormous relief: the magisterial scholarly authority of the Barrington Atlas had been translated into web-based mapping services. Furthermore, since one of the problems with GeoDia involved difficulties in importing new information, I immediately saw the potential of a gazetteer that would allow one to link to data that had already been collected elsewhere. I was unable to implement an import function in GeoDia, although we did tag all of the sites we could with Pleiades URIs. But the idea of a web-based reference that allowed one to pull data from one interface into another stuck with me, and it was reinforced by the emergence of the Pelagios project, which used Pleiades to bring together records from different databases on the basis of their shared use of Pleiades place URIs. It was Pleiades, therefore, that pulled me into the Linked Data world, and it was Pleiades that inspired the idea for a gazetteer of definitions of archaeological and art-historical periods that led to the PeriodO project (<http://perio.do>), currently funded by the NEH with a Digital Humanities Start-up Grant. Not coincidentally, Pleiades and

its managing editor Tom Elliott were also among the organizers of the NEH-funded Linked Ancient World Data workshop in the summer of 2012, where, as an attendee, I was able to refine some of the ideas that led to that project. Pleiades is also a contributing partner to PeriodO, offering its own periodization as one of our initial datasets. I look forward to continuing the collaboration as both projects confront ever more complicated issues related to the changing names of places over time.

My direct involvement with Pleiades came after the LAWDI workshop, though, and was the result of teaching rather than research. For several years, I had assigned digital group projects to students in classes on ancient Greek culture and archaeology. Initially, these projects involved the collection of data for GeoDia, but this idea suffered both from the complexity of the GeoDia datamodel and the bottleneck produced by the site's lack of user-management functionality. Energized by my LAWDI participation, I decided to assign projects based on Pleiades instead in my spring 2013 Greek Archaeology class. Student groups researched ancient monuments within ancient sites – a category of information largely lacking at that time in Pleiades, which sprang from a Barrington Atlas dataset at a much lower degree of resolution – and then added them to the Pleiades gazetteer. This model satisfied my intention for the group projects, which was that student work be purposeful and make a real contribution to the scholarly community. Because I was supervising the input of a large number of non-specialist submissions to the gazetteer, the Editorial Board felt that it would be most efficient to invite me to join their ranks, so that I could edit and approve those student-generated records. This has been a very successful arrangement, both for my teaching and for my long-term involvement with what I consider to be one of the most important Digital Humanities resources on the current scene.

Right now, Pleiades sits at a tipping point. With support for redesign and redevelopment, it will become a central pillar for the next phase of the “spatial turn” in the Digital Humanities. Without support, there is the risk that Pleiades will be unable to meet the increased demands of a rapidly-growing user base, marginalizing the project and undermining a whole sector of the Linked Data ecosystem for the humanities. This risk is not the result of a lack of robustness in Pleiades. Rather, paradoxically, it is the result of Pleiades' success. The platform was built a decade ago for simpler uses within a small and highly specialized community. Now it is being used by a large, broad, non-specialist user base – and these users have expectations shaped by the last five years of user-friendly web-mapping and visualization tools. They will not continue to use a platform that cannot meet their rising expectations. Pleiades can and should meet those expectations; but it needs support for the redesign that will allow it to do so. NEH funding for Pleiades at this crucial juncture will not only ensure the health of a critical component of the digital infrastructure for the study of the ancient world; it will enable a new phase in the spatial analysis of history from the Stone Age to the Age of Discovery. I urge you to give this proposal your most serious consideration. I hope that the panel and the ODH will recognize its importance and choose to recommend it for funding.

Yours,



Adam Rabinowitz
Associate Professor, Department of Classics
University of Texas at Austin
2210 Speedway, Stop C3400
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February 16, 2015

Tom Elliott
Associate Director for Digital Programs and Senior Research Scholar
Institute for the Study of the Ancient World
New York University

Dear Dr. Elliott:

Please accept my commitment to continue serving as a Senior Editor for the Pleiades project, without compensation from the project budget. I look forward to working with you and the other editors and reviewers to refine editorial policies, solve complex content questions, and identify and recruit additional subject-matter experts into the community.

By this letter, I also renew the commitment we have maintained from 2010 onward, namely, that when the position of Director or Acting Director of the Ancient World Mapping Center is renewed or filled, the appointee will be required to commit to service as co-Managing Editor of Pleiades without compensation from the project budget.

As I mentioned when we met last month, I am most pleased with the success that Pleiades has achieved, even if the scale of that success (in terms of users and system demands) is putting a lot of pressure on the system and frustrating some users. The present proposal addresses the current circumstances and the needs of the Pleiades community directly and effectively. I hope that the NEH panelists will read it as I do, i.e., as an urgent and effective investment in a game-changing digital resource for research and publishing in ancient history and geography.

Moreover, success of this application will be of immediate and long-lasting value to us here in Chapel Hill and to the worldwide scholarly community that we serve through the Ancient World Mapping Center's many projects and publications. As we hoped back in 2003-2004 when you and I were first envisioning Pleiades, this digital resource has become essential to the operation and effectiveness of the Center. By completing the rollout of content from the Classical Atlas Project, the Pleiades team has made it possible for us to deploy both an internal research and mapping database synchronized with Pleiades, as well as the new *Antiquity A-la Carte* web application, which provides mapping and search functions that complement Pleiades, publishes additional geospatial data developed here at the Center, and is tailored to the needs of teachers and scholars preparing tests, books, articles, and presentations. By improving and stabilizing Pleiades' technological underpinnings for the long haul, new NEH funding now would also stabilize and extend the impact of the AWMC.

Sincerely,

Richard J.A. Talbert
W. R. Kenan, Jr., Professor of History
Tel. 919-962-3942 talbert@email.unc.edu



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12 February 2015

Tom Elliott, Ph.D.
Associate Director for Digital Programs and Senior Research Scholar
Institute for the Study of the Ancient World (NYU)

Dear Tom,

Please accept this letter of support for your NEH grant proposal to fund a renovation of *Pleiades*, in particular its design and architecture. As the project moves into its second decade of serving scholars and students interested in ancient geography, it is absolutely vital that the programming and user experience benefit from continued development so that the project and its platform can meet the needs of an ever-growing and more interconnected community of individuals and digital projects. As part of the *Pleiades* team since 2006 (first as a Graduate Research Assistant and now as an Associate Editor), I have watched the project become a vital tool for both research and teaching. I am eager to see the project develop further and willing to continue my role as Associate Editor.

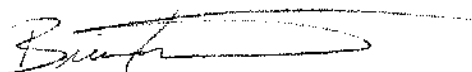
As a scholar, *Pleiades* is regularly the point of entry for basic geographic information such as the precise location of certain places. But more than that, it is also a repository of important data points. The *Pleiades* user has access to a buffet of relevant information such as primary source citations for name morphology, or links to scholarly bibliographies associated with a particular place. All manner of innovative scholarly projects rely on the data sets and hosting capabilities of *Pleiades*. Duane Roller's recent edition of *The Geography of Strabo* (Cambridge 2014) incorporated the *Pleiades* data set to produce an absolutely massive digital map that offers scholars and students a never-before-seen view of the ancient geographer's work. My own current project on the geography of Pliny the Elder will likewise rely on *Pleiades*. It should also be noted that in both of these cases there is a symbiotic relationship: the scholarship not only depends upon *Pleiades* for accurate geographic information, it also adds to the expanding dataset. *Pleiades* truly is an example of an innovative digital humanities project that has no foreseeable shelf life – save for the dated architecture that the reception of this grant would ameliorate.

I have also witnessed the power of *Pleiades* in the classroom where I regularly teach a course on geography and worldview in the ancient world. Students learn to use any number of digital mapping programs as they seek to understand how similar and (more often) different the ancient worldview was to their own. They regularly offer *Pleiades* as the canonical source for geographic information. I'm gratified therefore that this grant

proposal aims to develop a more streamlined content creation process that will make it easier for users to add, manipulate, and even occasionally correct data. *Pleiades* therefore serves the humanities because it offers users – especially students – the opportunity to learn by doing. The innovativeness of this design, which stretches back to the project's foundation over a decade ago, cannot be underestimated.

Pleiades is a truly open source digital humanities project. It is not only a fountain of free scholarship, but also a user-generated, data-driven, academically enlightening endeavor that furthers the goals of the humanities as a discipline and as a worldview. I fully support *Pleiades* and its mission, and hope that the NEH reviewers will carefully consider your proposal.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Turner", with a long horizontal flourish extending to the right.

Brian Turner

Assistant Professor of the Ancient Mediterranean World
brian.turner@pdx.edu

Letters of Commitment (Select Reviewers)

Stefano Costa (Università di Siena, Italy)

Stuart Dunn (King's College, London)

Noah Kaye (University of Oregon)



**DIPARTIMENTO DI
SCIENZE STORICHE E DEI BENI CULTURALI**

Dear Tom,

it is a pleasure for me to write this letter supporting the NEH funding application of the Pleiades 3 project, in my double role of user and reviewer, both of which I intend to pursue in the next years.

Between 2008 and 2009, when I was doing research for my MA in Archaeology at the University of Siena, I first came to know Pleiades and found immediate use for its data, by linking to the unique URIs of late antique settlements that I had catalogued while studying the distribution of African pottery in Italy.

It has been natural for me to continue dedicating some of my academic time to Pleiades in the following years, first as a PhD student and then in my “alt-ac” role as an archaeologist, like when I encouraged the integration of the FastiOnLine database with Pleiades, a project that is still going well at the time of my writing. With the growth of Linked Open Data since 2010, Pleiades has become an essential building block for all past-focused humanities, and I don't think it is inappropriate to spend a few words to praise the foresight with which each “place” was given a stable and clean URI, and the adoption of a content license that is actually open – as both concepts were alien to many until recently. As you know, I am very concerned about *openness*, and Pleiades is one of the best examples of collective work done by academics disseminated in a digitally future-proof way, as was recognised during the early days of the Archaeology working group at the Open Knowledge Foundation. The availability of Pleiades data in bulk download, separate from the website, is a digital scholar's dream come true. The recognition that is given to contributors (“the Creators”, as they are proudly called in the copyright note) is a model that I strive to follow in my work on wiki systems in archaeological research.

The Pleiades staff has always been welcoming towards my requests and proposals, especially during the development of the current infrastructure. Taking part in review meetings, usually from several time zones ahead, helped me broaden my perspective on the management of such a complex collection, even when the website was too slow and the framework of user permissions made simple edits complicated. I have come to understand that the good functioning of Pleiades, of the continuous update and growth of its content, is based on a well-thought balance of shared rules and conceptual modelling on one hand, an efficient editing, storage and visualisation framework on the other. Since 2013, in my new role as a reviewer, I took part with other members of the review board in the rewriting of those rules, based on our experience as users and contributors, making the conceptual model more clear, the workflow more immediate even for newcomers, with a definitive evolution from the historical base that was the Barrington Atlas.



**DIPARTIMENTO DI
SCIENZE STORICHE E DEI BENI CULTURALI**

Now is the time for those steps forward to be supported by their technical counterpart with the development of new functionalities and the improvement of those already in place, both for the editing and for the many possible ways to use Pleiades.

I will mention only three examples of the new possibilities that I look forward to with the Pleiades 3 project, things I have been directly or indirectly working on recently: 1) two-way linking with Wikidata, that I believe will create the conditions for a broader role of Pleiades and more public visibility for scholarly work in the humanities; 2) tagging of pictures from Flickr and other media repositories, that was partly implemented in the past and brought significant added value to user-generated content; 3) bulk editing, currently restricted to staff members, will provide the technical means to support the incorporation of external data, including derivative works of Pleiades itself and reinforcing the importance of the open license I mentioned above. Needless to add, being a scholar of the late Antique and early Medieval/Byzantine period, I welcome the expansion of chronological and geographical coverage beyond the traditional boundaries of the Ancient world.

I can only conclude with the hope that the NEH reviewers will find your proposal at least as fundamental for the advancement of public knowledge and worthy of funding as I personally believe.

Siena, 15 febbraio 2015

Stefano Costa
Stefano Costa

15th February 2015

To Whom It May Concern:

Pleiades Project

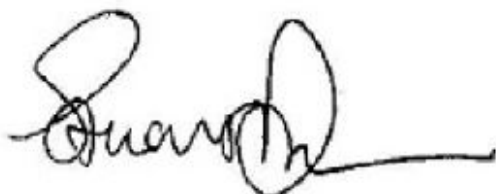
My area of specialism is historical and Ancient World geography in the digital sphere. The Pleiades project is fundamental to this area; in fact it is probably not an exaggeration to say that it has played a key role in shaping it.

The approach employed by Pleiades, where a unique identifier (URI) is assigned to each instance of a place has provided a structure that allows us to define ancient locations ontologically, and supports scholarly discourse and discussion around them. The latter point might be illustrated by a small piece of research I conducted recently on the cartographic history of the Santorini Archipelago, which I reported on my blog (<https://stuardunn.wordpress.com/2014/08/08/not-quite-moving-mountains-recording-volcanic-landscapes-in-digital-gazetteers>), and which I hope to develop into a more formal publication in the course of 2015. Pleiades is widely seen not only as a digital resource that supports Classical Studies in the most innovative and imaginative way using the affordances of the Web, but it actually extends the intellectual scope of Classical Studies itself. This approach has inspired our own Heritage Gazetteer of Cyprus project (funded by the A. G. Leventis Foundation) and, via the Pelagios project, we have plans to federate this gazetteer with overlapping resources, using Pleiades URIs as the primary referents. This extension of our own work would simply not be possible without Pleiades.

I also make use of Pleiades as a teacher. It forms a case study in class 3 my module on the MA Digital Humanities at King's College London, *Communication and Consumption of Cultural Heritage*, where I find that the students react particularly well to the exercise involving this project. In 2016 I will begin teaching a newly validated module that I have designed for the programme, *Maps and Apps: An Introduction to the Spatial Humanities*, and I envisage Pleiades, and the projects it has inspired, playing a similarly key role. I should also note that I use it as a case study for the staff development course I teach at the British Library, *Digital Mapping and Geo-Data*.

I am delighted that this application is going ahead, and I have no hesitation in providing my fullest support for the further development of this essential resource. Please do not hesitate to contact me directly using the details above should you require any elaboration on any of these points.

Yours truly,



Dr. Stuart Dunn
Lecturer in Digital Humanities



UNIVERSITY OF OREGON

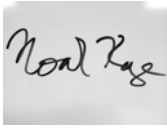
Dear NEH Reviewers,

I am writing to support wholeheartedly the application of *Pleiades* for an Implementation Grant from NEH. As a reviewer and a contributor to the gazetteer, I have firsthand knowledge of the value of this resource to scholarship and to the public. As university instructor, I also know well how dearly *Pleiades* needs a major boost of support in order to save this monument of collaborative, generation-spanning research, which in the next generation can nourish minds and open up intellectual horizons still unimaginable.

My involvement with the *Pleiades* project stems in the first instance from my interest in sharing knowledge and building a community resource for scholars, students, and an increasingly geospatially savvy public. For the historical geography of the ancient Mediterranean and Near East, *Pleiades* has for a very long time been a unique and indispensable repository of information. As a graduate student, my practice has always been to make use of *Pleiades* as much as possible. It simply renders out-of-date any other resource in the field. After I received my PhD at UC-Berkeley, I was a Fulbright postdoctoral fellow at the University of Haifa, Israel. I found myself working as a scholar in the Mediterranean, which meant that I depended ever more on *Pleiades* for reliable information. It also meant that I was generating in my own Fulbright-sponsored research in Turkey, Greece, and Israel that I wanted to share via *Pleiades*. Finally, as soon as I began teaching, I realized immediately the potential value of the gazetteer for designing curriculum, leading students toward charting their own explorations of the landscapes and cartographies of the past and of the world around them.

I am a visiting assistant professor of ancient history, archaeology, and ancient Greek in a large state university. My students yearn for digital humanities resources that provide them with data that they can manipulate creatively. I rely heavily on *Pleiades* as a tool in teaching. It gives students a source of record for geospatial information about the ancient world, which they also have an opportunity to improve, critique and interact with – the quintessentially valuable kind of digital humanities resource. I volunteered to work on *Pleiades* as a reviewer both to improve the quality of its data, and because I wanted to know more about how the delivery of that data was going to be organized in the future. I also felt very invested in the mission of *Pleiades*, part and parcel of the Implementation Grant, to develop and maximize the use of cross-site applications with other digital humanities projects. *Pleiades* is deeply embedded in a network of such projects, and I think that with the proper funding, it can lead the way toward further integration of the wealth of digital information that cries out for such an interface. If I have learned anything as a reviewer, it is that *Pleiades* has enormous potential, but still needs crucial support in order to reach users. Enthusiasm for maps and mapmaking is boundless. Please accept my endorsement of the Implementation Grant for *Pleiades* as a vote to channel that enthusiasm into an endeavor of the highest educational and cultural value.

Sincerely,

A square image containing a handwritten signature in black ink on a light gray background. The signature reads "Noah Kaye" in a cursive, slightly slanted script.

Dr. Noah Kaye

Letters of Commitment (Select Contributors and Consumers)

Christopher Blackwell (Furman University)

Paul Dilley (University of Iowa)

John Given (East Carolina University)

Charlotte Roueche (King's College, London)



Monday, January 26, 2015

Dear Tom,

I am writing to express my enthusiastic support for *Pleiades*, both for the project as it has evolved over the past years, and for your plans for the future, as described in this proposal to the NEH.

Pleiades is a model of digital humanities at its most rigorous and most useful. In my undergraduate teaching, I often try to get my students to take a long view of their research, and anticipate the lifespan of its utility: “Which is consulted more, the volumes of literary essays from the mid-19th century? Or the *Oxford English Dictionary*?”

With *Pleiades* you have established exacting standards for a clearly defined, broadly useful body of data, implemented editorial policies that allow collaborative contributions from a wide range of scholars, and state-of-the-art standards for encoding this data. The *Pleiades* site offers lovely visualization, and searching as well, but we all know that those user-facing functions are ephemeral. The *Pleiades* data will be as valuable in a hundred years as it is now.

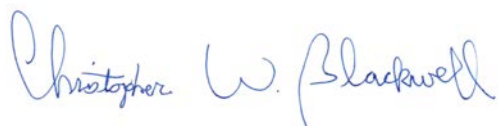
During the Fall Semester of 2014 I taught a course in Greek Civilization that enrolled 40 students (huge for our small school). In an effort to have the class engage in useful scholarship, we worked to catalogue historical figures from the early history of Athenian democracy, their interpersonal relationships, and any associated geographical information. It is interesting, for example, that the Athenian tyrant Peisistratus had a mistress from Argos, and named a son “Thettalus” (“Man from Thessaly”), and that the democratic reformer Cleisthenes was named after Cleisthenes, tyrant of Sicily. Also interesting are the destinations of various Athenian politicians expelled from the city through ostracism.

We used your *Pleiades* data constantly. The richness of the database was, itself, an education. For the students, a significant lesson in Greek Civilization came from the act of looking up “Athens”, and seeing how many places were named after Athene, and figuring out that we were *not* interested in the “Athenai” (<http://pleiades.stoa.org/places/857050>) on the Black Sea.

At the same time, as you are well aware, the current *Pleiades* site is often less than ideally responsive. This did not hinder our collaborative research. Because you have done everything right, it is easy to mirror the entire dataset from your version control repository, and because the openness and excellence of the data, there is a “cloud” of utilities and scripts developed around *Pleiades*. When your server was especially burdened, we were able to use a mirror of your data, and tools published on GitHub by Ryan Baumann at Duke, to generate GeoJSON transformations of all *Pleiades* sites and continue working. This, too, enabled me to begin experimenting with integrating *Pleiades*’ content with the CITE architecture that we use for the Homer Multitext, for our work on Athenian Democracy, and for my pursuit of historical botany.

Infrastructure is always a difficult thing to advocate and support. But *Pleiades* represents the most important kind of infrastructure for humanist scholarship: meticulous, far-reaching, controlled and authoritative data, canonically cited, independent of any particular technology, and aggressively open for re-use. Your proposal to the NEH presents an ideal vision of the path forward for the project. Enhanced export functions will give scholars comfortable with the more technical aspects of work with large datasets even more flexibility in taking advantage of what you have to offer. The improved services and end-user applications, distributed across servers, will make *Pleiades* even more accessible to the widest possible audience. I am excited by these possibilities, and hope that the reviewers at the NEH will give your proposal serious consideration.

Sincerely,

A handwritten signature in blue ink that reads "Christopher W. Blackwell". The signature is written in a cursive style with a large initial 'C'.

Christopher W. Blackwell
The Louis G. Forgione University Professor
Chair, Department of Classics
Furman University
Greenville, South Carolina
christopher.blackwell@furman.edu



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Dear Colleagues,

I am writing to express my very enthusiastic support for the NEH Implementation Grant application submitted by the Pleiades Project. I have been an enthusiastic follower of the site, tracking its developments closely, since I was alerted to the possibilities of employing GIS for the study of the ancient world by Tom Elliott and Sean Gillies' 2009 article in *Digital Humanities Quarterly*, "Digital Geography and Classics," especially their compelling presentation of "The View from 2017." I am currently in the planning and early data collection stage of two related online projects, Terra Biblica and Big Ancient Mediterranean (BAM), which aim to integrate textual and geographical evidence in various ways, for example the geospatial analysis of biblical and related literature. My co-PI Sarah Bond and myself will draw heavily on Pleiades data, and contribute information on sites which are not yet entered. I look forward to this collaboration, and am thankful that Pleiades exists and is under constant development; without it, Terra Biblica and BAM would not be possible.

I am an Assistant Professor of Ancient Mediterranean Religions at the University of Iowa, where I have a joint appointment in the Departments of Classics and Religious Studies. I am also a digital humanist, with a keen interest in the various ways of representing and analyzing the ancient world in the emerging Infosphere. We have just started a graduate certificate in Digital Humanities, for which I am a member of the advisory board. In my view, there are three areas of "DH" with which all students in the program should have basic familiarity: textual, geospatial, and network analysis. Because several of our Classics graduate students have enrolled in the program, Pleiades will be a vital resource with which they will become familiar, both through taking a GIS course, and interning for credit with Terra Biblica and BAM. Finally, the University of Iowa and Grinnell College have recently been awarded a \$1.6 million grant from the Mellon Foundation, Digital Bridges for Humanistic Inquiry, with a focus on undergraduate pedagogy. I am incredibly excited to be able to contribute to program development in DH for undergraduates, and hope to involve Classics as a major aspect of the emerging educational paradigm; in this area too, Pleiades will be essential to my efforts.

Sincerely,

Paul Dilley
Assistant Professor

The University of Iowa
Department of Religious Studies, Department of Classics
406 Gilmore Hall
Iowa City, IA 52245

13 February 2015

Dear Colleagues,

I write in support of the NEH Implementation Grant application to renovate and improve the *Pleiades* online gazetteer of the ancient world. *Pleiades* has become a central resource in my research and teaching. The planned improvements will make this already invaluable resource an essential tool for all scholars of the ancient world for decades to come.

In my recent book, *The Fragmentary History of Priscus: Attila, the Huns and the Roman Empire* (Arx Publishing, 2014), I relied on *Pleiades* to provide dynamic geographical information that could not be included in my own pages. The book, intended for a general audience, is a translation of a fifth-century A.D. historian whose work only exists in substantial fragments totaling about 100 pages. As a fragmentary text, context is often lost. A place name often appears without any introduction, as if the reader already knows its location and significance. In the published book, I footnoted every geographical location and gave its *Pleiades* ID number as well as the name of the nearest modern settlement. The ID number can be inserted into a URL, which I included in the book's introduction; the e-book, to be published later this year, will have live links to the *Pleiades* website.

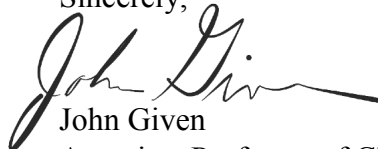
With these links, readers can instantly retrieve a scalable map of the location, with options for modern terrain, modern place names, ancient terrain or ancient political boundaries. They also find links to resources detailing coins and inscriptions found at the location, as well as linked bibliographic data to the *Barrington Atlas of the Greek and Roman World*. By clicking on the webpage's KML link, readers can create a Google Earth placemark. By clicking on KML links of multiple locations, they will construct for themselves a map of Attila's excursions south of the Danube or his march across northern Italy. They thus have the ability to create contextual landscapes at a far greater level of detail than I could on a printed page and more specialized than a general atlas of the ancient world. Beyond creating maps, I also used *Pleiades* to offer my readers distance measurements between locations. And I could note features not previously recognized by scholars, such as when Priscus lists a series of towns with one of them out of geographical order. As the connections within *Pleiades* grow, my readers' experiences will be enhanced until the geographical limitations of Priscus's fragmentary text are overcome through a richly interconnected world of landscapes, habitations and histories.

These resources available to my readers also play a growing role in my classrooms. Whether we are studying Herodotus's account of the Persian Wars or Ovid's mythological tales of metamorphosis set throughout the Mediterranean world, I send students to *Pleiades* to find the locations of ancient places. They learn about the places and can trace, for example, Xerxes' invasion of Greece by land and sea. Before I show students the built-in KML tools, I ask them to use *Pleiades*' latitudinal and longitudinal coordinates to create placemarks on Google Earth, so

that they grow to understand geographical measurements. *Pleiades* allows me to include geography and local material remains in my literature and culture classes in ways never previously possible. It allows for an interactive digitalized classroom in which students' explorations lead to new discoveries daily.

The NEH has found a most worthwhile project for digital humanities funding. Procurement of this expanded funding will allow the *Pleiades* team to make the necessary improvements described in the proposal. With these enhancements, more and more scholars will be likely to follow my example of integrating *Pleiades*' data with published texts, translations, articles and monographs. What authoritative dictionaries were to 19th-century philologists and carbon-dating techniques were to 20th-century archaeologists, *Pleiades* will be to 21st-century interdisciplinary scholars.

Sincerely,

A handwritten signature in black ink, appearing to read "John Given", with a long horizontal flourish extending to the right.

John Given

Associate Professor of Classics

13 February 2015

Dear Reviewers

I am delighted to be able to write in support of this carefully designed project to enhance and develop Pleiades.

I have watched this project develop over its lifetime. As early adopters of digital resources for the humanities, its creators had a vision which was contained by the technology then available. They were also working in an environment where the majority of humanities scholars saw digital activities as marginal (the British Arts and Humanities Data Service was closed in 2007, as an irrelevant luxury). It is interesting to me to see, however, that traditional scholars of the ancient and medieval worlds are increasingly making use of Pleiades. While such users tend not to acknowledge it – any more than they acknowledge the use of other essential tools such as lexica - discussion makes it clear that this is now an essential resource in scholarship on paper as well as online.

This is, therefore, a resource which is very extensively used, and it is important that the new design proposed will make such use even simpler and easier for the conventional scholar. But of course the true importance is preparing it for use in the future, by scholars with a new set of expectations. In the 1990s and the early 2000s the concept of linking data was only slowly emerging in humanities; the realisation that a link could perform, dynamically the previous function of a footnote, ensuring higher standards of support for assertions, was only just emerging. In the multi-layered world of humanities the role of geography in bringing information together was something that people could grasp; it is therefore understandable that Pleiades has provided the anchor, and the driver, for the development of Linked Open Data approaches in the study of the ancient world, which itself is gradually influencing practice among students of later periods. Pleiades has thus already had a transformative effect on the way in which scholarship is being practised, certainly in the USA and throughout Europe.

This means that a new generation of scholars and other users is emerging, with a new set of expectations; to them, the current technology of Pleiades now seems mystifyingly out of date. They expect a prompt and reliable response to every search; an API for use in their own publications; the option to download substantial bodies of data. Even more importantly, they expect to be able to contribute their own data quickly and easily. This is a major change. In Europe, pressure from funders is now directing professional scholars to making their material, including all their data, openly accessible; it is increasingly important to help scholars contribute their data to a resource such as Pleiades, rather than locking it away in an institutional data silo.

In my own case, I have used Pleiades for my publications over the last decade. In a recent European-funded project all the contributors to a Dynamic Library of medieval texts used Pleiades IDs to connect places found in Greek, Latin, Arabic and other texts (<http://www.ancientwisdoms.ac.uk/>). In a current project, we are collecting historical toponyms, with literary references, for a gazetteer of Cyprus: we propose to contribute all our data to Pleiades, as we are also doing with the online publication of inscriptions from Graeco-Roman Libya. This meets mutual needs: it feeds and refines Pleiades data, while providing our publications with greater visibility and impact, as required by our funders. These are therefore serious shared interests, rather than cheerful enthusiasms, which will continue to ensure the contribution of data to Pleiades, as long as such a process is facilitated as proposed.

Pleiades will continue to be used in future, whatever happens; but if it is not redeveloped to use the vast potential of new data-handling technologies, it will gradually slow down, become less and less reliable, and increasingly expensive to rescue. The proposed redevelopment will be hugely welcome to scholars; but it will also present a model of how to reinvigorate and enhance important resources, responding to the real needs of current users, and preparing for the future demands that will be placed on it. This is a carefully constructed and well-designed proposal, and I and many other users worldwide will be not only hugely grateful, but also further empowered, if the NEH decides to support it.

Yours sincerely



Professor Charlotte Roueché
Senior Research Fellow in Digital Hellenic Studies
<http://www.kcl.ac.uk/chs>

Letters of Commitment (Select Technical Partners)

Bridget Almas (*Perseus Digital Library*, Tufts University)

Kate Byrne (*Edinburgh Geoparser*, Edinburgh University, United Kingdom)

Gregory Crane (*Perseus Digital Library* and Universität Leipzig, Germany)

Karl Grossner (*Stanford ORBIS* and *Çatalhöyük Living Archive*, Stanford University)

Ethan Gruber (*Online Coins of the Roman Empire*, etc., American Numismatic Society)

Leif Isaksen (Pelagios Project, University of Southampton, UK) with Elton Barker (The Open University, UK) and Rainer Simon (Austrian Institute of Technology)

Eric Kansa (*Open Context* and University of California, Berkeley)

David Michelson (*The Syriac Gazetteer*, Vanderbilt University)

Joshua Sosin (DC3: Duke Classics Collaboratory, Duke University)



PERSEUS DIGITAL LIBRARY
Tufts University
Department of Classics
Eaton Hall 134C
5 the Green
Medford, MA 02155

To Whom it May Concern,

I am very pleased to write this letter in support of the Pleiades 3 project. Pleiades is an essential piece of the Linked Ancient World Data ecosystem, and one which we have come to depend upon in a variety of ways at Perseus. Our use cases for Pleiades fall into several categories, including those of human consumers, web application consumers, and human contributors. Above all, we have come to rely on the promise of Pleiades URIs as a persistent and stable identifiers for ancient places in new digital publications being produced by students and scholars on the Perseids platform, and sustainability of the Pleiades Gazetteer is essential to the long term integrity of these publications.

The enhancements proposed in the Pleiades 3 project are significant for our use cases. First, in terms of enabling contributions, a core value we strive to adhere to in our use of open access resources like those of Pleiades is to contribute data back to the resource providers, whether in the form of new data or corrections. In one standard Perseids workflow, students have been annotating the occurrences of places in texts and associating these places with dates. We have worked with the Pleiades developers to ensure that the data models and ontologies we use for creating these annotations and for recording their provenance are appropriate to enable their ingest back into Pleiades, and the work outlined in the Pleiades 3 proposal for supporting such contributions is a missing link needed to enable us to make feedback of this data to Pleiades a reality.

Second, with regard to enabling web application consumers of the Pleiades data, as mentioned above, the new digital publications we are producing all link textual data to places occurring in or relevant to the text with reference to the Pleiades URI. In many cases, it's not just the link to Pleiades that we want to include for the human user to be able to follow, but we also want to be able to draw on the data that underlies that link, such as latitude and longitude information, to performance machine-driven analyses, create visualizations, etc. In the current implementation of Pleiades, this leaves us with a dilemma with regard to publishing on the Perseus site, which gets upwards of 90 million page views annually. The approach outlined in the proposal to optimize resolution of links for machine-driven consumption without impact to the human consumers of the sites is essential to supporting this scenario.

Finally, I want to add a note about the confidence I have in the Pleiades project team. Pleiades is by far one of the best examples of applying linked data best practices I have seen and what I point to whenever asked for advice on this topic. Their work has guided the design approach for stable identifiers and linked data for Perseus resources as well. I strongly urge you to fund the next phase of this project so that Pleiades can continue to serve needs of the community for the foreseeable future.

Sincerely,

Bridget Almas
Sr. Software Developer
Perseus Digital Library



SCHOOL of INFORMATICS

The University of Edinburgh
Informatics Forum
10 Crichton Street
Edinburgh EH8 9AB
United Kingdom

Dr Tom Elliott
Associate Director for Digital Programs
Institute for the Study of the Ancient World
New York University

tom.elliott@nyu.edu

30th January 2015

Dear Tom,

Pleiades 3 Proposal

I am writing to you in your capacity as Principal Investigator for the *Pleiades 3* project, in order to express my wholehearted support for the proposal.

The Language Technology Group (LTG) here at Edinburgh University's School of Informatics has been using *Pleiades* for several years now, since first becoming involved in the GAP (Google Ancient Places) project in 2010. We worked with classical texts in English translation, processing them with the Edinburgh Geoparser to find place-name mentions and ground them spatially using *Pleiades* so that they can be plotted on a map in the *GapVis* interface. Since developing the geoparser the LTG has been steadily expanding the scope and domain of material that it can work with, and including ancient places has been immensely valuable.

As you know, the Edinburgh Geoparser is a collection of software that automatically processes unstructured text to find and classify entities mentioned in the narrative. It is available online through the *Unlock Text* API hosted by Edina (<http://edina.ac.uk/unlock/>) and we are also preparing a downloadable bundle for researchers who wish to adapt the software locally.

Useful research issues have been thrown up through expanding the domains we work with, such as how to distinguish place-names from people ("Paris" is usually a place in modern texts, but a person in classical works) and how to deal with ancient names translated to modern equivalents ("Aegyptus" vs "Egypt" etc). Our current work with the geoparser involves adapting it to handle historical texts from a wide range of periods and

informatics

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336

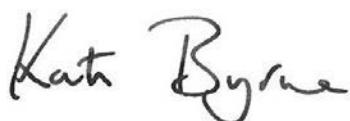
genres, requiring multiple gazetteers for spatial resolution. *Pleiades* – and the related *Pleiades+* version that includes links to nodes in Geonames – has been an invaluable tool for us. In turn, our work aids Humanities researchers in many fields, where spatial interpretation of large text corpora is required. As the language technology tools steadily improve, we find ourselves increasingly working with colleagues from other disciplines, as automated and semi-automated textual analysis becomes the norm. In current projects we're working with literature researchers and social and political historians, on material ranging from Scottish fiction to 19th Century trans-Atlantic trading records.

Thank you for providing a draft of the *Pleiades 3* project proposal. Two aspects of it are of particular interest to us: the plan for daily dumps of the database, and the construction of a robust API. These developments would enable us to expand the functionality of the geoparser in both the online Edina service and the free-standing downloadable package.

Although we've derived immense value from using *Pleiades*, we have hit problems with access performance and are currently using an out of date snapshot of the data. What would be really beneficial is to be able to fire queries in real-time against an API – as we can with Geonames – to get candidate locations for places that we will then rank based on clues in the context of the text. Where we are processing very large texts, so that the use of a remote database inevitably slows response time, we prefer to work with a local copy of the gazetteer, and in this case we would like the option of a daily snapshot that we load into a local database. Again, this would parallel what we currently do with Geonames.

I very much hope the NEH reviewers will support this proposal, as we would certainly welcome the opportunity to enhance our own offerings to researchers through incorporating the new *Pleiades* gazetteer in the geoparser. Our colleagues at Edina are likewise keen to expand the range of gazetteers they provide access to through Unlock, and we believe that, given a standardised API and straightforward update procedure, this is an entirely feasible extension. It's always been a pleasure working with colleagues such as yourself who have an open and collaborative attitude to scholarly resources like *Pleiades*, and we hope the association can continue.

Yours sincerely,



Dr Kate F Byrne
Language Technology Group
School of Informatics
<http://wp.ltg.ed.ac.uk/>



February 1, 2015

National Endowment for the Humanities
Office of Digital Humanities
Washington, DC

Dear NEH Reviewers,

I am pleased to write in support of the Pleiades project application to the Digital Humanities Implementation Grant program. I have had a strong research interest in digital historical gazetteers ever since my involvement with planning for Alexandria Digital Library enhancements at UC Santa Barbara in 2006. Following Tom Elliot's report on Pleiades at the *Digital Gazetteer Research and Practice* specialist meeting hosted at UCSB that year, I have tracked the project's remarkable growth and uptake within the Classical Studies and Archaeological communities.

In my professional position as Digital Humanities Research Developer, I am a publisher of linked data (for the ORBIS and Çatalhöyük Living Archive projects¹). As co-founder and co-chair of the GeoHumanities SIG of ADHO², I am an advocate of digital historical gazetteer development and the Linked Open Data (LOD) paradigm and a frequent participant in gazetteer-themed workshops and conference sessions. I frequently cite Pleiades as the most successful implementation of LOD to date. As an academic geographer, I develop spatial-temporal formalisms aimed at historical DH applications, including gazetteers (e.g. a Setting pattern³, and Topotime⁴). The design pattern within the Pleiades data model for representing places was a simple and innovative solution to vexing challenges, including places with uncertain or entirely unknown locations.

This month I will be submitting a proposal to NSF for a project that will develop a large repository of historical geospatial network data. The work of the project will result in a very large number of point locations and place names digitized from historical map scans. Many of these will be aligned with existing Pleiades gazetteer entries; many more will either match new places in Pleiades' proposed spatial and temporal expansion or become contributions to it. Pleiades is a crucial infrastructural resource that GeoHumanities projects and systems I design must interoperate with.

¹ <http://orbis.stanford.edu>; <http://catalhoyuk.stanford.edu>

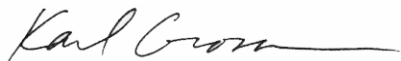
² <http://geohumanities.org>

³ Grossner, K., Janowicz, K., and Keßler, C. (accepted chapter, expected pub. Spring 2015) Place, Period, and Setting for Linked Data Gazetteers. In R. Mostern, H. Southall, M.L. Berman (Eds.) *Placing Names: Enriching and Integrating Gazetteers*. Bloomington, IN: Indiana University Press.

⁴ <http://dh.stanford.edu/topotime>

The Pleiades gazetteer is a highly successful project—an extended proof-of-concept which has done just that. It has outgrown its original architecture and its redesign will allow it to fulfill even greater potential by covering more periods and regions, with first-class performance. In my view Pleiades is a core piece of Digital Humanities cyberinfrastructure and warrants continued support.

Sincerely,

A handwritten signature in black ink that reads "Karl Grossner". The signature is fluid and cursive, with a long horizontal stroke at the end.

Karl Grossner, Ph.D.
Center for Interdisciplinary Digital Research (CIDR)
Stanford University
Stanford, CA

February 12, 2015

I am writing to express my support for the NEH Digital Humanities Implementation Grant to enhance the functionality and performance of the Pleiades Gazetteer of Ancient Places. *Pleiades* is one of the most important services available to the Classical Studies community. *Pleiades* identifiers (URIs) have become the standard for ancient places, superseding other gazetteers and vocabulary systems, such as the Getty Thesaurus of Geographic Names. As such, dozens of projects have incorporated these URIs into their systems, making endeavors like Pelagios, a cultural heritage aggregation system, possible. Pelagios is among the most successful Digital Humanities and Linked Open Data projects, enabling users to access a wide variety of materials (ranging from archival photographs to coins to epigraphy) related to ancient places defined by *Pleiades*.



At the American Numismatic Society (ANS), we interact with *Pleiades* in several capacities. We have incorporated *Pleiades* URIs into Nomisma.org to create a concordance between ancient mints and *Pleiades* places. This has created a pathway for numismatic projects at the ANS and elsewhere, such as the NEH-funded Online Coins of the Roman Empire (<http://numismatics.org/ocre/>), to participate in Pelagios, expanding access to our own materials. Additionally, I am a developer of two open source archival software frameworks: xEAC (<https://github.com/ewg118/xEAC>, for creating, managing, and publishing EAC-CPF records) and EADitor (<https://github.com/ewg118/eaditor>, for creating, managing, and publishing EAD finding aids). Both of these frameworks support geographic lookups of the *Pleiades*' machine-readable RSS feed to link authority records and finding aids to ancient places, and ultimately would allow archives to contribute cultural heritage materials to Pelagios as well. In xEAC, for example, a scholar building a prosopography of ancient people may be able to link life events of Alexander the Great to *Pleiades* places (e. g., http://admin.numismatics.org/xead/id/alexander_the_great), facilitating mapping interfaces, made possible by the extraction of latitude and longitude from RDF provided by *Pleiades* web services.

Despite the fundamental role *Pleiades* data plays in making all of these interfaces and visualizations possible, the project's architecture and performance are significant obstacles in scaling xEAC and EADitor in production. It may take several seconds to receive a response from *Pleiades*' RDF or RSS web service. As a result, it may take more than 30 seconds to generate a KML file that contains

merely 10-15 points, and therefore it is impossible to deploy dynamic mapping in production. The map in the Alexander the Great example, above, is a static file stored in the XML database. These static files are not ideal in terms of maintenance. By contrast, the responses from Geonames.org (a gazetteer for modern places) and Nomisma.org are nearly instantaneous, and we have been building dynamic maps on these web services for years.

In summation, *Pleiades* is enormously important to the Classical Studies and Linked Open Data communities, but I feel that we have only witnessed the tip of the iceberg in terms of potential. When *Pleiades* is capable of providing data at a greater scale, with the aid of this Implementation Grant, it will enable further development of external web services and data visualizations.

Sincerely,



Ethan Gruber
Web Services Developer
American Numismatic Society



3 February 2015

To whom it may concern

RE: Letter of Support for the “Pleiades 3” project

We, the undersigned, are writing on behalf of the Pelagios project in order to strongly endorse the proposed programme of development for the Pleiades Gazetteer (‘Pleiades 3’).

The Pelagios project uses Linked Open Data (LOD) methods to connect online resources about the historical past, using geographic references as its central concept scheme. With well over 40 partners from 8 countries, and having received funding from the UK’s Joint Information Systems Committee (JISC) and AHRC, as well as the Andrew W. Mellon Foundation, Pelagios could never have existed without Pleiades, nor could the approximately 1 million connections between our different partners have been established. These allow for direct cross-navigation between independently managed and maintained datasets of widely differing nature, but all reflecting inter-related aspects of the ancient and pre-modern world. Our current research is also exploring new mechanisms for visualising their geographic scope and focus.

Pelagios began its development of LOD by focusing on antiquity, largely because of Pleiades: its gazetteer of ancient places was not only an enabling factor but absolutely fundamental to our overall design. Pleiades’s pioneering and innovative use of HTTP Uniform Resource Identifiers (URIs), long before other historical gazetteers made them available, has made it possible to transcend the previously insurmountable difficulty of cross-referencing different data systems. Thus it provides *both* essential content *and* a viable working model of a gazetteer service, which in turn has been adapted for other periods and regions in the latest phase of our project (‘Pelagios 3’). The Pleiades data model provided the essential components of a standard ontology for bridging between such gazetteers, established at a workshop held jointly between the Pelagios project and Dr Elliott’s team, hosted at ISAW in October 2015. The result is a growing ecology of ‘specialist’ URI gazetteers that can provide scale-appropriate content for a particular humanities community, while simultaneously linking them to content from other communities.

Thanks to Pleiades, these principles are now being applied to further, non-geographic concepts such as people, periods and typologies. For example, the Arts and Humanities Research Council (AHRC) has recently funded a project, headquartered at King’s College, London, called ‘Standards for Networking Ancient Prosopographies: Data and Relations in Greco-Roman Names’ (<http://snapdrgn.net/>) in order to address the problem of linking together large, heterogeneous collections of information about persons, names, divinities, and the like. It is therefore not an overstatement to say that Pleiades has played a crucial role in the emergence of a Linked Open Data ecosystem for the study of antiquity, while Dr Elliott’s role as a coordinator of the NEH-funded Linked Ancient World Data Institute is just one indication of his central contribution to this field.

Of course, being the first at something brings challenges as well as opportunities. In the case of Pleiades there are indications that parts of its infrastructure are now showing their age. The principle limitation has been in terms of performance. While content is fully available to all who need it, increased system load not only slows down access to Pleiades, but can also introduce bottlenecks of information flow between other information resources as well, due to the central role of Pleiades within the network. Additionally some user interfaces could be more effectively streamlined to facilitate the introduction and editing of content, particularly in the involvement of non-technical subject experts. Again, however, this is only a problem now because of Pleiades’s success in achieving canonical status: experts who perceive particular errors in content want to contribute to Pleiades to make it better.

In sum, we thoroughly endorse the programme of work proposed for Pleiades as striking precisely the right balance between innovation and consolidation—innovation in terms of introducing new features to respond to recent developments in the field, consolidation for setting

it on a firm footing for future growth. By undertaking such necessary development, Pleiades—we are confident—will not only remain a gold standard of URI service provision at the forefront of Linked Open Data research, but will also continue to serve the growing number of digital humanities projects which make direct use of its content and the network of data its existence facilitates. We therefore urge you to fund Pleiades 3 in the strongest possible terms.



Dr Leif Isaksen
Lecturer in Archaeology and Co-Director, Web Science Doctoral Training Centre
University of Southampton



Dr Elton Barker
Reader in Classics
The Open University



Dr Rainer Simon
Senior Scientist
AIT: Austrian Institute of Technology



January 30, 2015

Tom Elliott
 Institute for the Study of the Ancient World (ISAW)
 New York University

Dear Dr. Elliott,

I am very pleased to write in enthusiastic support for your Digital Humanities Implementation project to augment *Pleiades*. In support of your project, I will commit to offering technical advice and guidance in the development of certain new features for *Pleiades*.

I manage *Open Context* (<http://opencontext.org>), an open access data publication venue for archaeology, referenced by the United States National Science Foundation and the National Endowment for the Humanities for archaeological data management. We provided editorial and peer-review services (including alignment to shared standards and ontologies) for the publication of archaeological data in a number of formats for human and machine use. While meeting a unique set of needs, *Open Context* is only one of a number of digital humanities programs working together to build a more open, collaborative, and synergistic information ecosystem dedicated to understanding the ancient world. Our editorial practices center on the annotation of data to shared standards in order to build bridges across these multiple efforts. *Pleiades* represents the single most important focus of our editorial process. We link data we publish to *Pleiades* places in order to make these data better understood and more interoperable with a vast array of allied initiatives similarly using *Pleiades*. On the following page, I've included a mapping visualization of a recent data publication of ceramic neutron activation analysis submitted by Prof. Peter Grave. When we published his data, we linked most of the 30 archaeological sites involved in his study to *Pleiades*.

I look forward to advising your Implementation project on enhancing *Pleiades* APIs (application program interfaces for software interaction with your data). A "reconciliation service" that allows us to match place names in contributor datasets against Web identifiers in the *Pleiades* gazetteer will help to greatly streamline Open Context editorial practices. Since Open Context will be a very active user of such reconciliation services, I am very enthusiastic to advise, trouble-shoot, and use this important new feature.

For the past several years, I have promoted, used, and helped to expand *Pleiades*. With NEH support, I led an effort to expand *Pleiades* coverage of the ancient Near East. Most recently, with NEH support, my colleagues (Ryan Shaw, Adam Rabinowitz) and I made extensive use of *Pleiades* data in our efforts to model cultural and historical periods with the NEH-sponsored PeriodO project. My research experiences have repeatedly demonstrated how *Pleiades* stands as the central node to an emerging Web of ancient world data. In order for our discipline to flourish, it is absolutely vital for *Pleiades* to receive continued support and grow to meet the increasing demands and needs resulting from its tremendous success.

I look forward to the success of this project and am very happy to advise in its continued development.

Eric C. Kansa, PhD.
 Open Context Program Director

ekansa@berkeley.edu
 UC Berkeley, D-Lab (<http://dlab.berkeley.edu/people/eric-kansa>)
 Open Context, Program Director (<http://opencontext.org>)
 Technology Director, Alexandria Archive Institute (<http://alexandriaarchive.org>)

Browse and Filter

Click on one of the links below to further limit your view of *analytic data* in Open Context.

Or, type a search term in the box

Sort facets alphabetically: A,B,C ↓

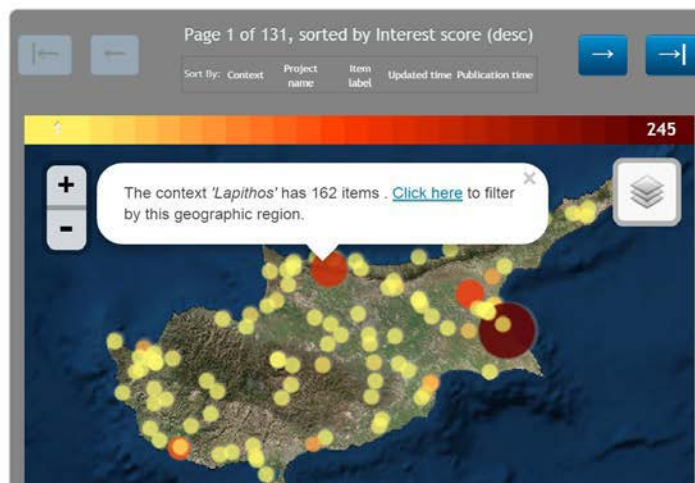
- Context
 - [Select Multiple](#)
 - [Enkomi](#) 245
 - [Lapithos](#) 162
 - [Milia](#) 127
 - [Palaepaphos](#) 105
 - [Kition](#) 70
 - [Amathus](#) 58
 - [Ayios Jakovos](#) 54
 - [Marion](#) 53
 - [Salamis](#) 39
 - [Larnaca](#) 38
 - [More...](#)
- Project
 - [Ceramics, Trade, Provenience and Geology: Cyprus in the Late Bronze Age](#) 1305
- Category
 - [Sample](#) 1305
- Principle Investigators / Directors
 - [Select Multiple](#)
 - [Attila Stopic](#) 1305
 - [Ben Marsh](#) 1305

Open Context currently has **1305** items, filtered by the following criteria:

- (1) Contained in: [Cyprus](#)
- (2) Project: [Ceramics, Trade, Provenience and Geology: Cyprus in the Late Bronze Age](#)
- (3) Category: [Sample](#)

Last Updated: *December 17, 2014, 8:57 am*

[US-state site files](#), [Map of tile regions](#), [Summary on Google maps](#)



See example: <http://goo.gl/1OUkcP>

VANDERBILT UNIVERSITY

February 3, 2015

National Endowment for the Humanities
400 7th Street SW
Washington, DC 20506

Re: Letter of Support for *Pleiades* 3

Dear NEH Reviewers,

I am writing to enthusiastically express my support for the Digital Humanities Implementation Grant to renovate the *Pleiades* gazetteer of the ancient world. I currently serve as co-general editor of *The Syriac Gazetteer* (<http://syriaca.org/geo/>) an NEH funded digital reference work that has benefitted inestimably from the existence of *Pleiades*.

The recovery of the physical and imagined environment of the ancient and medieval world has long been one of the most prized objectives for scholars of ancient history. Until the creation of the digital *Pleiades* gazetteer, scholars were reliant on print materials such as the *Barrington Atlas* or prose scholarship. In its current instance the *Pleiades* digital gazetteer already offers many improvements over such print resources. Even more importantly, however, its digital format has now allowed scholars to dream of new possibilities for geographic scholarship on the ancient world. The significance of the proposed revision of *Pleiades* is therefore not just to improve an existing resource, but to allow scholars from a wide number of disciplines to explore new investigative and interpretive techniques through increased and multi-format access to *Pleiades*' data.

In this letter, I will highlight the scholarly contributions of *Pleiades* to-date with reference to their positive effects on research in my field (history of the late-antique Near East). I will then comment on what I see as the tremendous opportunity for research innovations that would arise from the current proposal. Lastly, I will enumerate specific forms of collaboration to which the editors of *The Syriac Gazetteer* will commit should this funding be successful.

While the benefits of digital reference works over analogue “equivalents” are perhaps now self-evident, as a scholar who trained in the era of print maps, I would like to briefly note three major innovations of *Pleiades* which have contributed to scholarship in my field: its digital format, its function anchoring data in the field, and its role as a model project leading innovation across multiple disciplines, geographic specializations, and chronological foci. First, as a digital publication *Pleiades* is extensible and searchable in ways impossible for print works. While the *Barrington Atlas* was a major accomplishment in its time, it was immediately dated upon publication and financially unviable to update in a timely manner. Moreover, it was incredibly clumsy to navigate. At a bare minimum, *Pleiades* gave us the same data in a much more useful format. *Pleiades* did not stop there, of course. It has continued to add content to the degree that it now serves as the first point of reference and clearing house for the conceptual identification of ancient places. This “un-GIS” approach to conceptual places has meant that *Pleiades* serves as the system of record for places that cannot be placed on a map either because their location has been lost or was never known. A second benefit of *Pleiades* is its scale that has made it an attractive starting point for collecting data for new digital projects in various fields. Our project, *The Syriac Gazetteer*, would have been much

more difficult to get underway without being able to both adopt the conceptual data model of *Pleiades* and in some cases ingest its data.

These observations bring us to the third contribution of *Pleiades*, the one which signals why future funding will pay deep dividends. Because of its position in the field, *Pleiades* is now the *de facto* model and leader of how to do digital geography for ancient historians. It plays a role (best exemplified by its use in the *Pelagios* project: <http://pelagios-project.blogspot.co.uk/>) of serving as the point of reference when projects what to link their data together using the canonical URI's of *Pleiades*. Indeed, one of the primary reasons that *The Syriac Gazetteer* has included extensive links to *Pleiades* in our own data is that we see linking to *Pleiades* as a primary means of both connecting researchers using our data to a wider data set and also as a way of making our small niche of data available to researchers (through *Pleiades*) who might not otherwise include Syriac data in their research. In short, *Pleiades* is actually accomplishing what decades long whinging about interdisciplinarity has largely failed to do: enabling Classicists, Islamicists, scholars of Biblical Studies, Ancient Near Eastern archeologists, Byzantinists, etc. to become aware of each other's work across disciplinary and linguistic domains.

Pleiades' innovative success in breaking down silos is why the focus on *API* services and user interaction of the current proposal are so powerful. An update of *Pleiades* platform will enable even more sharing and linking of data. For example, *The Syriac Gazetteer* currently has over 3,000 entries which we are prepared to share as Linked Open Data for ingest into *Pleiades*, moreover we are very interested in importing data points (such as Greek script place names) about these entries from *Pleiades* back into *The Syriac Gazetteer*. This has been successfully been done already on a small scale through manual scripting, but improved *API* features in *Pleiades* would allow *The Syriac Gazetteer* (which has a more advanced *API* due to its more recent creation) to share data directly and programmatically.

Allowing machines to share data for sake of end users is, however, only the first benefit from the current proposal. Perhaps even more exciting from the point of view of scholarly creativity and innovation is the fact that these renovations to the *Pleiades* infrastructure will make the entire *Pleiades* data set more programmatically accessible to researchers as "Big Data". We do not yet know what the distant reading of aggregated ancient toponyms will be, be it is that case that the only place they are available in great numbers in *Pleiades*. Having access to them in json, XML, rdf and other formats will enable scholars to imagine new ways to query and interpret this data

In conclusion, I want to also state my commitment and that of my co-editors on *The Syriac Gazetteer* to continue our data sharing with *Pleiades*. Indeed, the new *API* and user features will make such collaboration easier and offer new scholarly possibilities for the study of ancient geography.

Sincerely,



David A. Michelson, Ph.D.

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

david.a.michelson@vanderbilt.edu



Department of Classical Studies
Box 90103, 233 Allen Building
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Telephone: (919) 681-4292
Fax: (919) 681-4262
<http://www.classicalstudies.duke.edu>

13 February 2015

Dear Tom:

I write to offer my strongest support for this latest and most welcome phase of Pleiades development. The scope and integrity of Pleiades data as well as its accessibility and architecture only begin to illustrate the virtues of the project as it stands today. Add the project leadership's early, vocal, and productive engagement in the linked open data space, along with its deep expertise in both humanistic and technological domains, and Pleiades sits at squarely among a small cohort of digital classics (though its footprint is much wider than that) projects that are doing things right, already! The prospect of a faster, more modular, more service-oriented Pleiades is just fantastic.

The Duke Collaboratory for Classics Computing (DC3) has been deeply engaged with Pleiades data for the last 18 months or so. Under a project called IDEs (Integrating Digital Epigraphies) we are building a suite of services that aims to do for (mainly) Greek and Latin epigraphy what papyri.info does already for papyrology. Part of this process has involved aligning both Pleiades and Geonames URIs withover a million epigraphic objects and citations. That mapping work, a combination of algorithmic matching and by-hand lookups, has involved intensive use of the public Pleiades UI, whose performance is subject to periodic problems, as you know. Thus, partly as remedy, we developed a standalone search UI that addresses a static copy of the data. See:

<http://ryanfb.github.io/pleiades-static-search/>
<https://github.com/ryanfb/pleiades-static>
<https://github.com/ryanfb/pleiades-geojson>
<https://github.com/ryanfb/pleiades-plus>

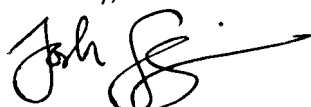
Then, we created a little app that we (and some of my students and colleagues) have been using to help align Pleiades and Geonames data, which we are calling Pleiades+. All of this is on github and available under open license. I am delighted to hear that you have decided to use these materials in the next phase of development. Contributing to the broader eco-system of Linked Open Data resources is central to DC3's mandate and a large part of what animates our work. These resources could be helpful to you in this next phase of development and you should, by all means, feel free to use them; we were only able to do what we did because of Pleiades' open license and clean architecture!

Longer term, high-priority goals for us include development of map-driven browse and search functionality for Greek and Latin epigraphic texts and support for crowd-driven curation of multi-source-aligned geographic information as relates to extant inscriptions. Toward both ends, we would be extremely pleased to help with this new phase of Pleiades development in any way we can. If this means

collaboration on specification, development, and deployment of tooling, continued alignment of geo-data across resources, API development with a view to name disambiguation or curation/vetting workflows, you may count on us to be eager and available. And inasmuch as our individual goals do dovetail in such a nice and mutually supporting way, we are prepared to engage in formal partnership as well.

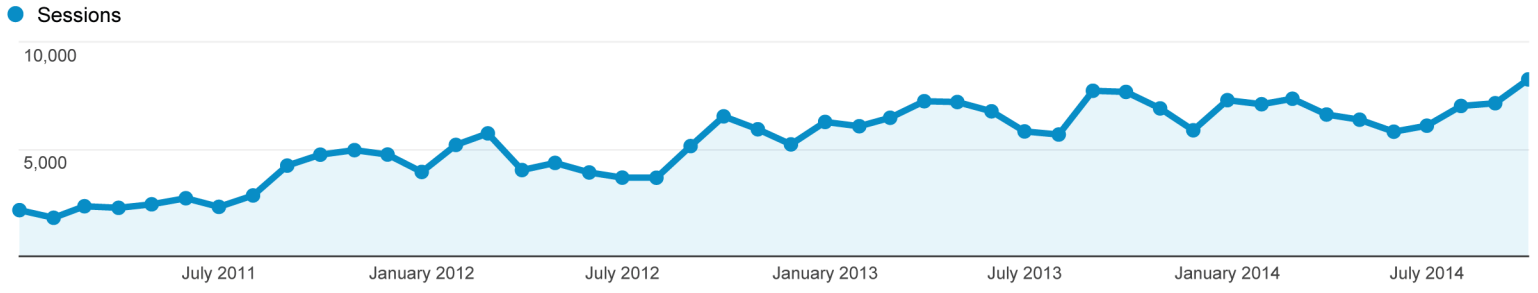
In short, modularization of Pleiades with a view to performance enhancement alone would be a task for which you would have our strongest support and applause! But to drive it forward in the ways that you have planned has all of us here, well, thrilled, and ready to pitch in.

Sincerely,

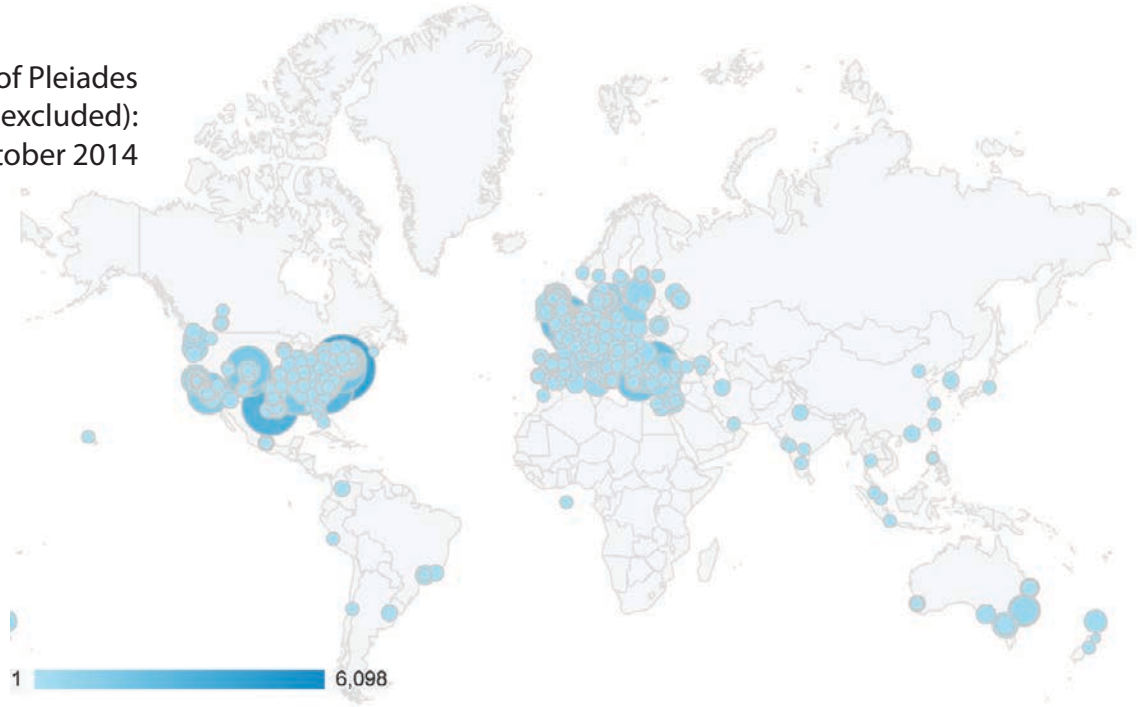
A handwritten signature in black ink, appearing to read "Josh Sosin", with a long horizontal flourish extending to the right.

Josh Sosin
joshua.sosin@duke.edu

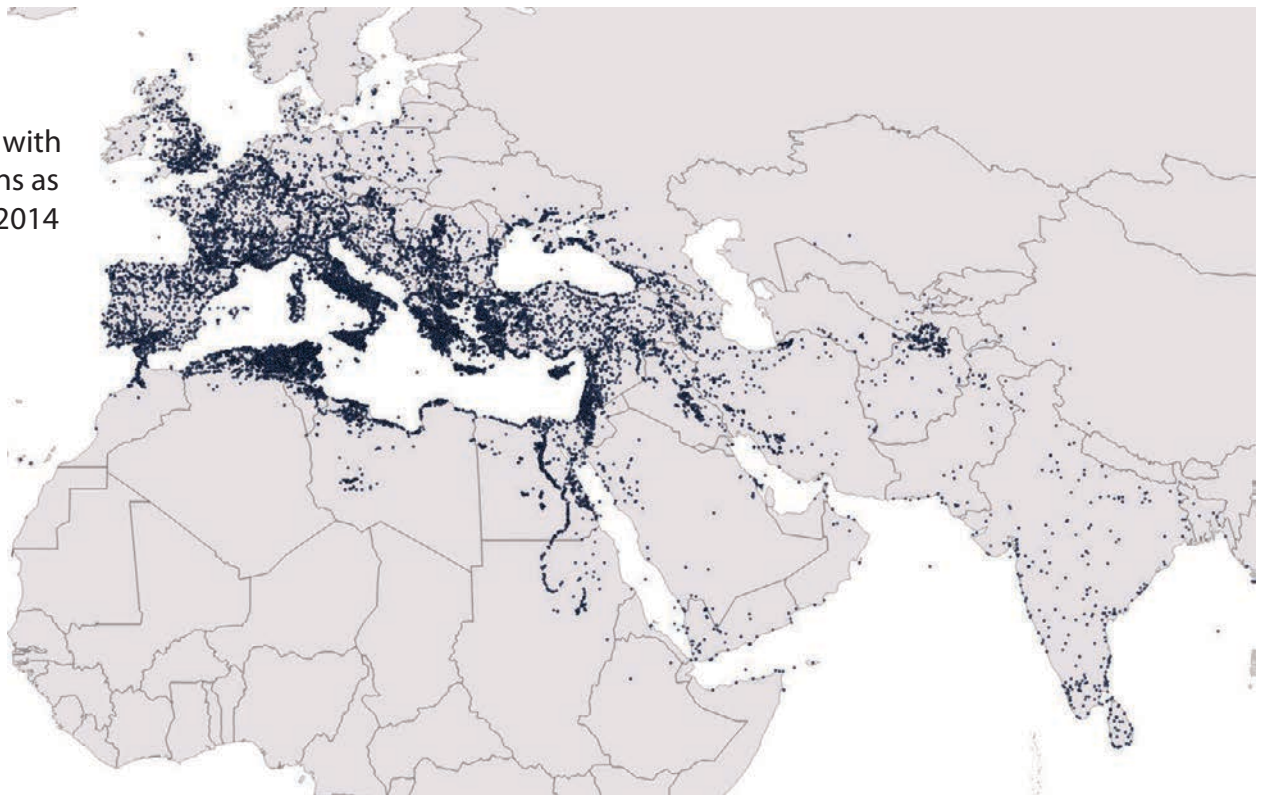
Website sessions (bots excluded): January 2011 - October 2014

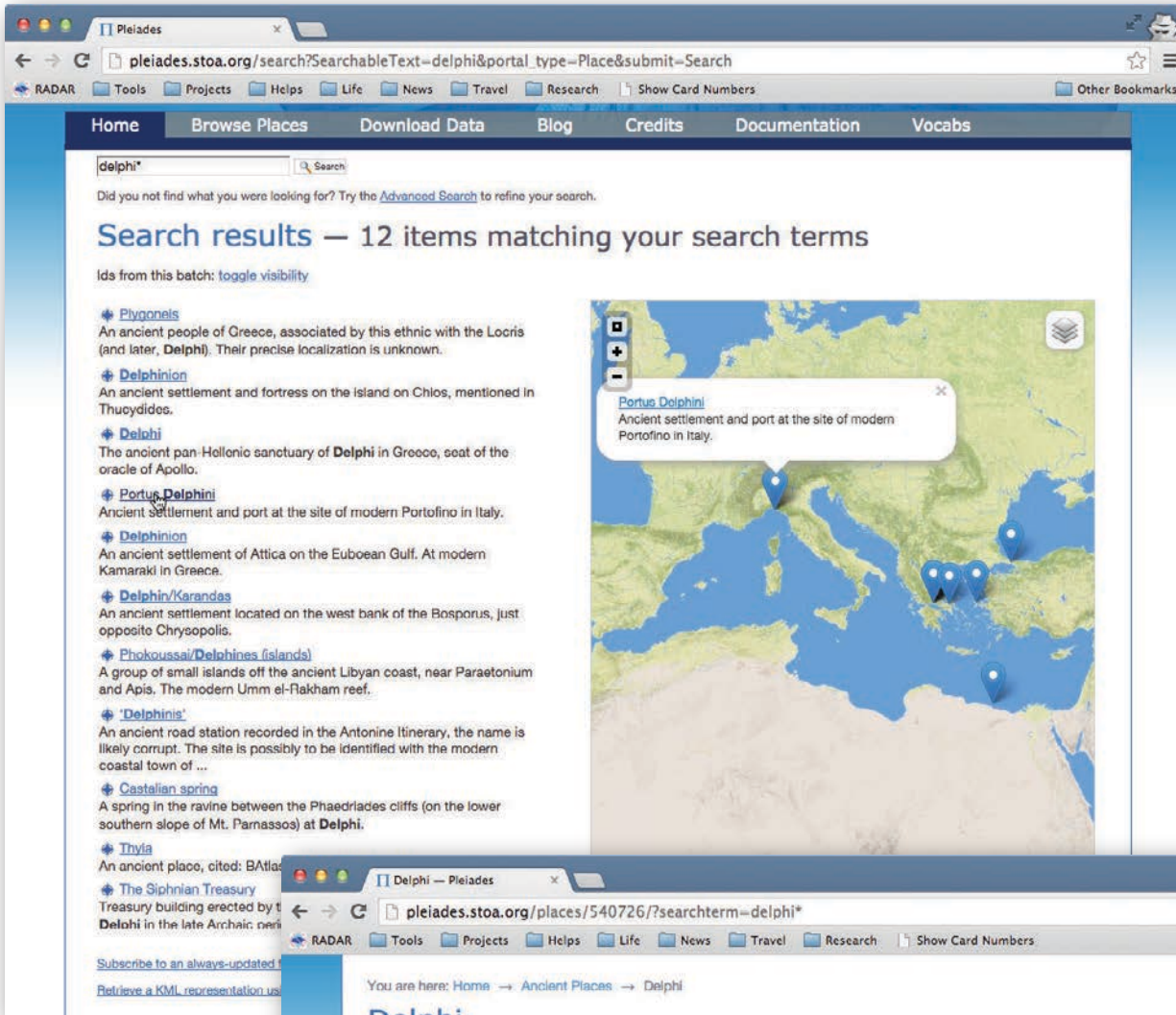


Origins of Pleiades sessions (bots excluded): January 2011 - October 2014

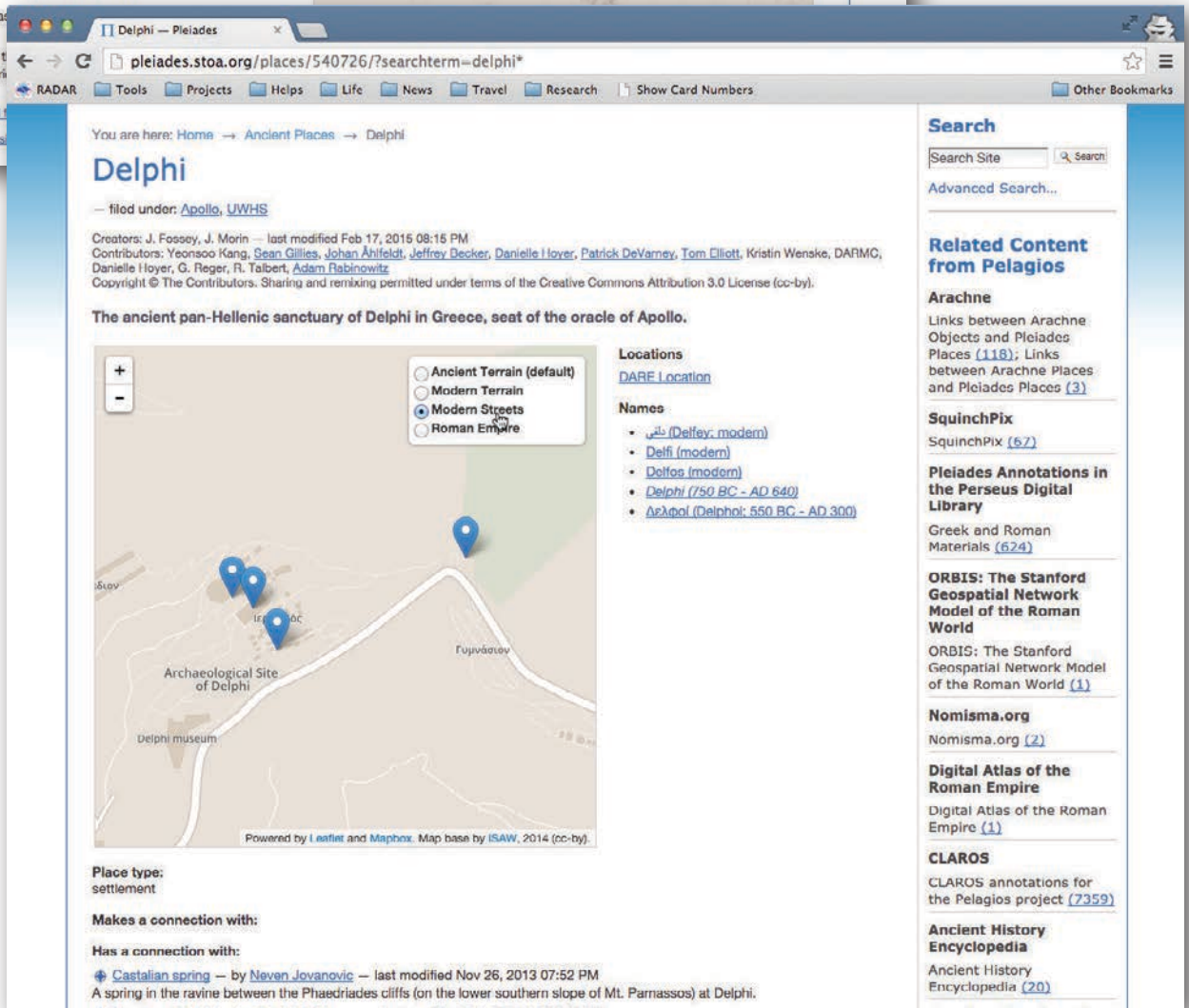


Pleiades places with mappable locations as of February 2014





Example search results page



Example place page (top)

Example place page (bottom)

Delphi — Pleiades

pleiades.stoa.org/places/540726/?searchterm=delphi*

Makes a connection with:

Has a connection with:

- [Castalian spring](#) — by [Neven Jovanovic](#) — last modified Nov 26, 2013 07:52 PM
A spring in the ravine between the Phaedriades cliffs (on the lower southern slope of Mt. Parnassos) at Delphi.
- [Theater at Delphi](#) — by [Patrick DeVarney](#) — last modified Feb 17, 2015 04:35 PM
The theater at Delphi near the Temple of Apollo.
- [The Siphnian Treasury](#) — by [Danielle Hoyer](#) — last modified Feb 17, 2015 04:48 PM
Treasury building erected by the citizens of the island city of Siphnos at Delphi in the late Archaic period, famous for its caryatid columns

References:

- Cite as Related: [geonames:8224023](#)
- Cite as Related: [darmc:11709](#)
- Cite as Related: [darmc:6613](#)
- See Further: [BAtlas 55 D4 Delphi](#)
- See Further: [Bormirelaer 1991](#)
- See Further: [NPauly Delphi](#)
- See Further: [UNESCO World Heritage List, Archaeological Site of Delphi](#)
- See Further: [Wikipedia, Delphi](#)

Initial Provenance:
Barrington Atlas: BAtlas 55 D4 Delphi

Details:
The Barrington Atlas Directory notes: Delphi, formerly Pytho

Canonical URI for this page:
<http://pleiades.stoa.org/places/540726>

Alternate representations:
[Atom](#), [JSON](#), [Alternate JSON \(Experimental\)](#), [KML](#), [KML \(Neighborhood\)](#), [RDF+XML](#), [Turtle](#)

Suggested citation:
Fossey, J., J. Morin, Y. Kang, S. Gillies, J. Ahlfeldt, J. Becker, D. Hoyer, P. DeVarney, T. Elliott, K. Wenske, DARMC, D. Hoyer, G. Reger, R. Talbert, A. Rabinowitz. "Places: 540726 (Delphi)". Pleiades. <<http://pleiades.stoa.org/places/540726>> [Accessed: February 17, 2015 11:22 pm]

Cite this resource in Wikipedia:

```
{{cite web url=http://pleiades.stoa.org/places/540726 |title=Places: 540726 (Delphi) |author=Fossey, J., J. Morin, Y. Kang, S. Gillies, J. Ahlfeldt, J. Becker, D. Hoyer, P. DeVarney, T. Elliott, K. Wenske, DARMC, D. Hoyer, G. Reger, R. Talbert, A. Rabinowitz |accessdate=February 17, 2015 11:22 pm |publisher=Pleiades}}
```

History

Log in to add comments

Ancient History Encyclopedia
Ancient History Encyclopedia (20)

American Numismatic Society
American Numismatic Society (29)

AWMC - Ancient World Mapping Center
AWMC - Ancient World Mapping Center (1)

[Pelagios Datasets](#)

Modeling Places

- Connecting places
- Does Pleiades record modern names?
- Technical Introduction to Places

Editing Places

- Can I add a link to a Wikipedia or DBpedia article?
- Content Development Projects
- How do I indicate origin and accuracy of new location coordinates?

Example name page (subordinate to place; used to provide detailed information about each name).

Delphoi — Pleiades

pleiades.stoa.org/places/540726/delphoi

Home Browse Places Download Data Blog Credits Documentation Vocabs

You are here: Home → Ancient Places → Delphi → Delphoi

Delphoi

Creators: [Tom Elliott](#) — last modified Feb 17, 2015 07:53 PM Copyright © The Contributors. Sharing and remixing permitted under terms of the Creative Commons Attribution 3.0 License (cc-by).

Classical Greek name of Delphi. Short Rating (0 votes): ★★

Romanized Name(s):
Delphoi

Name as attested:
Δελφοί

Language:
Greek (ancient)

Name type:
geographic name

Accuracy of transcription:
accurate

Level of transcription completeness:
complete

Level of certainty in association between name and the place:
Certain

Temporal attestations:

- Classical (Greco-Roman; 550 BC-330 BC) (confident)
- Hellenistic Greek, Roman Republic: (330 BC-30 BC) (confident)
- Roman, early Empire (30 BC-AD 300) (confident)

References:

- Cite As Evidence: [Eur. Supp. 1196 \(Murray, via Perseus\)](#)

Initial Provenance:
Pleiades

Details:

History

Log in to add comments

Search

Search Site Search

Advanced Search...

Related Content from Pelagios

Arachne
Links between Arachne Objects and Pleiades Places (118); Links between Arachne Places and Pleiades Places (3)

SquinchPix
SquinchPix (62)

Pleiades Annotations in the Perseus Digital Library
Greek and Roman Materials (624)

ORBIS: The Stanford Geospatial Network Model of the Roman World
ORBIS: The Stanford Geospatial Network Model of the Roman World (1)

Nomisma.org
Nomisma.org (2)

Digital Atlas of the Roman Empire
Digital Atlas of the Roman Empire (1)

CLAROS
CLAROS annotations for the Pelagios project (7359)

Ancient History Encyclopedia

Print this

OSM Location of Qutb Minar

pleiades.stoa.org/places/229277206/osm-location

RADAR Tools Projects Helps Life News Travel Research Show Card Numbers Other Bookmarks

Home Browse Places Download Data Blog Credits Documentation Vocab

You are here: Home → Ancient Places → Qutb Minar → OSM Location of Qutb Minar

OSM Location of Qutb Minar

Creators: Jeffrey Becker — last modified Feb 17, 2015 11:32 PM
Contributors: Tom Elliott
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Representative point derived from an OpenStreetMap node. Short Rating (0 votes): ★★★★★

Feature type:
architectural complex

Geometry and coordinates (long, lat order):
{ "type": "Point", "coordinates": [77.1855011, 28.5244010] }

Association Certainty:
Certain

Positional Accuracy Assessment:
[Generic OSM Accuracy Assessment](#)

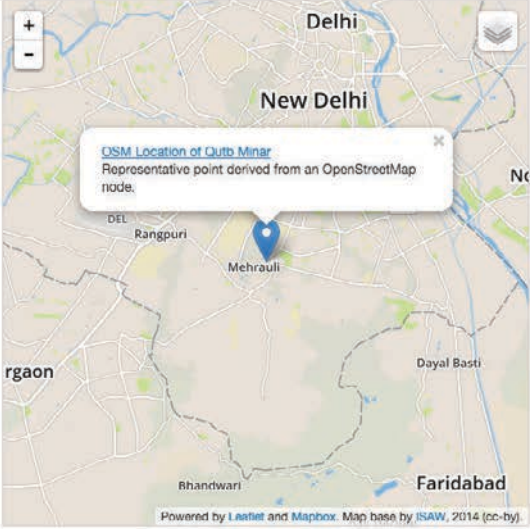
Temporal attestations:

References:

- Cite As Data Source:
[osm:node=413317742](https://osm.node-413317742)

Initial Provenance:
OpenStreetMap (Node 413317742, version 2, osm:changeset=5971399, 2010-10-06T17:20:13Z)

Details:



Show in [Google Maps](#) or [OpenStreetMap](#)

History

Log in to add comments

Search

Search Site Search

Advanced Search...

Related Content from Pelagios

[Pelagios Datasets](#)

Modeling Places

Connecting places

Does Pleiades record modern names?

Technical Introduction to Places

Editing Places

Can I add a link to a Wikipedia or DBpedia article?

Content Development Projects

How do I indicate origin and accuracy of new location coordinates?

How do I propose a...

Example location page (subordinate to place; provides spatial geometry and associated metadata)

Data for download — Pleiades

pleiades.stoa.org/downloads

RADAR Tools Projects Helps Life News Travel Research Show Card Numbers Other Bookmarks

Home Browse Places Download Data Blog Credits Documentation Vocab

You are here: Home → Data for download

Data for download

Creators: Sean Gillies — last modified Mar 19, 2014 10:47 AM
Contributors: Brian Turner, Tom Elliott
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Get complete and regular shapshots of all Pleiades resources, available in multiple formats including CSV, KML, and RDF.

CSV Tables

Each morning, tables summarizing published locations, names, and places are written to gzipped CSV files at <http://atiantides.org/downloads/pleiades/dumps/>. Text in these files is UTF-8 encoded; some CSV readers (e.g., Microsoft Excel) assume ASCII encoding for CSV files, so be careful!

We keep a week's worth of files, deleting older ones. The files named pleiades-*latest*.csv.gz are symbolically linked to the most recent catalog dumps. **The schemas of these files are documented in a README.** The resources under <http://pleiades.stoa.org/places/> remain the canonical ancient world resources; the contents of the tables are only thin slices. The [recently modified](#) page or its corresponding [RSS feed](#) are the best ways to track what is changing in these daily dumps.

In addition to the individual resource editorial workflow, the Pleiades project is developing a workflow for updating resources in bulk using modified subsets of these dumped tables. After manipulating the names table in Google Refine, we've successfully updated the attested time periods of 2071 ancient names. We expect to be able to guide tables modified by users through this same process soon.

KML

All mappable places are read from our catalog and written to a zipped KML (KMZ) file each morning. We keep a week's worth of files at <http://atiantides.org/downloads/pleiades/kml/> and delete older ones.

RDF

The latest data for all places, errata, authors, place types, and time periods in a compressed tar archive is available at <http://atiantides.org/downloads/pleiades/rdf/pleiades-latest.tar.gz>. Previous dumps are also available at

Search

Search Site Search

Advanced Search...

News

AWMC Launches Online Strabo's Geography Map
Sep 11, 2014

Ryan Horne Assumes Co-Managing Editor Role
Aug 29, 2014

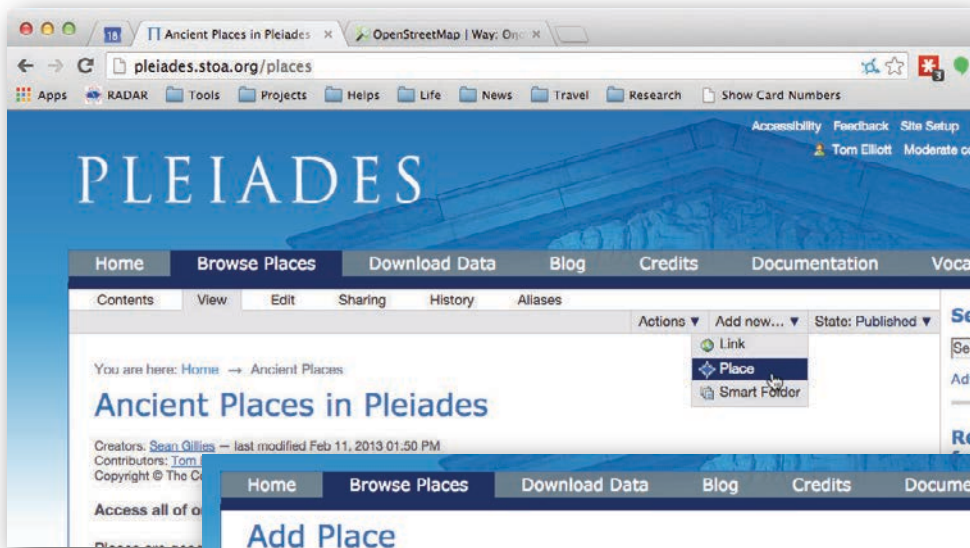
Sarah Bond Joins editorial board
Aug 13, 2014

Stuart Dunn on Santorini
Aug 08, 2014

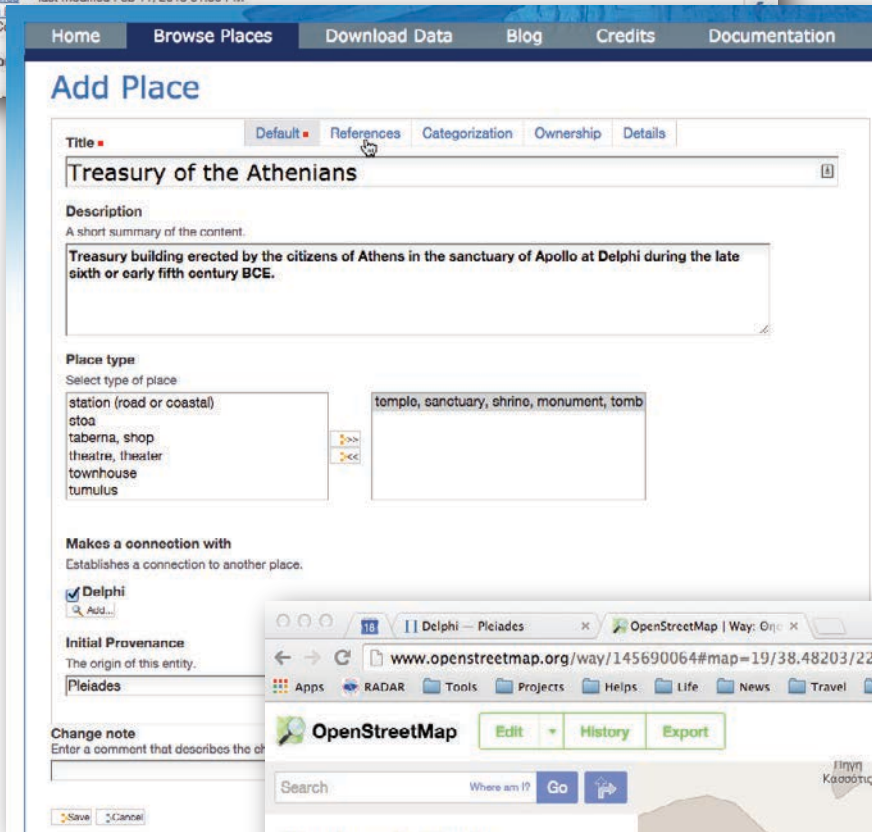
Pleiades 2 Final Report
Aug 07, 2014

More news...

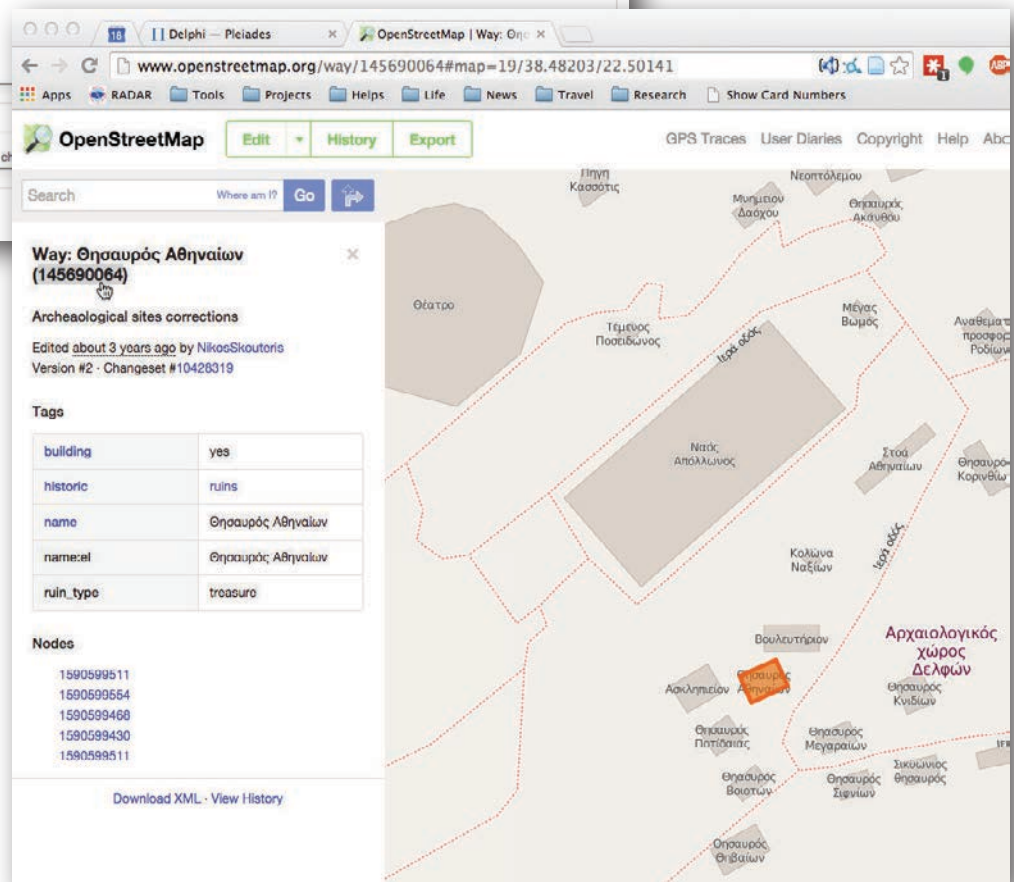
Downloads page (top)



Any registered user can create a draft record for a place with a simple point and click...



A form with multiple tabs provides an organized way to refine the information contained in the draft record. Work is saved across multiple sessions, and is kept private and invisible to the public.



There are many ways to add coordinates to a Pleiades place record. One convenient way (if the place still has extant remains and if it has been accurately mapped in OpenStreetMap) is to make a note of the unique identifying number that OSM gives to the geometric shape associated with the remains of that place...

Home Browse Places Download Data Blog Credits Documentation

view Edit Syndication Sharing History Aliases Actions Display State: Drafting

Info
Changes saved.

You are here: Home → Ancient Places → Treasury of the Athenians

Treasury of the Athenians

Creators: Tom Elliott — last modified Feb 18, 2015 01:27 AM Copyright © The Contributors. Sharing and remixing permitted under terms of the Creative Commons Attribution 3.0 License (cc-by).

Treasury building erected by the citizens of Athens in the sanctuary of Apollo at Delphi during the late sixth or early fifth century BCE.

Locations

Add Location

Add OpenStreetMap Point Location

Node Way Object type (required)

145690064 Object ID (required)

OSM Location of the Treasury Title (optional)

Add What's this?

... and enter it into the convenient form Pleiades provides. Pleiades then queries the OSM API, receives the corresponding spatial data, and creates a Pleiades location record (complete with spatial metadata and also a citation that links back to OSM and complies with its open data license). Just as in the “place” form, the contributor can make changes and additions to the location record.

Default Coordinates References Details Categorization Ownership

Geometry and coordinates (long, lat order)

Enter the coordinates of this location in one of 2 forms:

- Decimal latitude, longitude pair separated by whitespace or comma for point locations (example: 41.9, 12.5)
- GeoJSON (example: `{ "type": "Point", "coordinates": [12.5,41.9] }`)

Note that coordinate order in GeoJSON is longitude, latitude. Change focus to another form field and the map will update.

```
{ "type": "Point", "coordinates": [22.5012833, 38.4817907] }
```

Positional Accuracy Assessment

Select document describing the positional accuracy of this location

Generic OSM Accuracy Assessment

Add... Remove reference

Change note

Enter a comment that describes the changes you made.

Default Coordinates References Details Categorization Ownership

References

Add or remove references cited by this entity

Reference identifier and citation

Reference identifier

This is a link (URL, preferred) or other electronic information system identifier (DOI, ISSN, Handle, etc).

<http://www.openstreetmap.org/browse>

Specific citation

A plain-text AJA style citation (see <http://www.ajonline.org/submissions#4>) is preferred for entities with no identifier. A short form is acceptable for those with an identifier.

osm:way=145690064

Citation Type

Places need “See Further” and “See Also” citations. Locations and Names should cite ancient texts or objects as evidence and records in external databases or specific articles as confirmation.

Cite As Data Source

Change note

Enter a comment that describes the changes you made.

Contributors can suggest improvements to existing content too by “checking out” a working copy, i.e., a private draft that starts as an exact copy of a published record. Then the contributor can edit it just like a new record!

Once the contributor is satisfied with the content of the draft, she submits it for review. It remains invisible to the public until the editors and the contributor are satisfied with the record, at which time, the editors move it into published status. If the record is a “working copy”, the editors “check it in”, which replaces the previously published version with the new information.

There is also a set of forms for entering and editing placename information.

Credits Documentation Vocab

Actions State: Drafting

Submit for review

Advanced...

Policy...

ation of the Treasury of the Athenians

Treasury of the Athenians

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Short Rating (0 votes) ★★

Your Rating: ★★

Edit Name

A Name object describes an appellation of a Place along with the sources that attest to its use in time references. Pleiades also seeks to collect transcriptions of ancient forms of these names so that place

Default Transcription References

Name as attested

Enter transcription of the attested form of the name in its original language and script, if known.

Δελφοί

Language

Select the language and writing system or script of the attested name above.

Greek (ancient)

Accuracy of transcription

Select level of transcription accuracy

accurate

false

inaccurate

Level of transcription completeness

Select level of transcription completeness

complete

fragmentary and not reconstructable

fragmentary, but reconstructable

Chapter 1 | Dickinson Coll

dcc.dickinson.edu/nepos-hannibal/chapter-1

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DCC DICKINSON COLLEGE COMMENTARIES

HOME ABOUT REOURCES IMAGES SEARCH BLOG

Cornelius Nepos / Life of Hannibal Notes and essays by Bret Mulligan

CONTENTS

CHAPTER 1

(1) Hannibal, Hamilcaris filius, Karthaginiensis. Si verum est, quod nemō dubitat, ut populus Rōmānus omnēs gentēs virtūte superārit, nōn est infitandum Hannibalem tantō praestitisse cēterōs imperātōrēs prūdentīā, quantō populus Rōmānus antecēdat fortitudīne cunctās nātiōnēs.

(2) Nam quotienscumque cum eō congressus est in Italiā, semper discessit superior. Quod nisi domī civium suōrum invidiā debilitātus esset, Rōmānōs vidētur superāre potuisse. Sed multōrum obtrēctātiō devicit ūnūs virtūtem.

(3) Hic autem, velut hērēditate relictum, odium paternum ergā Rōmānōs sic cōservāvit, ut prius animam quam id deposuerit, quī quidem, cum patriā pulsi, indigēret, numquam dēstitit.

notes vocabulary media

Nepos compares Hannibal's individual greatness to the superiority of the Roman people (1–2). Hannibal's implacable hostility towards the Romans, even after being sent into exile by his fellow-citizens, was a kind of family inheritance (3).

(1) Hannibal: Most Carthaginian proper names are rendered in Latin as third declension. Place: Eryx M. http://pleiades.stoa.org/places/462202

Carthaginian Hammon v. father of the First Punic

Rome

Tunis

A place described in the Pleiades gazetteer: Mount Eryx is a mountain of western Sicily. The mountain is mentioned by numerous ancient authors; notably in the Aeneid Virgil discusses it in relation to Venus Erycina. Further information at:

the te of Baal." Baal

general and whom led er phase of the guerilla campaign

to defend Mount Hercte and Mount Eryx in Sicily. His aptitude for quick, devastating raids earned him the nickname Barca or "Thunderbolt." Hamilcar so impressed the Romans with his ferocity and ingenuity that, when Carthage surrendered, Hamilcar and his soldiers were allowed to

An activated Pleiades pop-up in a Dickinson College Commentary page. This pop-up is created with an open-source JavaScript library created by ISAW that automatically grabs Pleiades data for every link to a Pleiades place found in the web page.

Find records in Open Context are associated with Pleiades place URIs so that searching and filtering by ancient place lets users find archaeological data from multiple excavations and archives if it relates to the same ancient place.

Open Context Browse (2)

opencontext.org/sets/7re1%5B%5D=http%3A%2F%2Fgawd.atlantides.org%2Fterms%2Forigin

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OPEN CONTEXT

Web-based research data publication

Home About Projects Browse Lightbox Tables Weblog

Browse and Filter

Click on one of the links below to further limit your view of *analytic data* in Open Context.

Or, type a search term in the box

Search here... SEARCH

Sort facets alphabetically: A,B,C ↓

- Linking Relation Target
 - Select Multiple
 - Antiochia/Theoupolis (Pleiades) 159
 - Nicomedia (Pleiades) 17
 - Heraclea (Pleiades) 17
 - Cyzicus (Pleiades) 14
 - Thessalonica (Pleiades) 9
 - Alexandria (Pleiades) 9
 - Roma (Pleiades) 8
 - Byzantium (Pleiades) 8
 - Petra (Pleiades) 4
 - Thelime/Col. Arelate/Constantina (Pleiades) 2
 - Col. Lugdunum (Pleiades) 2
 - Aquileia (Pleiades) 2
 - More...
- Descriptive Properties
 - Select Multiple
 - Artifact Name 218
 - Initials 218
 - Material 218
 - Mint 218
 - Conservation 217
 - Metal 40
 - Metal Description 40
 - Mintmark 40
 - Culture 35
 - Date Minted 35
 - References 33

Open Context currently has 258 items, filtered by the following criteria:

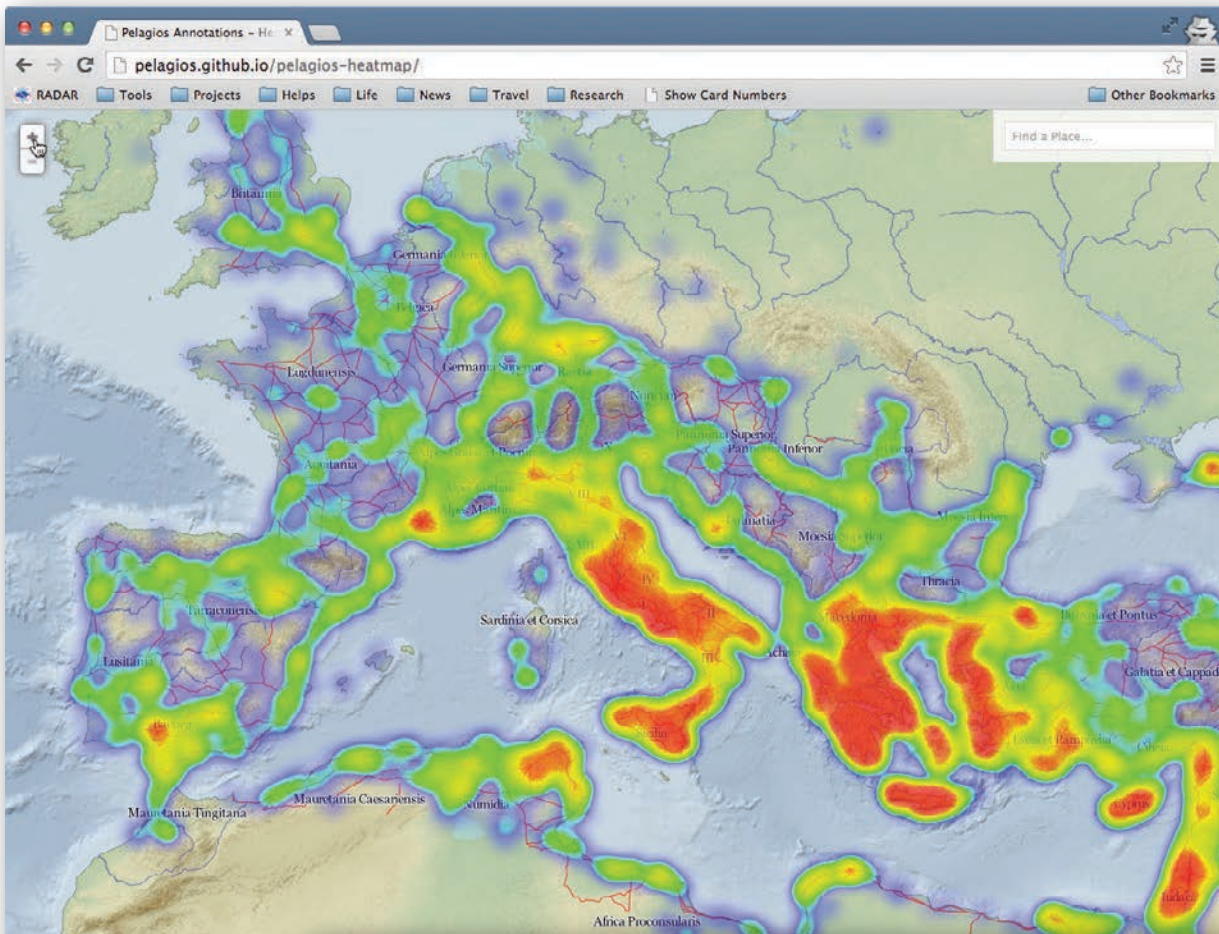
(1) Linking Relation: [Origin place \(from Concordia\)](#)

Last Updated: September 7, 2013, 11:20 am

US-state site files, Map with point icons, Map of tile regions, Summary on Google maps

Page 1 of 26, sorted by Interest score (desc)

Context	Item label	Updated time	Publication time
Domuztepe Excavations	Coin DT# 5019		
Context: Turkey / Domuztepe / VII / Lot 3930			
Domuztepe Excavations	Coin DT# 5184		
Context: Turkey / Domuztepe / VII / Lot 3930			
Domuztepe Excavations	Coin DT# 5207		
Context: Turkey / Domuztepe / VII			



The “Pelagios Heat Map” illustrates the geographic density of records in the collections of participating projects and databases. Correlation of location and coordinates come from Pleiades.

HEIDELBERGER AKADEMIE DER WISSENSCHAFTEN
EPIGRAPHIC DATABASE HEIDELBERG

Home Project Inscriptions Photos Bibliography Links

Epigraphic Text Database: Detailed View

HD no.	HD022032
TM no.	↗ 120931
Pleiades ID	↗ 501482 (↗ Related content from Pelagios)
work status	checked with photo
last update	24 May 2013
responsible individual	Cowey
Find spot / present location	
province / Italic region	Macedonia
modern country	Greece
ancient find spot	Colonia Iulia Augusta Philippensium (= Philippi)
modern find spot	↗ Krenides (↗ Radial Search)
find spot (village, street, etc.)	Neapolistor, bei
modern region	Anatoliki Makedonia, Thraki
year of find	
present location	
type of inscription / language	
type of inscription	Epitaph
language	Latin
metre	
type of monument	

The Epigraphic Database Heidelberg is just one of several major digital collections of ancient texts that are using Pleiades URIs to organize the geographic aspects of their content and the Pelagios network to connect their users to related resources elsewhere on the Web.

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