Arne R. Flaten

MR. FLATEN: I would like to thank the National Endowment for the Humanities for inviting me to this joint conference with the Consiglio Nazionale delle Ricerce. I regret that my Ashes2Art project co-directors, Professor Paul Olsen at Coastal Carolina University and Dr. Alyson Gill from Arkansas State University, could not attend. They would have enjoyed the presentations and contributed to the dialogue. This conference has provided overviews of some extraordinary projects in digital humanities, the scopes and implications of which seem limitless. Programs under the auspices of the CNR, the work by Bernie Frischer's team at IATH, or the Pleiades project makes me feel as though I have arrived at the INDY 500 riding a bicycle. It is a nice bicycle, but our project approaches digital humanities very differently and on a smaller scale.

Ashes2Art reconstructs monuments of the ancient past online and provides a variety of tools for discipline specialists, teachers and students.[1] All materials, including digital models, panoramic photographs, videos, essays, glossaries, bibliographies, web design, interactive maps and lessons plans are designed and implemented exclusively by undergraduate students under close faculty supervision. The program was started by Paul Olsen and I at Coastal Carolina University with a Mac lab and twelve eager students in fall 2005. The first stage of the project was an exploratory test-case focused on Renaissance Florence, and was completed in one semester. The concept was simple: put technologies in the hands of students to broaden the educational experience and hopefully to provide a useful online introduction to Renaissance art. It did not attempt to reconstruct buildings, but it allowed us to gauge the efficacy of such an in-class experience. During an NEH Summer Institute at UCLA in 2006 directed by professors Sander Goldberg and Diane Favro, I met Dr. Alyson Gill, an Art Historian at Arkansas State.[2] We discussed the potential of working together, and our inter-university collaboration began the following fall as the project moved into phase two and focused on 4th century B.C.E. Delphi, Greece. As a joint project, we received a Digital Start-Up Grant from the NEH for 2007/08, which provided the necessary support to explore new approaches and implement a broad range of ideas.

With the exception of NEH support Ashes2Art has relied almost exclusively on internal funding at Coastal Carolina University and Arkansas State University. Our respective administrations have been very supportive. We have received multiple student travel grants (to take students abroad), several Research Enhancement Grants and Academic Enhancement Grants, multiple Scholarship of Teaching and Learning Grants and a SURF/SILO grant from the Arkansas Department of Education. The project also was awarded funding to build high powered project-specific computer labs and purchase various software packages at both universities.

Now in its third year, the project is offered for upper level course credit (Art History and Art Studio) each spring at both institutions, and each summer we take selected students to the archaeological site. Presently, we are focusing on the four major areas at Delphi: the stadium, the sanctuary of Apollo, the gymnasium complex, and the marmaria. Through the American School for Classical Studies in Athens we were

[1] www.coastal.edu/ashes2art and www.clt.astate.edu/digitaldelphi/Home2.html
[2] http://www.etc.ucla.edu/neh

graciously granted access by the Hellenic Ministry of Culture in 2007 to shoot panoramic photographs from inside and outside various temples and complexes at Nemea, Isthmia, Epidaurus, Olympia, Corinth, Aphaia and Delphi. The twenty-plus panoramas that we shot at Delphi will eventually allow viewers to navigate through much of the complex. We are presently waiting for permission from the Hellenic Ministry of Culture to publish those panoramas online.

At the heart of Ashes2Art are technologies including Dreamweaver, Flash, Realviz Stitcher, RealViz Tour Modeler, Adobe Photoshop, Autodesk 3D Studio Max, MudBox and other digital modeling programs. Our models are based extensively on the *Fouilles de Delphes*, the archaeological reports begun in the early 20th century.[3] Those documents are supplemented by other scholarly resources to build the models.[4] Students begin with a plan and elevation upon which the wireframe is based. After the measurements have been carefully reviewed, textures and sculptural details are added based on published reports, objects in the Delphi museum and the detailed photographs we shot while onsite. The colors and textures for the marble blocks are sampled directly from our photographs.

At Coastal Carolina, we initially focused on the tholos temple of Athena Pronaia. The model was built by Greg Schultz, primarily in 3D Studio Max with certain elements (such as lion heads) created in Mud Box. We resisted the temptation to replace the metope sculptures on the tholos for various reasons. There is disagreement about precisely where the individual scenes would have been placed, and other important questions persist: Does one attempt to model the metope compositions three-dimensionally and re-place them, or wait until laser scanning is available? Should one attempt to replace the missing pieces (arms, heads, legs, etc.)? Based on what evidence? Should they be painted or given accents in bronze or gilt? Similarly, disparate conceptions of the roof and elevation are relevant. Contemporary opinion favors a single-tier conical roof, but others propose a second roof which conceivably included windows to provide illumination.[5] To address this last issue, two distinct models were built and posted online. To confuse matters further, there is little consensus on what function the tholos actually served. It may have been a temple, but others suggest that it functioned as a treasury, similar to those in the upper sanctuary. Other *tholoi* such as those at Olympia and Epidauros, while different, provided useful comparanda.

Ashes2Art allows teachers to engage a variety of questions with undergraduates. A course on Greek architecture might ask students to read Dinsmoor, Lawrence or more recent surveys, supplemented by articles, architectural treatises, excavation reports and pertinent primary and secondary sources. With Ashes2Art, where buildings are digitally

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[3] Now largely available online: www.cefael.efa.gr/site.php

[4] For work on the tholos temple of Athena Pronaia, for example, resources included: C. Alexander. "Models of Delphi and Olympia." *The Metropolitan Museum of Art Bulletin*, 27 (Jan. 1932): 12-13; J. Bommelaer, ed. *Marmaria: Le Sanctuaire d'Athéna à Delphes*. Sites et Monuments, 16 (Paris: École française d'Athènes/Électricité de France, 1997); A. Fingarette. "The Marmaria Puzzles." *American Journal of Archaeology*, 74 (4), 1970: 401-404; J. Ito. *Architectural Measurements of the Sanctuary of Athena Pronaia in Delphi 1994-1996* (Architectural Mission to Delphi, Kumamoto University, 1997). Various other resources were used for different monuments.

[5] A. W. Lawrence. *Greek Architecture* (London: Penguin Books, 1957), 184-185; William Dinsmoor. *The Architecture of Ancient Greece: An Account of its Historic Development* (New York: Biblo and Tannen, 1928), 234-236.

reconstructed and other resources are compiled or created, students follow a path of inquiry that can transcend a traditional classroom learning experience. For example, if we are rebuilding lion heads, students need to know what function they served and where they were originally placed. The lion heads were waterspouts that drained rainwater through their mouths, but in building a model the student realizes that there must have been some sort of a trough or gutter behind the acroteria to collect the water (out of which the water would have spilled), so the gutter must become part of the model. How were the joints made water tight? Should the ceramic roof tiles be Laconian, Corinthian or Sicilian? What did the interior ceiling look like? This kind of empirical learning is not limited to those students that build models. Students work together so that those writing essays act as research associates/partners with the model builders. Other students compile comprehensive primary source bibliographies, stitch together panoramas, design an intuitive website or prepare interactive secondary education lesson plans (downloads as .pdf files for History, Art History and Art Studio) that satisfy the National Standards for Visual Arts education. Every facet of the program relies on the other students and their research.

At each step of its reconstruction, the model is checked for accuracy before the next component is begun. When the model is complete, short flythrough videos are rendered and posted online in various formats (.wma, .avi, .mov, etc.). Videos also can be downloaded to an iPod, cellphone or PDA so that the viewer can stand in front of various buildings at Delphi and envision what the structures would have looked like two and a half millennia ago. Like the Digital Roman Forum at UCLA,[6] panoramas and models will be choreographed from the same vantage point. They then will be stacked and linked so that when the viewer moves the cursor he or she will see the real-time panorama of the actual place and the digital model moving simultaneously. The work of Bernie Frischer, both at UCLA and now at IATH, has been fundamentally influential. The videos and panoramas are small steps toward a much larger stage in the project. After each individual monument is modeled, we hope to use laser scanning to build a geographically referenced space between them to accurately capture the topography (since Delphi is arranged on four plateaus, topographic data is particularly important). Ultimately viewers will be able to enter the sanctuary and "walk" around inside and between monuments. It will be downloadable to a computer and manipulated as a videogame, or it might be part of a larger historical online metaverse.

The models built under the supervision of Dr. Alyson Gill at Arkansas State have focused on the gymnasium complex and the plunge bath. A specialist in Greek baths, Dr. Gill and her students have been able test some theories of how the bath was filled and drained using three-dimensional reconstructions. The model of the plunge bath was built by ASU student Rick Taylor using Google SketchUp.

In addition to the photographs shot by faculty and students and Coastal Carolina University and Arkansas State, we were given unrestricted access to all of the copyrighted images of Delphi owned by Archivision,[7] one of the largest architectural image databases in the world. The Museum of Fine Arts in Boston also has allowed us to publish related objects from their collections. Dr. Gill has applied for grants to build a searchable GIS database to include photographs, drawings, plans, elevations, articles,

[6] http://dlib.etc.ucla.edu/projects/Forum/timemap
[7] www.archivision.com

earlier reconstructions, satellite imagery and full-text primary sources related to Delphi in Greek and English.

The digital models have become mainstream to the History Channel, the Discovery Channel, the BBC or various online projects. Whereas those animated reconstructions are appealing to the general public, scholars frequently find them problematical for various reasons (methodology, transparency, accuracy, etc.). There is no common resource for evaluating reconstruction models. As members of the editorial board of SAVE (Serving and Archiving Virtual Environments) at the Institute for Advanced Technologies in the Humanities at the University of Virginia,[8] Dr. Gill and I are participating in the construction of an online resource for publishing and vetting digital reconstruction projects and reconstruction tools worldwide. A workshop on SAVE at the 36th annual conference on Computer Applications and Quantitative Methods in Archaeology in Budapest discussed the concept in depth.[9]

Our linked websites provide an overview of our program and the direction we are headed. The Delphi part of the project grows each semester. Interactive maps guide the viewer to various parts of the sanctuary and from there one can access the appropriate essays, panoramas (posted online when we get permission from the Hellenic Ministry of Culture), high resolution photographs, QuickTime flythroughs, a glossary of technical terms, a comprehensive bibliography of primary and secondary sources…everything you ever wanted to know about Delphi but were afraid to ask. Everything is designed and built by undergraduate students and will be published online using open-source software, completely free and accessible worldwide. Future projects may include other sites in Greece, Italy, Turkey or North Africa. We also are considering various Native American or colonial American sites.

Ashes2Art is an exciting pedagogical inter-university collaboration. Our mission is twofold: 1) to provides a valuable research tool for scholars, teachers and the general population; and 2) to integrate technology and humanities in an experiential learning process. While the project is extremely demanding for students and faculty, the rewards are extraordinary. As project directors we have often wondered who is learning more, the faculty or the students. I suspect it is a draw. That is our bicycle: a Colnago frame, Campagnolo groupo and aero bars powered by the legs, minds and skills of extraordinary students. I thank you for listening.

[8] www.iath.virginia.edu/save
[9] www.caa2008.org

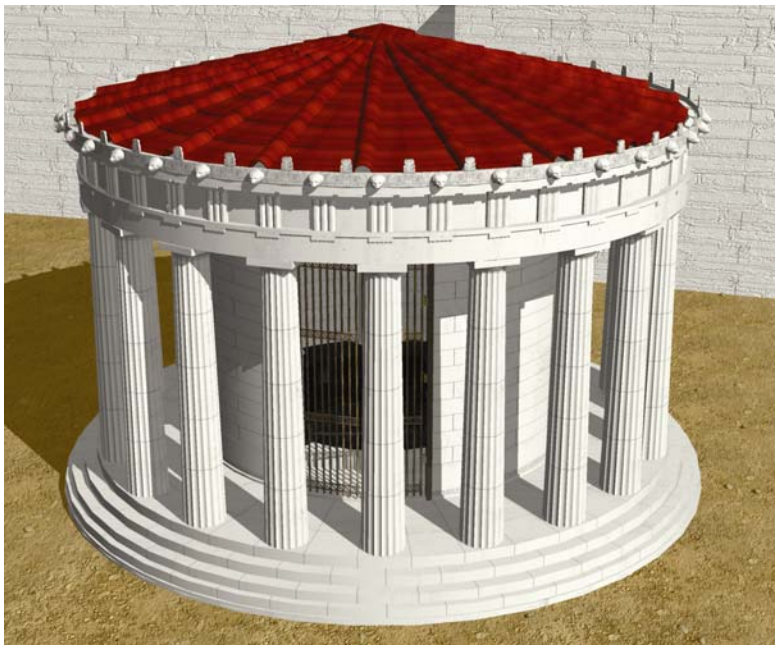

Figure 1: The tholos of Athena Pronaia, Greg Schultz, Coastal Carolina University

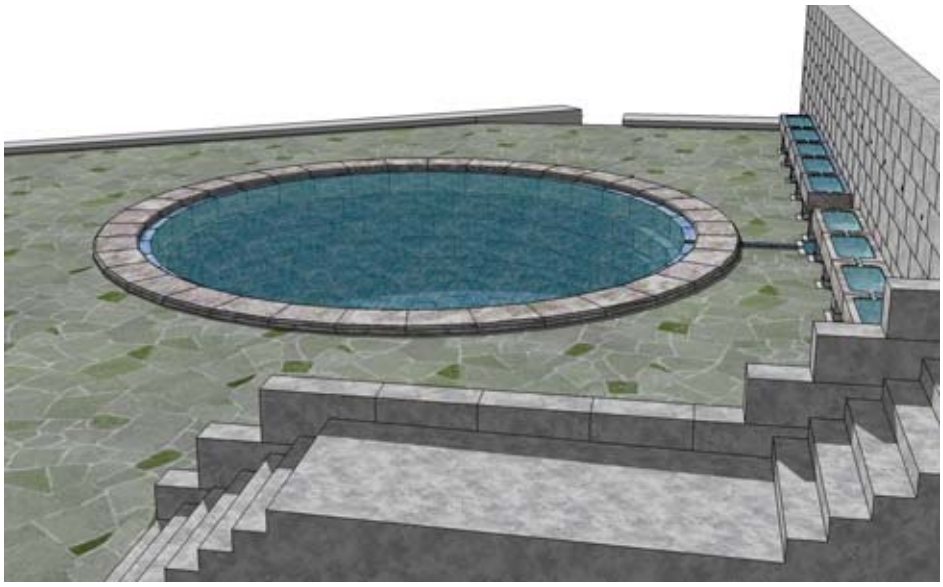

Figure 2: The plunge bath, Rick Taylor, Arkansas State University