

The 'Big Digs' Go Digital Opportunities and Challenges for Large-Scale, Multigenerational Excavation Projects in the Digital Age

Introduction

In 2009-2010, a collaborative effort between the German Archaeological Institute (DAI) and the American School of Classical Studies at Athens resulted in discussions for the first time about problems faced by both institutions in the handling and dissemination of massive quantities of digital data from long-running excavations, some of which have been in operation for more than a century: the so-called “Big Digs.” We view the problems we face, however, as no more than an extreme case of challenges that must be confronted by virtually every archaeological project today. We here present a summary of the results of our discussion in the hope that it will be of some value to other institutions and individual projects.

“Big Digs” is a term often applied to the large-scale, multigenerational excavation projects conducted around the Mediterranean starting from the end of the 19th to the early 20th century. Big digs conducted by the American School of Classical Studies at Athens include excavations at Ancient Corinth (started in 1896) and the Athenian Agora (1931). Projects conducted by the Deutsches Archäologisches Institut (DAI), Abteilung Athen, include the excavations at Olympia (1875), at the Kerameikos (1913), and at the Heraion on Samos (1910, 1925).

From the beginning, these “Big Digs” accrued large amounts of data, and an early challenge was to find a way to record and organize that material. Notebooks, card catalogs, photographic negatives, large-scale plans and drawings were created and added to over the years, and registry departments archived thousands of pages of printed records and curated hundreds of thousands of artifacts. From the 1980s onwards, print materials were being replaced by digital records. At many of the “Big Digs” electronic technologies have now almost replaced analog ones.

Digital technologies offer new ways of recording archaeological information. They also present new possibilities for interpreting data and building regional perspectives. At the same time, the rapid development of digital formats and the ephemeral nature of electronic information pose new infrastructure challenges to large-scale excavation projects. These are challenges which institutions such as the DAI and ASCSA are finding it difficult to meet alone, and there is a clear need for collaborative solutions to such common problems. Successful collaboration will also provide a strong foundation for new kinds of research, building on interoperable datasets to create perspectives that link previously silo-ed (stand-alone) fieldwork projects.

The Project

In November 2008, as an initial step in exploring collaboration, the DAI and ASCSA submitted a request for funding a series of workshops, one in Athens and one in the USA, to explore opportunities for collaboration. The request was submitted to the DFG/NEH Bilateral Digital Humanities Program. Funding was announced in April 2009. The first workshop took place in Athens, 4-7 November 2009. The second workshop took place in Anaheim, California, 7 January 2010. A small group of expert guests were invited to Athens to provide input and advice as the DAI and ASCSA explore the issues.

Credits

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The Deutsche Forschungsgemeinschaft (German Research Foundation) is the central, self-governing research funding organization that promotes research at universities and other publicly financed research institutions in Germany. The DFG serves all branches of science and the humanities by funding research projects and facilitating cooperation among researchers.

The National Endowment for the Humanities is an independent grant-making agency of the United States government dedicated to supporting research, education, preservation, and public programs in the humanities.

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The Athens Workshop (4-7 November 2009)

The initial gathering of the project was a workshop held in Athens, Greece, in November 2009, over a period of four days (November 4-7). An informal dinner hosted by ASCSA broke the ice by giving participants a chance to meet each other and to speak informally in advance of the first formal presentations.

The latter began the following morning (5 November, Thursday) in the library of the Deutsches Archäologisches Institut (DAI) with greetings offered by the Director of DAI-Athens, Wolf-Dietrich Niemeier.

Ortwin Dally, director of the DAI in Berlin, then described "The DAI and its Digital Program." His talk focused on the current application of digital techniques for documenting DAI's archaeological work worldwide and the goal to broaden the use of such techniques and make data accessible via the internet. Besides archaeological fieldwork, DAI is also creating digital data for online publication (Online Public Access Catalog, OPAC) and it plans to place online the complete photographic collections of DAI's various branches. Dally also outlined the four main goals of this workshop: 1) to understand the nature of digital archaeology using case studies; 2) to articulate opportunities; 3) to define challenges; and 4) to suggest solutions and explore future opportunities for cooperation.

Jack Davis, director of ASCSA, elaborated on the goal of cooperation between DAI and ASCSA.

Dally then presented DAI's state of digitization, outlining in detail the creation of a "practice guide" based on international standards and various digital projects such as Arachne (the central object-database for DAI: <http://www.arachne.uni-koeln.de/>) and Zenon (<http://opac.dainst.org/>).

Davis reviewed the history of the ASCSA and outlined its organization. Besides the ASCSA's two "Big Digs," the Athenian Agora and Corinth (dealt with in more detail by other speakers),

there is great emphasis on digital documentation and publication of the large archives of historical documents in the Gennadius Library and of the holdings in the Blegen Library. Finally, John Younger, chair of ASCSA's Committee on Information Technology (IT) spoke briefly about the ASCSA and its oversight of IT policies and procedures.

Subsequent presentations presented case studies based on the experiences of particular archaeological projects sponsored by the DAI and ASCSA. James Herbst, IT manager of the Corinth Excavations of ASCSA, discussed "The History of Excavation and the Impact of Digital Technology in Ancient Corinth," detailing how standards of documentation were constantly being improved from the beginning of excavation in the 1890s, when large scale digging with many workmen uncovering vast areas was common practice, to the present day. Though the individual excavators employed different formats, documentation was gradually standardized until digital records were introduced as early as the 1970s. Presently records are entered in an Access database supplemented by a GIS-system for geographical data. Plans are mostly drawn traditionally, and then scanned and processed with AutoCAD. Mapping identical objects from Corinth and the Athenian Agora, using two different databases to preserve their own character, has led to a single web portal (<http://www.ascsa.net>) to present the material and allow for interoperable searchability. Detailed observations during the recent excavation of a large domestic quarter of the Medieval period benefited considerably from the application of digital technologies. A rich amount of information was distributed quickly collaborators based at various research centers worldwide.

Reinhard Senff, director of the DAI's excavations at Olympia, next discussed "The History of Excavation and the Impact of Digital Technologies at Olympia," pointing out various parallels in the development of excavation techniques in the late 19th and 20th century between Olympia and sites investigated by his American colleagues. The considerable destruction of buildings, the dispersion of monuments, and thousands of architectural members at Olympia make digital databases ideal tools for documenting and ordering the stone-depots. For large corpora of material not yet published in detail, like the bronze items numbering more than 30,000 pieces, databases accessible via the internet can be an alternative to standard print publications.

Another goal of the current documentation at Olympia is to improve the precision of ongoing fieldwork. Precise measurements with a theodolite are supplemented with computer-aided photogrammetry to create a three-dimensional model of the site and to document the individual work stages. Though some ASCSA projects use on-site digital systems, DAI has preferred a combination of approaches. A system called iDAI.field (<http://www.dainst.de/idaifield>) has been developed and is being offered free to all DAI excavations. It consists of a standardized procedure for all excavations and a flexible module that can be modified to suit specific situations. On site, paper forms are filled out and later entered into the database.

In the discussion that followed, Reinhard Förtsch encouraged the transfer of data to iDAI.field, so that it easily could be combined with other data from DAI excavations and disseminated via the internet.

Bruce Hartzler, IT manager for ASCSA's Athenian Agora excavations, later spoke about "The History of Excavation and the Impact of Digital Technologies at the Athenian Agora." Technically and in terms of personnel, the Agora project is at present the most digitally advanced of projects sponsored by ASCSA and the DAI-Athens. Most of the information available in old notebooks, plans, file archives, and photographs has been digitized over the last eight years, and

this information can be freely downloaded from the internet using conventional search engines. Trench supervisors can compare new finds with old ones while working in the field using palm pilots. Hartzler also showed how the workflow takes place, from recording field data of all types (including using an electronic theodolite to generate three-dimensional architectural drawings) to analyzing, restoring, and photographing objects. Various procedures are in place that allow trench supervisors and students flexibility in how they handle data. A current project is to cover the entire site with a wireless local area network (WLAN) for researchers and visitors alike.

Excavations at Kalapodi in central Greece constitute one of the most significant current initiatives of the DAI-Athens. In the first part of "The History of Excavation and the Impact of Digital Technologies at Kalapodi," W.-D. Niemeier gave a review of the current results of the excavation in the sanctuary of Apollo at ancient Abai (Kalapodi). The procedure for documentation was next described by Ivonne Kaiser, who in detail gave an introduction to the use of DAI's database for field work adapted to the Kalapodi project. As at Olympia, field data are recorded first on standardized paper forms and then transferred to a database. She further described how plans are drawn and how they are converted with AutoCAD to produce a highly precise site plan. Nils Hellner closed the presentation with some thoughts about the appropriateness of digital measuring, CAD, virtual-reality reconstruction, and traditional hand-drawing. He first demonstrated the creation of a 3D-wireframe-model for architecture, using TachyCAD combined with stereoscopic photography. Hellner then applied this procedure to document the east pediment of the late Archaic temple at Kalapodi. Finally, he made a plea for the use of digital techniques combined with traditional hand drawing at the largest scale possible in order to achieve the most useful and economic results.

An important result of the general discussion that followed was agreement that one goal of collaboration should be to technically link different sets of data from ASCSA and DAI projects. If data from different sites are linked, we benefit from them—but there are problems, since it would be difficult, if not impossible (as well as undesirable for economic reasons) to convert all the different data to a single system.

After the presentations and discussions of the previous day in mind, the following morning (Friday) was devoted to a hands-on confrontation with actual archaeological data from "Big Digs" in Athens. First, a tour of the ASCSA facilities in the Stoa of Attalos, led by Hartzler, brought the workshop participants in direct contact with the storerooms, the finds, the records, and the drafting rooms where the documentation takes place at the Athenian Agora. How finds make their way from trench to exhibition, including their detailed documentation, was demonstrated in the conservation laboratory.

Metaxia Tsipopoulou, director of the National Archive of Monuments of the Greek Ministry of Culture, hosted workshop participants in her new facilities. There they were able to view an introductory film and an exhibition on the recent work of the ministry.

There followed an on-site tour of the Kerameikos by director Jutta Stroszeck, who introduced the group to recent archaeological work in this significant cemetery of ancient Athens.

Presentations on Friday were more wide-ranging and less concerned with particular archaeological projects. Reinhard Förtsch of the DAI discussed "The Challenge of Interoperability: The CIDOC-CRM and Archaeological Databases." DAI shares software development, webhosting and storage with the University of Cologne and other institutions like

the TOPOI cluster of excellence. Arachne is a source for DAI's interoperability operations, since iDAI.field is still in its early phases. But Arachne's interoperability can give an idea of what iDAI.field's interoperability will be in the future. DAI is putting its data into an interoperable state using CIDOC-CRM (International Committee for Documentation - Conceptual Reference Model: <http://cidoc.ics.forth.gr/>). By doing so it channels portions of its database content (about 500.000 images and 230.000 datasets) into various other web resources, mainly CLAROS.net (<http://www.clarosnet.org/>).

As a goal DAI has in mind workflows like those from the Hestia-project (<http://www.open.ac.uk/Arts/hestia/>), where raw data is taken from one source like the Perseus Digital Library (<http://www.perseus.tufts.edu/hopper/>), analyzed, annotated and enriched in Hestia, and then channeled back into Perseus.

Most participants agreed that free accessibility of data would multiply the attractiveness of any project. Though a traditional attitude is commonly found among archaeologists — that the use of data should be restricted to only a few specialists until the appearance of a final publication — all participants agreed that it was more advantageous for projects to disperse information freely. A final publication of the archaeological material by specialists who can make proper sense of it, however, is also important.

Tom Elliott of NYU next discussed "The Challenge of Sustainability." The sustainability of databases and projects can be achieved if many people contribute and take responsibility for their maintenance. Only then can one be sure that databases do not die when the person who started the project no longer works on it. Elliott also raised interesting speculations on how long projects should last: should they have open or finite goals? what needs sustaining, the process or the product?, and should projects plan for their "graceful degradation"?

There followed a discussion about the methodology of teaching and learning at the university, using resources offered through the internet. It was remarked that a large number of students use the internet and online databases for their research — this means that the new generation of students has become in general very familiar with new technologies. Unfortunately, however, they consider these new technologies as established, institutionalized information sources. Some students, in fact, automatically assume that, if they cannot find a certain information in the internet, it does not exist.

A general discussion on the principles and problems of copyright protections versus the open sharing of data and fair use closed the afternoon session. This is a complex issue involving contradictions between the public right of intellectual access and the protection of individual interpretations. Participants interested in the social and legal ramifications of this issue could find out more information by consulting two studies: Eric Kansa's article, "An Open Context for Near Eastern Archaeology," *Near Eastern Archaeology* 70.4 (2007) (http://www.alexandriaarchive.org/publications/KansaKansaSchultz_NEADec07.pdf), and Aaron Griffiths' study, "The Publication of Research Data: Researcher Attitudes and Behaviour," *International Journal of Digital Curation* 4 (2009) (<http://www.ijdc.net/index.php/ijdc/article/view/101>).

In the evening, representatives from various of the other foreign schools of archaeology in Athens were invited to hear a short summary of the workshop's events, after which DAI Athen hosted a reception to close the day's activities.

On the fourth day of the workshop (7 November) there was an attempt to focus discussion on possible next steps in collaboration between the DAI and ASCSA. Ortwin Dally suggested that the Kerameikos excavation should try to find funds (preferably from the DFG) to start digitizing its older archives, following the model of the Agora excavation and with the support of American colleagues. For the excavations at Olympia, besides the continuation of the present databases and their accessibility through the internet, the creation of a gazetteer could become a supplementary project.

The workshop concluded with a visit to ASCSA's excavations at Corinth. In addition to a tour of the recent excavations, the director of the excavations, Guy Sanders, described how finds are processed from first cleaning and analysis to immediate access via the internet; Sanders also explained currently used digital methods in the documentation of the ceramic material.

Participants in the Athens Workshop

Presenters

Dally – Dr. Ortwin Dally, Generalsekretär, Deutsches Archäologisches Institut, Podbielskiallee 69–71, D-14195 Berlin. E-mail: od@dainst.de. Dr. Dally is Secretary General of the DAI in Berlin. He is responsible for strategy across the whole institution, including information strategy. He is an active field archaeologist, currently excavating in Russia. Dr. Dally brings archaeological and computing expertise, as well as an understanding of the larger sociopolitical context, to the symposium.

Davis – Dr. Jack L. Davis, Director, American School of Classical Studies at Athens, 54 Odos Souidias, Athens, GR 10676. E-mail: jack.davis@ascsa.edu.gr. Director of the ASCSA.

Elliott – Dr. Tom Elliott, Associate Director for Digital Programs, Institute for the Study of the Ancient World (ISAW), New York University, 15 East 84th Street, New York, NY 10028. E-mail: tom.elliott@nyu.edu. Dr. Elliott was founding Director of the Ancient World Mapping Center at the University of North Carolina (2000-2006), leader of the Pleiades Project for ancient geography, and now the Associate Director for Digital Programs at the Institute for the Study of the Ancient World, New York University. Dr. Elliott brings a deep understanding of spatial interfaces for digital archaeology and profound knowledge of preservation challenges for born-digital materials.

Förtsch – Dr. Reinhard Förtsch, Forschungsarchiv für Antike Plastik am Archäologischen Institut, Universität zu Köln, Albertus-Magnus-Platz, D-50923 Köln. E-mail: foertsch@mac.com. Dr. Förtsch is Director of the Research Archive at the Institute of Classical Archaeology, University of Cologne. He is developing, together with the DAI, a database of digitized images, Arachne (<http://www.arachne.uni-koeln.de/ny>). Dr. Förtsch brings to the symposium a deep understanding of methods for digitizing and describing archival data from archaeological projects.

Hartzler – Bruce Hartzler, Agora Excavations, American School of Classical Studies at Athens, 54 Odos Souidias, Athens, GR 10676. E-mail: bruce@agathe.gr. IT specialist at the Athenian Agora.

Hellner – Nils Hellner, DAI-Athen, Fidiou 1, Athens, GR 10678. E-mail hellner@athen.dainst.org. Hellner is a practicing architect and studied architecture at the [Technischen Universität Berlin](#), where he received his diploma in 1992. Since then he taught at the [Technischen Universität München](#), among other institutions. Since 2009 he has worked at DAI-Athen as its architectural consultant, especially at Kalapodi.

Herbst – James Herbst, Corinth Excavations, American School of Classical Studies at Athens, 54 Odos Souidias, Athens, GR 10676. E-mail: jherbst.corinth@ascsa.edu.gr. IT specialist at Corinth and architect there at in the Athenian Agora.

Kaiser – Ivonne Kaiser, Bibliothek/Ausgrabungen Miletus und Kalapodi, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: kaiser@athen.dainst.org. Kaiser has worked on digital projects at Miletus and Kalapodi.

Niemeier – Dr. Wolf-Dietrich Niemeier, Leiter der Abteilung Athen, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: sekretariat@athen.dainst.org. Director of the DAI Athen and director of many excavations including those at Miletos and the present excavations at Kalapodi.

Senff – Dr. Reinhard Senff, Ausgrabung Olympia, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: senff@athen.dainst.org. Assistant Director of DAI-Athens department and present Director of the Olympia excavations.

Younger – Dr. John G. Younger, Department of Classics, 1032 Wescoe Hall, 1445 Jayhawk Blvd., University of Kansas, Lawrence, KS 66045-7590, USA. E-mail: jyounger@ku.edu. Dr. Younger is Chair of the ASCSA Technology Committee, and professor of Classics and Director of Women, Gender, and Sexuality Studies at the University of Kansas.

Discussants

Bohrer – Karen Bohrer, The Blegen Library, ASCSA, 54 Odos Souidias, Athens, GR 10676. E-mail: Kbohrer.Blegen@ascsa.edu.gr. Head Librarian at the ASCSA library focusing on the prehistoric and classical world and archaeology, with many electronic resources under her management.

Brogan – Dr. Thomas M. Brogan, Director, INSTAP Study Center for East Crete, Pacheia Ammos, Crete, GR 72200. E-mail: instapec@otenet.gr. Dr. Brogan has been an active member of several excavations in east Crete during the past twenty years, primarily at Mochlos where he has been the assistant director since 1992 and the principal investigator of several archaeological projects.

Elemam – Tarek Elemam, Information Systems and Technology Manager, American School of Classical Studies at Athens, 54 Odos Souidias, Athens, GR 10676. E-mail: telemam@ascsa.edu.gr. Head of IT at ASCSA.

Georgopoulou – Dr. Maria Georgopoulou, Gennadius Library, 61 Odos Souidias, Athens, GR 10676. E-mail: mgeorgopoulou@ascsa.edu.gr. Director of the ASCSA's library focusing on post-classical studies, including many electronic archival resources.

Heath – Dr. Sebastian Heath, Research Scientist, American Numismatic Society, 75 Varick

Street, New York, NY 10013. E-mail: sebastian.heath@gmail.com. Dr. Heath is a Research Scientist at the American Numismatic Society and a Research Associate in the Mediterranean Section of the University of Pennsylvania Museum of Archaeology and Anthropology. He is Vice President of Professional Responsibilities at the Archaeological Institute of America and a Director of Archaeoinformatics.org.

Heiden – Dr. Joachim Heiden, Fotoabteilung, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: heiden@athen.dainst.org. Developing database system for photographic archives. Applies digital technology to excavations in Triphyllia.

Kansa – Dr. Eric Kansa, Executive Director, Information & Service Design, School of Information, University of California, 102 South Hall, Berkeley, CA 94720. E-mail: ekansa at ischool.berkeley.edu. Dr. Kansa is cofounder of the Alexandria Archive Institute, and led the development of Open Context, an online system for sharing collections and field research in archaeology. He is Convener of the Society for American Archaeology’s Digital Data Interest Group.

Komp – Rainer Komp, Head of IT Department, Deutsches Archäologisches Institut, Podbielskiallee 69–71, D-14195 Berlin. E-mail: rk@dainst.de. Mr. Komp is in charge of the information technology needs of the DAI and its departments.

Lieberwirth – Dr. Undine Lieberwirth, TOPOI, Institut für Klassische Archäologie, Freie Universität Berlin, Otto-von-Simson-Straße 11, D-14195 Berlin. E-mail: undine.lieberwirth@fu-berlin.de. Dr. Lieberwirth is responsible for the IT-infrastructure of TOPOI, a large-scale research project conducted under the auspices of the Berlin Brandenburg Academy of Sciences.

Linder – Dr. Monika Linder, Deutsches Archäologisches Institut, Bibliotheken und Archive, Podbielskiallee 69–71, D-14195 Berlin. E-mail: ml@dainst.de. Dr. Linder is the Director of the DAI libraries and is involved in many IT projects, including ZENON, the bibliographical database of the DAI (http://www.dainst.de/index_3454_de.html), and the Propylaeum, a virtual library developed in cooperation with the University of Heidelberg and Munich State Library (<http://www.propylaeum.de/>).

Martin – Dr. Worthy Martin, Co-Director, Institute for Advanced Technology in the Humanities (IATH), Alderman Library, University of Virginia, P.O. Box 400115, Charlottesville, VA 22904. E-mail: martin@virginia.edu. Dr. Martin currently serves as Associate Chair of the Department of Computer Science, and Co-Director of the Institute for Advanced Technology in the Humanities, where he has designed computer applications and databases for a number of archaeological projects including the Chaco Digital Initiative. He also served as advisor to the National Initiative for a Networked Cultural Heritage. He is a Director of Archaeoinformatics.org.

Panos – Tellos Panos, General Manager, ASCSA, Souidias 54, Athens 106 76. E-mail: pgp.admin@ascsa.edu.gr. General manager of ASCSA.

Posluschny – Dr. Axel Posluschny, Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, DFG-Projekt “Fürstentitze” & Umland, Palmengartenstr. 10–12, D-60431, Frankfurt. E-mail: posluschny@rgk.dainst.de. As a staff member of the Römisch-Germanische Kommission, Dr. Posluschny’s research focus is on sites in Germany, especially

those of the Iron Age Hallstatt period. He has also designed databases and GIS applications for the Madrid department of the DAI.

Rizzotto – Laura Rizzotto, Ausgrabung Samos, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: rizzotto@athen.dainst.org. Research assistant for Samos excavations.

Romano – Dr. David Gilman Romano, <http://corinth.sas.upenn.edu/dgr/index.html> Director of Greek Archaeological Projects, Mediterranean Section, The University of Pennsylvania Museum of Archaeology and Anthropology, 33rd and Spruce Streets, Philadelphia, PA 19104 and Adjunct Professor of Classical Studies, University of Pennsylvania. E-mail: dromano@sas.upenn.edu. Since 1988 Dr. Romano has led a research team to create a computerized architectural and topographical survey of the Roman colony of Corinth (<http://corinthcomputerproject.org>), funded by a Digital Humanities Start-Up Grant from NEH, http://www.neh.gov/news/awards/dhi_march2007.html. Dr. Romano is currently Co-Director and Field Director of the Mount Lykaion Excavation and Survey Project.

Staples – Thornton Staples, Director of Community Strategy and the Fedora Project, DuraSpace, Inc. E-mail: tstaples@duraspace.org; 3794 Old Roberts Mt. Dr., Faber, VA 22938. From 1999 to 2007, Mr. Staples was the Director of Digital Library Research and Development at the University of Virginia Library. In that position he co-directed the development of one of the leading open-source software applications for digital repository development, Fedora. He is now Director of Community Strategy and the Fedora Project at DuraSpace, Inc. From 2006-2008 he was funded by the Andrew W. Mellon Foundation to act as a consultant to the ASCSA in the design of a prototype digital repository.

Stroszeck – Dr. Jutta Stroszeck, Ausgrabung Kerameikos, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: stroszeck@athen.dainst.org. Director of excavations at the Kerameikos Cemetery, Athens, where she is creating a digital archives of the excavations.

Thaler – Ulrich Thaler, Ausgrabung Tiryns, DAI Athen, Fidiou 1, Athens, GR 10678. E-mail: thaler@athen.dainst.org. Assistant director of excavations at Tiryns, where he is creating a digital archives of the excavations.

Tsiafaki – Dr. Despoina Tsiafaki, Head of Cultural Heritage Unit, Cultural and Educational Technology Institute (CETI), 58 Tsimiski Street, Xanthi, GR 67100. E-mail: tsiafakis@ceti.gr. Dr. Tsiafaki has been Deputy Director of the Karabournaki excavations in Thessaloniki since 1994. In this capacity, she has designed and implemented a multimedia cultural database system to manage and disseminate information about the site, including extended search and visualization capabilities. Other digital projects include the development of a database of over 13,000 Rhodian amphoras.

Tsipopoulou – Dr. Metaxia Tsipopoulou, Director, National Archive of Monuments, Hellenic Ministry of Culture, 11 Agios Asomaton Street, Athens, GR 10553. E-mail: mtsipopoulou@culture.gr. Before her appointment as Director of the National Archive of Monuments, Dr. Tsipopoulou was Senior Archaeologist in the 24th Ephorate of the Greek Ministry of Culture. She has directed excavations at a number of important sites in Crete, including the Minoan town of Petras. As Director of the National Archive of Monuments, she has primary responsibility at a national level for the development of archiving solutions for archaeology's digital outputs.

Vogeikoff – Dr. Natalia Vogeikoff, Head Archivist, American School of Classical Studies at Athens, 54 Odos Souidias, Athens, GR 10676. E-mail: nvoegei.archives@ascsa.edu.gr. Head of the Archives at ASCSA.

The Anaheim Workshop (7 January 2010)

Two months after the Athens gathering, the aim of the Anaheim workshop was to share the results of discussions in Athens with all archaeologists at the general meeting of the Archaeological Institute of America (January 6-10, 2010). Representatives of both the DAI and ASCSA were in attendance and participated in the program both by making formal presentations and by sitting on a panel. Their purpose was not only to share the results of the project but also to invite discussion of the major issues regarding the management, preservation, and presentation of digital data in archaeology, and the particular responsibilities of archaeological institutions in addressing them. With that goal in mind, Gregory Crane of Tufts University, editor-in-chief of the Perseus Digital Library (since 1985), was invited to participate in the panel.

The following papers were presented:

Ortwin Dally, DAI, "The Impact of Digital Technologies on the Practice of Archaeology at the DAI."

James Herbst, ASCSA, "Corinth Goes Digital: Introducing Electronic Technologies into Fieldwork and Post-Excavation? Study at the site of Ancient Corinth."

Bruce Hartzler, ASCSA, and John McK. Camp, II, "Agathe and Beyond: Constructing and Maintaining a Digital Database at the Athenian Agora Excavations."

Reinhard Förtsch, DAI/Cologne University, (replacing Rainer Komp, DAI) "What Do the Concepts of 'Interoperability' and 'Sustainability' Mean in Practice for Digital Archaeology?"

Greg Crane, Tufts University, (discussant) "Is the Digital Archaeology of the 'Big Digs' Different?"

The Web Site

As is fitting for a project focused on the exploration of better ways to disseminate digital resources, a dedicated Internet site was created for the "Big Digs" project (<http://www.bigdigs.org>). The site offers some pages with general information that are open to the general public, but its primary purpose is to present a venue for members of the project to share information with each other.

Prospects for the Future

Further meetings between ASCSA and DAI directors are an important desideratum, now that channels of communication have been opened. There are plans for this to happen in the fall of 2010 in Berlin. Conversations have continued about ways eventually to unify data from "Big Digs" in the center of Athens. Most promising at this point would be to bring together information from the Athenian Agora and from the Kerameikos, adding to this wealth

contributions from the National Archive of Monuments of the Greek Ministry of Culture. The basis for this project seems ideal, as material and documentation are both comparable. The next step would be the creation of a common portal for a joint database accessible through the internet. This undertaking could be widened to a pan-Athenian project involving also Greek institutions, excavations, and museums. Such a project might provide an important prototype for other similar unification plans elsewhere.