The Engraved Stone Plaque Registry and Inquiry Tool (ESPRIT) and the Windfalls and Pitfalls of Publishing Online Archaeological Databases

DENNIS CRALL[1], KATINA LILLIOS[2]

[1] The University of Iowa, Academic Technologies (dennis-crall@uiowa.edu)

[2] The University of Iowa, Department of Anthropology (katina-lillios@uiowa.edu)

ABSTRACT

The engraved stone plaques of late prehistoric Iberia have fascinated archaeologists for over 140 years. Over 1000 plaques are known, and they are housed in more than thirty museums across Portugal and Spain. Because of their dispersed locations and the large size of the collection, there has been no comprehensive catalogue of the plaques that might allow for their systematic analysis. ESPRIT (The Engraved Stone Plaque Registry and Inquiry Tool) aims to fill this gap. Created in 2004, it is an online tool able to organize information on the plaques and to facilitate their analysis. Information and images used in ESPRIT were gathered from published references to the plaques as well as through the study of museum collections in Portugal and Spain between 2003-2005. ESPRIT (www.uiowa.edu/~anthro/esprit) makes information on the plaques freely available to scholars, museum curators, and students anywhere in the world, and will continue to grow as new plaques are excavated. This paper presents the basic structure and elements of ESPRIT as well as an overview of the site's technical architecture. Driven by a widely available desktop database (Filemaker Pro), ESPRIT allows users to browse the plaques by type, by the archaeological site at which they were found, and by the museum in which they are housed. As users navigate the database, they are presented with detailed information about each plaque, including up to four distinct images. Architecturally, ESPRIT is designed to allow users to maneuver easily through the data – moving from lists of plaques to an overview of a particular plaque to a high resolution photograph of a plaque and back again in just a few clicks. With powerful search capabilities and a comprehensive bibliography, ESPRIT is an invaluable resource for archaeologists and scholars interested in ancient art. It is also a powerful teaching resource in the analysis of archaeological arts. Additionally, the paper discusses the benefits and challenges that accompany online publication. The internet has flourished as a place to exchange information and ideas, and this medium stands to enhance research methods and to benefit archeologists. These benefits include maximal dissemination of information, continual updates to data through collaborative processes, and interactive tools for model testing. However, scholars must be mindful of the potential pitfalls of online publication. ESPRIT, as with many large archaeological databases, incorporates the work and property of many individuals and institutions, produced from the 19th century to the present. Intellectual property rights must be dealt with in close consultation with legal counselors as well as with the individuals involved for each publication. Working with scholars in different countries with different legal and ethical norms pose further challenges to this kind of digital resource. Because of these complexities, issues such as copyright terms and image ownership need to be addressed from the earliest stages of a project. Quality control is another important consideration with online publication. As a relatively new form, there are also few standards governing either the production or review of online scholarly works. This paper will address some of the issues facing creators of on-line databases, including: should there be standards or a body of reviewers to control or evaluate the quality of such on-line works? If on-line publications remain an open and unregulated system, how will these publications be evaluated in tenure and review cases? Will journals that customarily review book publications review such databases? If not, how can these publications undergo a critical post-publication review to ensure or maintain their quality?

1. INTRODUCTION

The engraved plaques of the Neolithic and Copper Age (3000-2500 BC) of the Iberian Peninsula have intrigued prehistorians since the late 19th century. Found in hundreds of burials throughout the Southwest of the Peninsula, the plaques have been seen as symbols of power, insignia, ethnic markers, writing, and divinities, generally in the form of the Mother Goddess (Simões, 1878; Ameghino, 1879; Ribeiro, 1878-1880; Cartailhac, 1886; Veiga, 1886, 1887; Morgan, 1897; Vasconcelos, 1897; Siret, 1913; Correia, 1917; Frankowski, 1920; Åberg, 1921; Leisner and Leisner, 1951; Almagro Gorbea, 1973; Lisboa, 1985; Rodrigues, 1986a, 1986b; Gonçalves, 1989, 1992, 2003, 2004; Gut, 1990; Gimbutas, 1991; Bueno Ramírez, 1992). Most scholars have focused on the plaques' possible meaning, but have not considered the plaques' more 'earthly' qualities, such as how they were made, how their manufacture was organized, and how their designs vary geographically. One result of this bias is that the plaques have not been systematically and comprehensively analyzed to determine patterns in their spatial, regional, or formal variability.

In order to better understand this variability and, ultimately, the lives and cultures of ancient peoples living on the Iberian Peninsula during the third millennium BC, we created ESPRIT – the Engraved Stone Plaque Registry and Inquiry Tool (www.uiowa.edu/~anthro/esprit). ESPRIT is a comprehensive database of the Iberian plaques that includes geographic, formal, and stylistic information as well as over 1100 images (photographs and line drawings). In 2005, ESPRIT was published online to make this information available to other scholars. In this paper, we present the basic elements of ESPRIT as well as the technical challenges faced in producing it. In creating ESPRIT, it has become clear to us that archaeological databases are not politically neutral objects and that creating them are not politically neutral projects. Therefore, our paper also aims to provoke inquiries about the politics and production of archaeological knowledge (Latour 1987).

2. BACKGROUND TO THE IBERIAN PLAQUES

Before discussing ESPRIT, some background on the Iberian plaques is necessary. The plaques are most often made of slate, though some are also made of schist and sandstone. They average 15cm in height, about the size of a human hand. They were engraved, most likely with a flint flake, and most are perforated. They date to the Late Neolithic and Copper Age of southwest Iberia – roughly between 3000-2500 BC. The human groups associated with their manufacture practiced a mixed farming and pastoral economy and were likely segmentary societies who lived in ephemeral settlements.

Archaeologists have excavated thousands of engraved plaques in burials, including megaliths, caves, and rockshelters, throughout Southwest Iberia. It is important to note that although slate and schist are found in many regions of the Iberian Peninsula and there are human populations throughout the Peninsula at this time, the Southwest is the only area where the plaques have been found. In other words, the presence of the plaques cannot be explained simply by the availability of slate.

A number of studies, paper presentations, and publications have been produced based on our analyses of the plaques, including manufacturing experiments, GIS studies, statistical analyses of design elements, and historiographic studies (Lillios, 2004a, b, 2005, in press; Woods and Lillios, in press). One idea, however, has emerged in our analyses and currently guides much of this research. This is the hypothesis that some of the plaques, particularly the Classic plaques, may have served as genealogical records of the dead (Lillios, 2002, 2003). Such an interpretation has many important ramifications, one of the most important being that we might be able to understand something about the individual or family histories (however constructed) of these prehistoric peoples. Equally significant perhaps is the fact that such a provocative interpretation requires a comprehensive and systematically organized dataset for model testing.

3. ESPRIT

ESPRIT began its 'life', so to speak, as a personal research tool for Lillios. Filemaker Pro was used as the database platform as it provides an easy-to-use and flexible format. To create ESPRIT, information was gathered from numerous sources. The most useful of these were the many volumes on the megaliths of the Iberian Peninsula published by the Leisners between 1943-1998 (Leisner and Leisner, 1943, 1951, 1956, 1959; Leisner, 1965, 1998). For two years beginning in the spring of 2001, hundreds of plaques and their associated sites were catalogued and scanned. Students at Ripon College and the University of Iowa and volunteers at the University of California, Los Angeles Cotsen Institute of Archaeology helped with the scanning of over 1000 images that were taken from over 50 publications written in 5 languages. In order to assess the reliability of published illustrations as well as to collect information about non-published plaques, Lillios studied and photographed over 400 specimens in museum collections throughout Spain and Portugal over the summer of 2003. Additional plaques were also 'discovered' online.

The creation of the personal version of ESPRIT took about 2 years, and during that time it was found to be a useful and fast search tool. Also during this time, significant patterns began to emerge in the plaques' design, which spawned the genealogical model. The provocative nature of this model and our desire to have alternative models tested by other scholars dictated that ESPRIT had to be made available on-line to other scholars. At that juncture, however, we had to decide whether to simply place the database online or to publish it on-line as a copyrighted work. After some thought and discussion with colleagues, we decided to formalize the existence of ESPRIT by applying for copyright. There were a number of reasons – both legalistic and ethical – that we chose this pathway. The primary reason we chose this pathway is because we planned to use photographs taken at various museums and these images are considered the property of the museum housing the objects.

Work on publishing the database began in the fall of 2003 and involved two processes. First, we needed to request permission to use photographs and illustrations, both published and unpublished. This was a lengthy process, which involved communicating with over 30 archaeologists and curators in Spain, Portugal and Britain. At the same time, we consulted with our university's lawyers regarding US and European copyright laws. Essentially, we have had to treat the database as a multimedia creation that incorporated various elements of intellectual property, specifically photographs, illustrations, derivative information and original data. We should say that our colleagues have been exceedingly generous in allowing images and illustrations to be used with the only proviso being that they were acknowledged as the source. The use of photographs taken in museums was somewhat more involved. Essentially, we had to agree to a standard resolution that was clear enough to be viewed on a computer screen but low enough so that the image could not be used in a print publication. Thus, all images in ESPRIT have a resolution of 72 dpi, no more than 256 colors, and a width of 600 pixels or less.

The second aspect of the project was the creation of an online interface for the database (Figure 1).

Academic Technologies, an instructional technology resource center at the University of Iowa, provided technical leadership including system design and implementation.

The first step in making this work accessible was moving the database to a server. Since Academic Technologies already supported a FileMaker Server installation, this was a straightforward task, which involved little more than uploading the database. From this location authorized users are able to access the collection from any computer on the Internet with

the FileMaker client. In addition to distributed access, the server environment provides automated backups and dedicated hardware support.

Once the database was online, the next step was to create a public interface accessible through the web. The technology chosen for this task was FX.php (http://www.iviking.org/FX.php/). FX is an open source PHP class that utilizes FileMaker's XML interface to marshal data in and out of the server. FileMaker's XML interface takes requests over HTTP and the server responds with an XML document. FX.php facilitates writing these requests and reading the responses in PHP scripts. This ability to craft FileMaker driven sites in PHP, a dynamic scripting language, afforded a great deal of flexibility. Additionally, this solution allows the website to be served using Apache on Linux.

The next phase of ESPRIT's implementation was driven by several overarching goals. One, we felt the site should be freely accessible to all interested scholars. Two, the interface should offer multiple pathways through the catalogue, allowing users to pursue their own interests. And three, the site must present the data in a concise and readable format. Informed by these goals, the ESPRIT interface was built with three major sections: Project Information, Browse mode, and Search mode (Figure 2).

The Project Information section of the site provides an introduction to the project along with a history of the plaques and their study (Figure 3). Additionally, this section contains a glossary of terms detailing the classification and data recording system, a complete bibliography of the site's references, and instructions for contributing new or revised plaque data.

The final two sections of the site provide access to the database itself. In Browse mode, users can move through the collection based on plaque types, museums, or archaeological sites (Figure 4). Browsing provides a good mechanism to introduce oneself to the plaques or to drill down to a specific subset based on the criteria listed above.

For detailed queries and model testing, Search mode allows users to query any of the data in the ESPRIT corpus. Both modes allow users to easily navigate the collection moving from general to specific and back. Query results provide a list of plaques along with some very basic details. Each listing provides a link to the complete record containing all known data about the plaque including up to four images (two each of the front and back), formal data (e.g. material, dimensions, and condition), and stylistic details (e.g. number of registers and design elements). Additionally, each image is linked to its full-size version.

ESPRIT has done well in meeting the project's initial goals. There were, until recently, a few technical issues to be addressed and features to be added. The greatest technical problem was that not all of the scanned images were produced in a consistent manner. Some files were quite large and negatively impacted the performance of the site. The images were, therefore, recently processed to ensure consistency in dimension and resolution and optimized for file size. This process speeded up the downloading of the records significantly.

Desired features for the future include versions of the site in multiple languages and the integration of maps for spatial analysis. Finally, as the collection of plaques grows, so will the site's features.

4. WINDFALLS AND PITFALLS OF ONLINE PUBLICATION

To conclude, we briefly review some of the windfalls and pitfalls of online database publication in general. We contend that the benefits of online publication can also be construed as pitfalls depending on cultural and intellectual contexts. Information is power, and the ways that data are collected, distributed, and controlled must be recognized as political acts as much as intellectual contributions. We would be naïve to think otherwise.

First, and perhaps most obviously, online publication makes large bodies of information, such as ESPRIT, easily accessible to a large number of people at no cost. It seems unlikely that any publisher would be willing to publish over 1500 photographs and illustrations given the relatively specialized audience interested in the plaques. But, with this online publication, we have been able to produce a database in the format that best balances our interests and intellectual concerns with those of our colleagues, with whom we consulted throughout this process.

The accessibility of this data, however, challenges competing notions of property operating in the scholarly world. For example, although we generate no income from the site, we paid the British Museum $289 for the right to use 2 images for a 2 year period. We have also had to deal with differences between copyright laws in the US and EU. Whereas most of the images fall within the fair use category by US law, the EU's laws are in some ways more restrictive, and so we have accommodated EU laws by requesting permission from all authors whose images were published.

The collective – and ultimately multi-authored nature of ESPRIT further calls into question the clearly defined author-product relationship (consciously or unconsciously) upheld in academia. Although at this point, Lillios is the author of the site, copyright is still retained by all the authors and museums involved for the images. But, as the site evolves, it could theoretically become a more fluid space in which other scholars could make authorial contributions.

Finally, online databases, such as ESPRIT, are 'living texts' – a term Cornelius Holtorf has used for his own e-publications (Holtorf, 2003/2004), and they can be updated regularly to present current material or discoveries. This organic quality, however, has made it difficult for ESPRIT to undergo critical peer-review – the hallmark practice of the Academy. For example, when ESPRIT was submitted to a number of US and European archaeological journals, most editors refused to review it on the grounds that the database was not a permanent document, and that it could change or be taken off the web altogether. Its nonmateriality and accessibility were also problems. As one editor wrote: "One of the few incentives we

have to get folks to do book reviews is the free book." This was a somewhat frustrating development that no amount of argument could change in some cases. It was ironic that those features that we found most exciting and useful about the database – its fluidity and its ability to evolve – have been its greatest weakness from the point of view of an academic system that still values the publication of enduring works. It is ironic, indeed, that those values that most academics share or at least aspire to – continuous checking and dynamism in intellectual thought – are not always supported by existing systems of knowledge production and legitimation.

5. CONCLUSION

In conclusion, the challenges faced in the production of ESPRIT have allowed us to see, in unexpected yet fruitful ways, the boundaries of our discipline. They have revealed glimpses of the usually unarticulated norms of expected knowledge production and dissemination. This exercise has also illustrated the intersecting and competing manifestations of power in our field – the power to control how and what information is distributed, and the power to collect funds for distribution. We bring up these challenges because it is easy to forget in the excitement of a new technology how this new technology can reorder and reconfigure economic, social and political relationships. As archaeologists, however, this fact should not surprise us.

6. ACKNOWLEDGMENTS

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FIGURES
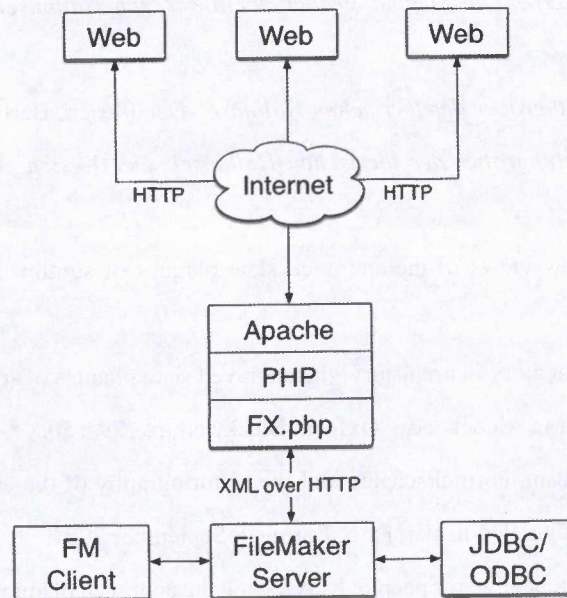
Fig. 1 – ESPRIT Infrastructure. ESPRIT's data is served from a FileMaker Pro database using widely accepted standards and technology (e.g. Apache, PHP, and XML).
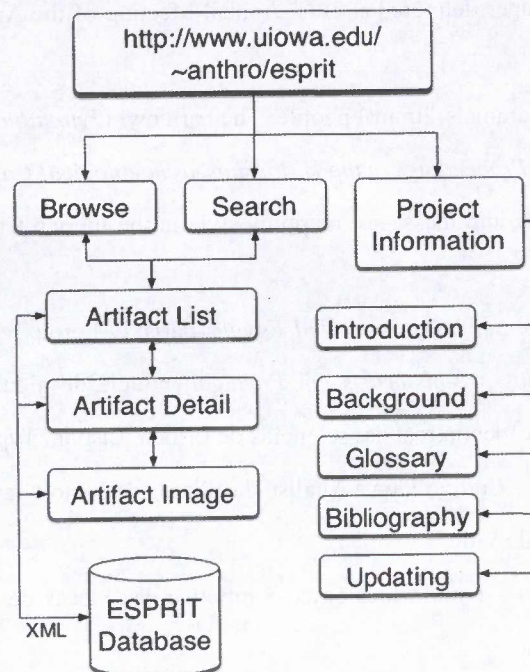

Fig. 2 – ESPRIT Architecture. ESPRIT provides background information on the Iberian plaques along with multiple ways to view the collection.

Introduction

Welcome to ESPRIT -- the Engraved Stone Plaque Registry and Inquiry Tool. ESPRIT is the first comprehensive and searchable catalogue of the engraved stone plaques of late prehistoric Portugal and Spain.

I began work on ESPRIT in 2001 as a way for me to organize and analyze the large and scattered corpus of Iberian plaques, which are published in over 60 articles and books and found in over 20 museums in Spain and Portugal. It soon became clear, however, that this database could be a powerful analytical tool for other scholars and students interested in the Iberian plaques. Thus, the idea of ESPRIT was born. The spirit of ESPRIT is to make information on the Iberian plaques freely available to scholars, students, and people interested in ancient art in general. The World Wide Web seems the perfect medium for this exchange of information.

The current version of ESPRIT has over 1100 plaques found at 210 sites. ESPRIT includes most of the published plaques as well as hundreds of unpublished plaques that I was able to study in 2003, on a generous grant from the Archaeological Institute of America , Archaeology of Portugal Fund. It is difficult to know precisely how many plaques remain unpublished and in museum collections. The best estimates we have place this number at about 4000.

ESPRIT should, therefore, be considered a work in progress. It will be updated as new plaques are discovered and new information is gathered. If you have information on an existing plaque in ESPRIT or on a newly excavated plaque, please go to Updating ESPRIT .

I welcome your comments and suggestions (katina-lillios@uiowa.edu) on making ESPRIT more useful to you.

The Catalogue

browse by
Geography
Museum
Major Type
or
Search

About ESPRIT

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How to use ESPRIT
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Bibliography
Acknowledgments
Conditions for Use

Fig. 3 – ESPRIT Homepage.

Browse by: Geography | Museum | Major Type or Search the Catalogue

Artifact 904

Museu Nacional de Arqueologia, Portugal

Portugal > Evora > Montemor-o-Novo > S. Geraldo > Comenda da Igreja

Images

Obverse: Photo Reverse: Image

courtesy of Museu Nacional de Arqueologia

Full Reference

Formal Data

Raw Material: black slate
Height: 15 cm
Weight: 301 g
Condition: nearly complete
Life Stage: finished
Form: trapezoidal
Structure: bipartite
No. of Engraved Sides: 1
Perforations: 1
Perforation Form: biconical?
Major Type: Classic

Plaque Details

Top | Base | Production | Reverse

Strap Shape: straight
Strap Angle: horizontal/level
No. Left Straps: 4
No. Right Straps: 4
Collar Shape: n.a.
Collar Fill: n.a.
Other Top Motifs:
 straps
Bands: 3 (1F, 1E, 1F)

Fig. 4 – ESPRIT Plaque Detail Page.