Identification and documentation of cultural boundary objects through usage of ultra high-resolution Gigapan images

Brian Moriarty
Stevens Institute of Technology
Brian.Moriarty@stevens.edu

ABSTRACT

The role of cultural artifacts is central to understanding individual social ethnic groups. These groups are defined by their histories, represented in social and religious artifacts, objects and the geographic locations where a given disputed object resides. Due to overlapping histories and geographies, expansive and often conflicting definitions of these charged cultural objects and locations result in conflict. In this sense, these objects act as cultural boundary objects (1), with different meanings resulting from particular cultural points of view.

Keywords: artifacts, boundary object, Gigapan, interactive, transference

INTRODUCTION

There are several stages involved in the identification of the documentation and re-presentation of the stated objects in question. I have chosen to start with the photographic documentation of historically Armenian and Greek sites in eastern Turkey, though the concepts that I will be developing could equally be applied to any location, physical or virtual, where different social and/or cultural constituencies reside. Preferably, any such analysis would take place in a scenario where there exist multiple varied interpretations of the meaning of objects. This would most commonly occur where there are varied cultural, social of socio-economic groups that would allow for the formation of varied meanings.

As a cultural crossroad that has evolved over millennia, my initial investigations in eastern Turkey have served as a rich location for research. The initial stages have involved identification as well as high-resolution photographic documents of these sites, primarily religious in nature as other structures have been mostly either eradicated or subject to relatively anonymous reuse.

Figure 1: Surp Grigor, Altinsac, Turkey
The first stage of this survey took place during July and August 2010. During this time I traveled to a number of locations in eastern Turkey, primarily Armenian and Greek religious sites (Figure 1) that have been demolished or semi-razed, repurposed for use by local villagers or simply neglected due to their remote locations.

**DOCUMENTATION TECHNIQUES**

I embarked on this trip with the objective of using several technical means of documentation including gigapixel images using a Gigapan Epic Pro 100, handheld panoramas assembled using various software stitching methods, novice attempts at extended depth of field photography, and 3D images using two high resolution still cameras.

Success using these various techniques was mixed, with primary success coming from the standard gigapixel images. The 3D images yielded far more dubious results due to the nature of the physical terrain as well as suboptimal equipment. Similarly questionable results were yielded from the extended depth of field tests, though I think it would be quite useful to investigate this technique further using gigapixel imaging techniques.

The reasoning for working with gigapixel images was driven by the objective of making high quality reproductions that would yield the ability to extract a high level of detail that would allow for varied representation. For example, by virtue of having high-resolution source files I would be provided with the opportunity to render textual detail more realistically than would be otherwise possible.

**OBJECT INVESTIGATION**

The primary methods for my investigation were social documents, primarily websites and textual sources that published geolocations and historical information about each site. This was augmented through verbal communication with local villagers, who provided further detail when possible on site locations. Despite cultural meanings that are generally in opposition, many in the local population shared and valued many of the objects in question in a manner consistent with views espoused by minority groups whose cultures were represented in these objects. Specifically, they wished to share and express pride in these objects as if they were their own. Of course this was a relatively silent expression, as I was requested on several occasions not to reveal specific opinions of the local populace, several time as represented by the gesticulation of a lock and key pressed to the lips of villager sharing the key location information.

On several occasions the assistance was not nearly as hospitable, notably in Kars, Turkey where one location had not found reuse through the local human populace, but by a pack of wild dogs who shared little common ground on the cultural significance of the site in question, known as Kumbet Kilise(2). There were several other unconstructive interactions with local villagers, mostly in areas where there are currently political issues with minority populations. However, nearly all interactions were positive and constructive, in contrast to noted interactions in previous years by other photographers and trailblazing tourists. There is a fair bit of documentation of problems with the local populace as well as military and jandarmas in the past ten to fifteen years that seems to have largely subsided.

**POTENTIAL APPLICATIONS**

The expected application of my work will be in determining the social values assigned to real and perceived cultural objects, how these values change based on the quality of representation and information provided, and to what extent the boundaries of personal identification can be stretched. The interpretation of the importance of cultural artifacts is in part determined by fact, but is also weighted to a certain extent by perceived importance and social pressures to believe that some items are of more or less importance than others.

Primary alternative applications that I envision concern the role of transference (3) in the meaning and value assigned to cultural boundary objects. More specifically, in the analysis of how people assign values to real objects and virtual representations that have varied relations to the original objects. I am particularly interested in how value is assigned to objects despite limited cultural or physical exposure, experience that is not related to empirical evidence, and physical and temporal relationships that are bridged by various data or image representation that is perceived as ‘fact’. Examples include simulations in virtual environments and social attachment values given to objects in virtual social networks.
Additionally, it is my intent to use the methods explored in my work in identifying cultural boundary objects within different social, cultural and organizational groups and defining a common set of values (4) that would assist in bridging differences on how objects should be interpreted and thus valued and preserved. Applications would include legacy system environments where multiple systems in potential conflict are in operation as well as cultural scenarios such as areas related to my specific location work.

POLITICAL CONSIDERATIONS

At various points in planning and execution of my investigation, it has been asked what my political objectives are in pursuing my subject matter. I have chosen to avoid introducing a political slant into any of the documentation. However, given the nature of the investigation of documenting sites of minority and non-present cultural groups, it will likely be difficult for the images to be interpreted without a political agenda. It is my goal that the images will represent an apolitical analysis.

CONCLUSIONS AND FUTURE WORK

As this is the initial stage of my investigation, there are very conclusions that can be drawn save those concerning the technical feasibility of the initial stages of the work proposed.

The next stages of my work concerning the documents produced thus far will be in their presentation as well as how the image data will be transformed into other media. I will be producing full location size images of some of the most successful documentary work, using architectural data gathered by others as well as my own personal documentation.

Data collected will also be translated, where possible into interactive 3D models of each site, which will serve as a basis, along with the photographs, for building full-scale representations with which viewers will be expected to interact. Through these sculptural models, the goal will be to determine the varied nature of viewer response by means of observation, detailed surveys, and video surveillance (5). Through these documentation techniques the objective will be to determine changes in viewer response, specifically emotional response, as variables are adapted for the various presentation methodologies. We will be looking specifically at the likelihood of object transference through quality of reproduction.

Additionally, it would be a worthwhile pursuit to create three dimensional gigapixel images using two Gigapan imaging devices with suitable cameras. It would of great interest to determine how this amendment in work process would affect the output quality of representation using various media as a direct result of the 3D source gigapixel images.

The initial investigation completed this summer is expected to be the first in 5+ separate trips to locate and document similar objects in the Middle East. It is my expectation that this project will broaden to investigations in Armenia, Azerbaijan, Georgia, Iran, Iraq, Lebanon and Syria, as each of these countries provides rich data for mixed cultural histories.
REFERENCES


