

Collaboratory for GIS and Mediterranean Archaeology (CGMA) Final Project Report
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DePauw University

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DePauw University received the Mellon Foundation grant for the CGMA (Collaboratory for GIS and Mediterranean Archaeology) Project at the end of March 2002. Over the period of the grant (including the extension for 2006-2007), we developed, tested, and released MAGIS (Mediterranean Archaeology GIS); taught the undergraduate seminar four times; employed numerous undergraduate research interns; and promoted CGMA at international conferences and at universities in the United States and the United Kingdom. This report summarizes our activities related to MAGIS, the undergraduate seminar, dissemination of the product, and the future of CGMA.

MAGIS: Mediterranean Archaeology GIS

The Mediterranean Archaeology GIS (MAGIS) is the primary research product of the overall CGMA project (<http://cgma.depauw.edu/MAGIS/>). MAGIS is an on-line GIS (Geographic Information Systems) inventory of regional archaeological surveys in the greater Mediterranean and Europe. Hundreds of surveys have been undertaken since the development of the technique more than 60 years ago. MAGIS is the first attempt to catalog their metadata, such as: project name, researchers, methodologies, geographic coordinates, chronological coverage, special studies (e.g., lithics or epigraphy), bibliography, and the environmental characteristics of the study area. MAGIS is a valuable tool for archaeologists, ancient historians, anthropologists and sociologists interested in comparing long-term historical trends and research techniques over broad areas of the ancient Mediterranean and Europe. It also has ancillary uses as a basic mapping resource for the Mediterranean world.

Web-based interface and database

After testing in the spring, summer, and fall of 2006, we released MAGIS publicly in January 2007. The system currently has over 300 project entries. Although we are continuing to add and edit entries, we believe that MAGIS already represents a significant portion of the archaeological survey work that has occurred in the Mediterranean and Europe. The MAGIS system is simple, fast, and stable. In sum, the system *works*. While we will continue to make improvements and add functionality, it stands already as an important research tool for our discipline. Appendix A contains *testimonia* from colleagues on the usefulness and promise of MAGIS. For details on how the MAGIS system operates for metadata search, browsing and entry, see Appendix B (the 'Help' file at: <http://cgma.depauw.edu/MAGIS/Help/help.php>).

The MAGIS database can be accessed via the Internet through a simple browser (Internet Explorer, Firefox, or Safari) in two ways. The "Database Search" feature allows users to either browse projects by region or to request project subsets using Boolean logic. The "Spatial Search" allows users to view and then select projects through a basic map (GIS) interface. Researchers can enter new projects through the "Data Entry" function. We are currently also developing an interface for MAGIS that leverages the functionality of Google Earth. Besides continuing to fill out its content and improving and adding features, we are planning to ensure

that we can continue to sustain MAGIS into the future. To that end, we have organized a workshop on web-based research tools for Mediterranean archaeology at the 2008 Archaeological Institute of America annual meetings in Chicago. At that workshop, the project heads of major Internet archaeology projects will tackle questions of mission overlap, synergy and sustainability; see Appendix C for the accepted proposal. We believe that MAGIS is becoming a major research resource. Moreover its concept, structure, and programming can be adapted to serve similar functions in other fields.

Student interns

Almost all of the MAGIS content has been researched and entered by undergraduate student interns. Over the course of the Mellon grant we have supervised 11 internships with students from all four core institutions. These internships have taught students how to do primary library research in archaeology, how to identify and extract metadata from archaeological publications (sometimes in foreign languages), how to organize that data, and enter its paper correlates into an archive. Interns have also become proficient with Google Earth, basic GIS-based mapping tools, and have undertaken correspondence with Principal Investigators of individual projects, helping to develop their communication skills with future colleagues. The students were prepared for this work through the CGMA undergraduate seminar (see below). The success of MAGIS is due in large part to the efforts of our students.

During the Summer 2007 students are busy working in three areas: they are continuing to seek out surveys from which they can mine metadata and are collecting publications of those projects; they are double-checking and correcting metadata already in the system; and they are using GoogleEarth to find, plot and outline the precise geographic area of surveys in order to create .kmz folders that users will be able to download from the MAGIS site if they choose to interface with the database using the GoogleEarth interface.

The CGMA Undergraduate Seminar

In the Fall of 2006, Dr. Michael Galaty (Millsaps College) taught the fourth CGMA seminar. Eight students from Millsaps, Rhodes and the Wooster enrolled in the course.¹ As before, the basic components of the course included introductory lectures and exercises on survey archaeology and GIS, participation in the mid-term workshop at Millsaps, a group practicum carried out at each institution, and a final exam.

The primary experiential learning component of the course was the practicum. Students on each campus worked together to design a survey project on their campus or in their town. They had to develop a database, collect GPS (Global Positioning Systems) data and other data from the field, and enter their data into a GIS (using ArcGIS software from ESRI). This year, students built three new GIS projects. Students at Millsaps surveyed the old perimeter of Jackson, MS prior to the Civil War fire that ravaged the city. At Rhodes, students examined the influence of Classical architecture on housing in Memphis, and the articulation of Classicizing features relative to house size (and status). Wooster students surveyed rock shelters in the Killbuck Valley of northern Ohio, noting flint and charcoal distributions at and near those sites.

¹ DePauw did not participate in the fall 2006 because Drs. Foss and Schindler were on sabbatical.

Fifth Board Meeting, Fall 2006

The Board Meeting was held at Millsaps College in Jackson, MS. Participants in the fall meeting included three of the five CGMA faculty members (M. Galaty, N. Kardulias and K. Morrell), and the students enrolled in the course. Board member P. Foss joined the meeting remotely by Skype telephony from his sabbatical location in England. In addition, NITLE sponsored the participation of Rebecca Davis, who along with Diana Sinton has helped arrange the continuation of the CGMA seminar under the NITLE umbrella for Fall 2007 and beyond. Representing schools interested in having their students take the CGMA course were Gerald F. Bigelow, Environmental Studies, Bates College; Douglas R. Edwards, Religion, University of Puget Sound; Brett Hill, Sociology and Anthropology, Hendrix College and Nicolle Hirschfeld, Classical Studies, Trinity University.

At the mid-term workshop, students took crash-course instruction in the operation of GPS equipment, and how to use ESRI's ArcGIS 9. Through this instruction, students are better able to use this hardware and software in their practica. The business meeting, meanwhile, primarily revolved around the imminent public release of CGMA, plans for the future of the CGMA course beyond the term of the Mellon grant (featuring a Q&A with the NITLE-invited guests from sister liberal arts colleges mentioned above). The course is now on the books as an Inter-Campus Collaborative Course for Fall 2007, to be taught by Kenneth Morrell of Rhodes, and then by Pedar Foss of DePauw in 2008: <http://sunoikisis.nitle.org/ICC/CGMA.htm>. Appendix D is the core syllabus for the NITLE incarnation of this course. Also, we discussed Foss and Schindler's plans for their Spring tour of universities in the United Kingdom to promote MAGIS (see below).

During Spring 2007, Aaron Fuleki of Denison University and Scott Simmons, Vice-President of Research & Development for TechniGraphicS (www.tgstech.com) undertook a technical audit of MAGIS, for its programming infrastructure, interface, maintenance, support, and development. Their report (Appendix E) makes a number of helpful comments that we are considering this summer in concert with the list of suggestions from the U.K. tour. The result of these deliberations will be an action plan for the next phase of the project, both in terms of continued funding from other sources (preferably to establish an operational endowment), and in terms of what work P. Foss, R. Schindler and M. B. Wilkerson can continue to do as part of their long-term positions at DePauw University.

Dissemination of the Product: Presentations and Publications

We used the remaining CGMA funds for the last (extended) year of the grant according to the basic outline submitted for approval in last year's report. See Appendix G for the final accounting for the project. There was just one alteration, approved by DePauw's administrator, Neal Abraham. After a few months on sabbatical in the U.K., we realized that we could more efficiently and effectively demonstrate MAGIS to colleagues through an intensive tour of U.K. universities than through a much more diffuse and more expensive set of visits to other European countries. As described above, we believe our efforts in Britain will diffuse throughout Europe and the Mediterranean (this has already begun; see Harrison's email in Appendix A). We thus reduced our expenditure of the tour from \$6000 to ca. \$2500, leaving ca. \$3500 plus some

accrued interest for the purchase of two replacement Apple laptops (one benefit of the new models being able to run both Mac OS X and Windows), one for M. Beth Wilkerson to use for further program development, and one for Foss and Schindler to use for database development, electronic file processing and organization, and development. The current CGMA equipment is five years old; while the machines are still adequate for the CGMA seminar and summer interns, we need to make sure we have the ability to continue advancing programming and database development.

During their sabbatical in the Spring of 2007, Drs. Foss and Schindler undertook a demonstration tour of the MAGIS system at major archaeology programs in the United Kingdom. Over three months, they presented and discussed the system with faculty, students and technical staff at the following thirteen universities, all of which have a prominent presence in the fields of survey archaeology and computer applications in archaeology: Glasgow, Newcastle, Durham, Liverpool, Bradford, York, Sheffield, Birmingham, Bristol, Leicester, Southampton, Oxford and Cambridge.

These visits accomplished several things. First, we exposed the system to colleagues and future colleagues who can add or edit project entries in the database. Second, these colleagues are well connected with scholars and antiquities departments of the countries in which they work, and so can spread news of MAGIS both laterally and vertically, through the university and government systems that carry out archaeological field work. Significant archaeological survey has been carried out for purposes of rescue in advance of development or because of looting problems, but it is often published only in reports to government agencies, and is known as “grey literature” for its partial exposure to the academic world. MAGIS would like to incorporate such projects into its database in order to provide a deeper and more complete picture of what surveys have been done at all levels of research, not just the large projects supported by major institutions that tend to get published, reviewed, and used by scholars. Third, we compiled forty-one helpful comments concerning the usability of the current version of MAGIS (1.1), and suggestions about what functionality to add in future upgrades. In summer 2007, we are triaging these comments to determine the order in which we should begin to assess and implement them. Our mantra so far has been to keep it as simple as possible to make sure it works; when we add complexity to the system, we will proceed judiciously to make sure that it does not adversely affect its smooth operation.

The more scholars who participate in the project, the more projects will be in the database, the more useful the database will be, the more scholars will use the system and then participate in the system, etc. Our goal is a “viral” spiral of participation that will lead to acknowledgement and use of MAGIS as a “standard” research and reference tool in the field, as well as distributed maintenance to keep it accurate and up-to-date. We believe we are well on our way.

In Spring 2007, a publication, review and podcast of the CGMA project came out. The publication grew out of activities sponsored by Latitude, NITLE’s GIS section (<http://gis.nitle.org/>). Its citation: Pedar W. Foss and Rebecca K. Schindler, “Classical archaeology: Building a GIS of the ancient Mediterranean,” in Diana Stuart Sinton and Jennifer J. Lund (eds), *Understanding Place: GIS and Mapping across the Curriculum*, ESRI Press, Redlands, CA, 2007, pp. 154-69. A copy is included here as Appendix F. Also, during a visit to

Sheffield University, P. Foss was interviewed by Andrea Vianello of *Intute*: the premier U.K. index of Arts and Humanities resources on the Internet. The podcast of the interview, discussing GIS in classical archaeology, and the MAGIS initiative, is located here:

<http://www.intute.ac.uk/artsandhumanities/blog/2007/05/10/podcast-on-gis-and-archaeology/>;

Intute's review of MAGIS is located here: <http://www.intute.ac.uk/artsandhumanities/cgi-bin/fullrecord2.pl?handle=20070112-115545>

CGMA: Summary of Future Plans

In Summer 2007 we have the final two interns from the Mellon Grant. In Fall 2007 we will teach the CGMA seminar under the Sunoikisis umbrella of NITLE. During the academic year 2006-07, we have a fifth-year intern (funded through DePauw), Sarah Craft, who is a former CGMA summer intern, to continue helping to develop MAGIS in her role as an assistant in the GIS center. In Fall 2007 we will be actively pursuing grant options, particularly a forthcoming NEH Digital Humanities Initiative Challenge Grant, to help establish an endowment to renew the technical infrastructure and support a portion of our programmer's salary, as well as establish a small set of short-term (ca. 1-3 month) graduate fellowships for budding scholars to visit, work with, and help develop MAGIS for their own research, and the benefit of MAGIS at large. Such graduate fellows could form a link for our undergraduate students between their developing experience, and the instruction of professors. Graduate fellows could help mentor undergraduates in the skills necessary to succeed in graduate study, gaining teaching experience for themselves and modeling the professional qualities necessary for a Ph.D. Having undergraduates "shadow" the graduate fellows and assist them would be a useful real-world experience in the field.

In sum, we would like to thank the Mellon Foundation for its grant, for its approval to extend the use of the funds, and for its support of projects like this. This grant has led to broad development of GIS at all four institutions (and directly to the GIS Center at DePauw, which has since hosted NITLE seminars), has provided a special opportunity for undergraduates to learn with each other across campuses, and given those students a unique chance to play a central role in the development of a major scholarly resource. We believe the CGMA project shows that a focused, small-scale research project using distributed effort amongst scholars and teachers at liberal-arts institutions, the involvement of undergraduates (both in and out of class), and the talents of well-selected staff members can develop a novel and very useful resource for a discipline worldwide at modest cost. We are dedicated to supporting the project for years to come, and are grateful for the chance to bring it to life.

Respectfully submitted,

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List of Appendices

- A:** Testimonia from PIs and external scholars on the utility and potential of MAGIS and CGMA
- B:** The MAGIS Help File, explaining how to search, browse, and add metadata to the system.
- C:** The successful application to the program committee of the Archaeological Institute of America for a workshop at the 2008 Chicago meetings concerning web-based research resources and their future in Mediterranean archaeology.
- D:** The core syllabus for the CGMA seminar, under the Sunoikisis wing of NITLÉ, for Fall 2007 and beyond.
- E:** The tech audit of the MAGIS system, by Aaron Fuleki and Scott Simmons
- F:** Pedar W. Foss and Rebecca K. Schindler, "Classical archaeology: Building a GIS of the ancient Mediterranean," in Diana Stuart Sinton and Jennifer J. Lund (eds), *Understanding Place: GIS and Mapping across the Curriculum*, ESRI Press, Redlands, CA, 2007, pp. 154-69.
- G:** The final financial report of funds for the CGMA grant.