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Abstract

With easy access to satellite imagery through free applications such as Google Earth, it is now financially feasible for archaeologists to undertake remote survey in areas that are difficult or impossible to access in person. But there are ethical concerns inherent in the use of remotely sensed images, as Google Earth might be seen as a panoptic viewing technology that leaves no voice to those being viewed. Through a virtual investigation of the Camp Delta prison camp at Guantánamo Bay, Cuba, I discuss methodological and theoretical aspects of the use of Google Earth in archaeology.

Keywords

Camp Delta; ethics; Google Earth; Guantánamo Bay; remote sensing; panoptic viewing.

Introduction

Internment serves as both an instrument of internal social and political control (e.g. Funari et al. 2009; Wacquant 2000) and a critical component of external, colonialist projects (e.g. Kessler 1999; Ahmida 2006). Some of the first barbed-wire internments of civilians were instituted by the Spanish in Cuba, the British in South Africa and the Americans in the Philippines, all around the turn of the twentieth century (Everdell 1997). Today, internment continues to be employed by neo-colonial powers, and America's most recent international intervention, the Global War on Terror, includes mass internment as a central component (CFCR 2009; Hersh 2004; Human Rights Watch 2006, 2008). Recently, some anthropologists and archaeologists have been collaborating with the American military and its allies in the Global War on Terror (e.g. Emberling 2008; Gibson 2003b; Stone 2009; and see Eiselt 2009: 138–9), and these partnerships have received widespread attention within our disciplines

(e.g. Albarella 2009; González 2008; Gusterson 2007; Hamilakis 2003, 2005, 2009; Shearer et al. 2009; Starzmann et al. 2008). Though protection of cultural heritage during wartime may well be a valid enterprise (Gibson 2003a), we archaeologists should continue to ask ourselves if the *living people* of our world are well served by collaborations between academia and military interests.

Over the last decade, archaeologists' attention to the twentieth and twenty-first centuries has increased exponentially. In 2001 Buchli and Lucas reminded archaeologists that their theoretical and methodological approaches can be usefully applied to the recent past (see also Gould and Schiffer 1981). They demonstrated that closing the temporal distance between subject and object leads to re-evaluations of events and materials usually taken for granted, and helps bring to light ideas and observations that would otherwise be left unwritten or unspoken. Accordingly, archaeology is now used, for example, to assess twentieth-century landscapes and to interpret twentieth-century conflict and repression (e.g. Bradley et al. 2004; Funari et al. 2009; Schofield et al. 2002).

If internment has played a critical role in the development of the world as we know it – if 'the camp' is, as Agamben (1997; and see Bauman 1989) suggests, fundamental to the modern condition itself – then it is appropriate that archaeologists are increasingly attending to the study of internment camps. Though still emerging, the method and theory of this archaeological interest area are developing rapidly (e.g. Casella 2007; Myers and Moshenska in press; Panourgíá 2008). Like those who research more distant eras, archaeologists investigating the recent past strive to apply contemporary relevance to their work (e.g. Little 2008). Methodology, of course, is integral to what we do as archaeologists, and an archaeology of the recent past that aims for relevance in society must, as much as any other archaeology, pay attention to methods.

Google Earth and virtual archaeology

Google Earth, a 'virtual globe' computer application released in 2005, is now widely used by planners, policy-makers and the public and in both research and teaching in the social sciences (Myers in press; Sheppard and Cizek 2008: 2105). Though remote sensing has long seen wide application and discussion in archaeology (e.g. Parcak 2009; Wiseman and El-Baz 2007), and though archaeologists' use of satellite imagery specifically is not new, the introduction of Google Earth has shifted the relationship between archaeologists and remotely sensed data in exciting, significant and sometimes troubling ways.

Thomas et al. (2008) used Google Earth for a survey of large areas of Afghanistan. Their virtual archaeological reconnaissance was born of simple necessity: fieldwork has been almost impossible in that country since the 1979 Soviet invasion (followed by the period of Taliban rule and, most recently, the 2001 American invasion). They compared the point locations of known archaeological sites in Afghanistan with the areas where Google Earth provides high-resolution imagery and found that 250 (19 per cent) of all known sites in Afghanistan are covered by high-resolution imagery. They also mapped a site using imagery from Google Earth to demonstrate how high-quality recording can occur even when an in-person visit is impossible.

Satellite imagery has also been used to investigate the looting of archaeological sites (e.g. Stone 2008a, 2008b; Hritz 2008). The process involves visually scanning aerial or satellite images and noting areas where looters' pits have been dug (appearing as pockmarked areas). Some of these studies rely on purchased commercial satellite data for this process – a significant financial burden if large areas are to be assessed. One project quantifying looting at archaeological sites in Jordan shows that using the free imagery provided by Google Earth allows for effective quantification and monitoring of looting at essentially no expense (Contreras and Brodie in press). Purchasing commercial data that covered the area of this test study would have cost 0.9 to 2.5 million US dollars.

A potential, though little tested, application of Google Earth is the ability to assess change over time at archaeological sites through the 'historical time slider', a feature that controls the display of datasets of historical imagery. Erosion, encroaching development and other processes can be tracked and quantified. For studying sites from the recent past, the historical imagery available through Google Earth might contribute to tracing construction, destruction and modification of cities, neighborhoods or individual buildings over time. The Camp Delta Project, discussed below, is one example of this novel use of Google Earth.

While data from Google Earth are limiting in certain ways and will not always successfully substitute for higher-resolution imagery available for purchase, its benefits over conventional satellite imagery include 1) drastically reduced cost (before Google Earth, satellite images were often prohibitively expensive); 2) ease of use (the Google Earth platform is intuitive and requires little technical expertise); and 3) ease of access (before Google Earth images had to be ordered in advance and sometimes arrived by mail weeks or months later).

The Camp Delta Project

Camp Delta occupies the south-east corner of US Naval Station Guantánamo Bay, Cuba, and is composed of named and numbered sub-camps. Since January 2002 this prison complex has held men and boys accused of, but mostly never charged with, perpetrating terrorism and war crimes. The area where Camp Delta now stands was used in the early 1990s to intern Haitians caught attempting to reach the United States (Simon 1998; Annas 1993). The very existence of the prison camp, and the documented physical, mental and legal abuses of the prisoners held there, has led to controversy and outrage the world over (CFCR n.d., 2009; Human Rights Watch 2006, 2008). Despite intense public interest and continual media scrutiny, Camp Delta nevertheless remains a secretive place. The approximately 215 prisoners who remain warehoused at the camp (BBC 2009b) live in a state of extra-legal limbo, barred behind both tangible and intangible walls: the barbed wire fences that ring the camp mirror the security clearance levels necessary to gain access to the prisoners.

The Camp Delta Project is a Geographic Information System (GIS)-based initiative that aims to find out what can be learned about this partially secret place from publicly available spatial data, including images accessible through Google Earth. While there are several websites devoted to sharing links to 'off-limits' locations such as Camp Delta

(e.g. www.googlesightseeing.com and www.gearthhacks.com), what the Camp Delta Project provides is a systematic and methodological approach to interpreting these remotely sensed data.

In my study of Camp Delta, I first collected successively dated satellite images from Google Earth and other sources, loaded them into ArcGIS as layers and geo-referenced them. I then began to interpret the various elements using the satellite imagery in conjunction with documentary sources and media photographs of the camp. By creating points, polylines and polygons, I traced the identifiable structures, roads, vehicles and features such as guard towers and fences. Thus the basic GIS shell starting point includes a number of dated satellite image layers and point, polyline and polygon layers representing architectural and other features.

Recording Camp X-Ray

Camp X-Ray was the first development at the Global War on Terror prison at Guantánamo Bay and was in use before Camp Delta was built. Camp X-Ray has produced some of the most enduring images of the Global War on Terror, such as the now familiar photos of men masked and shackled in orange jumpsuits. Hastily constructed out of plywood and chain link fencing in the early months of the war, Camp X-Ray was used from January to April 2002. It has since been abandoned, and was decaying, until it was recently tidied and photographed by FBI agents under court order to document the site for evidence in possible future civil and criminal trials against the US government (Rosenberg 2009).

Figures 1–2 demonstrate the process of recording the location, number and size of the structures and features of the abandoned Camp X-Ray based on a 2004 satellite image. Though researchers may never gain access to court records or original plans for the camp, and though archaeologists may never be allowed to visit the site in person, we at least have a basic record of Camp X-Ray now. Importantly, this record was created independent of the US government and thus (and perhaps tellingly) may or may not match up with official documents and records.

Tracing expansion at Camp Delta

Analysis of satellite images combined with media photographs and both officially released and leaked documents (e.g. Singel 2007) allows for the identification of features of Camp Delta, the prison area built to replace Camp X-Ray. Fences, guard towers, light poles, vehicles, structures and paved and dirt roads are all identifiable in the satellite images. Structures can be identified as detainee prison blocks by their characteristics and related features. Specifically, the prison structures are in all cases surrounded by at least two rows of fencing. Two general types of structures are present: single-level military barracks-style structures and large, multi-level permanent concrete structures. The latter are modeled after the US supermaximum security prisons, where inmates are subjected to twenty-three

hours per day of solitary confinement and ‘nearly complete isolation and deprivation of sensory stimuli’ (Kurki and Morris 2001: 285).

Layering satellite imagery collected over a range of dates allows for a comparative project in which the built environment can be assessed for each year and new construction or demolition is noted. The clear trend during 2003–8 at Camp Delta was one of rapid and significant expansion (Figures 3–5). Between April 2003 and November 2004 at least two new sub-camps were built (Camp Echo and Camp Five) and one was expanded (Camp Iguana). Between November 2004 and February 2008, Camp Delta was again expanded and the new Camp Six was built.

The data also reveal a second trend: a shift from construction of temporary barracks-style prison structures to permanent supermax-style concrete prisons. Though the newly



Figure 1 Satellite image of Camp X-Ray (Google Earth, DigitalGlobe and Europa Technologies 2010).



Figure 2 Basic to-scale plan of Camp X-Ray (produced by the author).



Figure 3 Satellite image of eastern edge of Camp Delta in April 2003, showing a group of small structures (Google Earth, DigitalGlobe and Europa Technologies 2010).



Figure 4 Satellite image of eastern edge of Camp Delta in November 2004, showing Camp Echo (two compounds of rectangular structures, bottom of image) and Camp Five (five-winged structure, top of image) (Google Earth, DigitalGlobe and Europa Technologies 2010).



Figure 5 Satellite image of eastern edge of Camp Delta in February 2008, showing Camp Echo (two compounds of rectangular structures, bottom of image), Camp Five (five-winged structure, top right of image) and Camp Six (square structure, top left of image) (DigitalGlobe).

constructed Camp Echo was built in the barracks style, the massive multi-level prisons that followed, Camp Five and Camp Six, are both concrete supermax structures.

Some basic quantification demonstrates the significant increase in size and capacity of the prison camp: from April 2003 to February 2008, the number of prison structures rose from 106 to 148, an increase of 39.5 per cent; the approximate floor space rose from 42,920 to 61,558 square meters, an increase of 43.5 per cent; and the approximate total length of the perimeter fence rose from 16,672 to 22,563 meters, an increase of 35.5 per cent.

Rapid expansion of the facilities does not necessarily prove an increase in prison population, but it does, nevertheless, speak to intentions: the physical size of Camp Delta and its capacity to hold prisoners expanded at a rapid rate from April 2003 to February 2008. Note also that the new camps are clearly intended to be more permanent: the prison evolved from chain link and plywood enclosures (e.g. Camp X-Ray) to portable-style barracks (e.g. Camp Echo), to elaborate concrete supermax structures (e.g. Camp Six). The fact that the earliest structures were makeshift is likely due to pragmatic considerations: the Global War on Terror started with little warning, and prisoners began to be captured before the military was ready for them. That the later structures were built for permanence suggests the intent of its builders: the Global War on Terror would be ongoing and those sent to Camp Delta would not be leaving soon. In a context in which government secrecy and deception has been standard procedure, publicizing the material consequences of government policies is an important step towards accountability.

Google Earth and the ethics of remote sensing in archaeology

Google Earth's coverage over the earth's surface does not take into account who owns the land being photographed or any wishes for privacy that a person or institution might have. Google Earth's coverage is apparently democratic: it will show high-resolution images of

the street you live on and a secret prison camp complex equally. Google has forcefully argued for the free dissemination of once classified information, and they have repeatedly refused nations' requests to remove high-resolution imagery of military bases (Hafner and Rai 2005). These disagreements highlight the issues of privacy, censorship and sovereignty that are raised through the availability of Google Earth.

The fact that Google Earth photographs and publishes images of secret military bases and concentration camps has caused much concern among the institutions that feel threatened by such exposure. Governments and their militaries argue that revealing the location of military bases and other secret locations is dangerous and threatens national security. In an era of unprecedented government secrecy, however, pairing Google Earth with archaeology to keep a vigilant eye on government and its military sites is just as (and perhaps *more*) important as watching the commonly accepted 'enemy'. Through Google Earth, the archaeologist now has affordable and uncomplicated virtual access to military, private and other lands. Thomas et al.'s (2008) survey and my examination of Camp Delta are two projects that show how Google Earth can be used by archaeologists to investigate areas that are usually off limits to the archaeologist.

Google is a multinational corporation that produces and distributes a software application in which the people who are photographed, indexed and displayed have little or no say or recourse in their representation. Google Earth could even be described as a sort of 'global panopticon' (Bar-Zeev and Crampton 2008), in which the viewer sees all, but those who are viewed see nothing and, importantly, do not know if and when they are being watched (Foucault 1977; Saunders 2009). The Google Earth panopticon is perhaps more insidious than Bentham's (1791) original design, since in this twenty-first-century version the majority of those being viewed are not even aware of the mechanism that might be watching them and correspondingly do not act as if they are being watched.

The flip side, then, to an impressive unveiling of governments and militaries is a range of significant issues relating to the privacy of individuals and the ethics of the representation of individuals and their property. The liberating and revelatory aspects of Google Earth operate in tandem with the possibly repressive aspects of Google Earth as a panoptic technology of surveillance. The Google Street View application, which is now integrated into Google Earth, gives 360-degree panoramic photographs of any location in a number of cities and is perhaps the most controversial of Google's projects. Invasion of people's privacy and personal lives has attracted some negative media attention. One group of English villagers even chased away the Google Street View car, the specially outfitted vehicle that collects imagery while driving along streets (BBC 2009a; see also Moran 2009; Palmer 1998: 368).

In addition to concerns over privacy and representation, over-reliance on remotely sensed data might threaten the archaeologist with a sort of inhuman distance from the humans she studies. Moshenska (2009: 50) rightly urges us to be wary of the impersonal 'bombardier's-eye view' provided by aerial perspectives that might lead to research that dehumanizes our subjects. After all, a satellite image is, like an aerial image, both an abstraction and a particular, situated representation (González-Ruibal and Hernando 2010; Saunders 2009). GIS in general has been legitimately accused of at times being positivist, overly rational and militaristic (see Farman in press), and the satellite images themselves are clearly inherently militaristic as well (see for e.g. Fowler 2004). In any case, Google Earth is not a substitute for fieldwork. On-the-ground, intimate investigation and personal interaction still often best inform the archaeologist.

The use of free imagery captured in Google Earth in my examination of Camp Delta demonstrates how the platform can be deployed as a critical intervention through archaeology. In this use of Google Earth, the panoptic gaze of the all-seeing eye is appropriated and turned away from the powerless individual and is turned instead upon the institutional power structure (Bernbeck 2008). It is important to remember that remote-sensing satellites have been watching us for the last half century, and the indexing of people and things from space is not new. What has, however, changed in the age of Google Earth is that the common citizen can now enter the panoptical eye.

Thoughts on future research

At this writing I have not been able to locate any free or affordable imagery of Guantánamo Bay earlier than April 2003, so spatial information about the period 2000–2 remains a gap in the research. A worthwhile next step would be to obtain and analyze images from this period to document the morphing of empty fields and abandoned barracks into a prison camp: the genesis of Camp Delta. A second interesting task would be to cross-reference the changes on the ground at Camp Delta with a geopolitical timeline that would query the potential relationships between expansion at Camp Delta and salient world events. Finally, there are structures that show up in the satellite imagery that have not been publicly discussed, raising the possibility of secret prisons, and prisoners, at Camp Delta (see also Horton 2010). The use of undisclosed prisons is a known practice of the US government (Priest 2005), and future archaeological work on Camp Delta might investigate these unnamed structures and their significance.

As we have learned, remotely sensed images provide a dangerously removed and mediated view of the prison and its prisoners. Future research should weave this distant perspective with more intimate ones provided, for example, by journalism, memoirs, diaries and oral histories (e.g. Begg and Brittain 2006; Margulies 2006; Worthington 2007). Only through the people on the ground at the prison – the guards, the support staff and, of course, the prisoners themselves – can archaeologists and others get at the more intimate, human side of Camp Delta.

Conclusion

Though Google Earth is potentially a panoptic viewing technology that leaves no recourse or voice to those being viewed, the combination of Google Earth with archaeology can work towards worthwhile ends. With the all-seeing eye appropriated and its gaze redirected, archaeologists can undertake remote surveys and assessments of change over time in war zones, top-secret military bases and prison camps such as Camp Delta, and other areas that are difficult or impossible to access in person. The Camp Delta case study specifically, quantifies the material manifestations of contemporary government policies. These investigations and results are made possible only through combining traditional archaeological practices such as survey, mapping and spatial analysis with satellite imagery, and they perhaps play a small role in challenging entrenched and institutional structures of power.

Satellite imagery accessed through Google Earth and analyzed in a GIS both confirms and extends, and has the potential to contradict, what is officially stated and displayed about places like Camp Delta in other sources. The Camp Delta Project has created a record of the physical structures that exist at the prison camp – structures not guaranteed to stay in place, and the written records of which could be erased or never released to the public. This is an important first step towards the preservation of an independent record of the prison camp. The project has also used remotely sensed imagery to quantify the expansion of Camp Delta in the period 2003–8, and has shown that in this time not only did Camp Delta expand rapidly, but the intended permanence of newly built structures also increased. This finding has never been explicitly stated by official sources. The use of Google Earth in this project also demonstrates that now nearly anyone can have access to a viewing perspective once reserved only for the most powerful. With this easy access to Google Earth, ‘we’ see most of what ‘they’ see. This is a strategy of subversion that, in the words of Homi Bhabha (1994: 112), turns ‘the gaze of the discriminated back upon the eye of power’.

Government and military documents are often classified, physical sites may be off limits and embarrassing evidence of internment operations is often quietly erased. At least some planning for the dismantling of Camp Delta is already under way (Rosenberg 2009). If and when the camp closes, the detainees will be shuffled – some repatriated to their home countries, but many simply relocated to less prominent prisons. Camp Delta is a threatened site of historical importance and a case that demonstrates that, sometimes, rapidly deploying an archaeology of the recent past is both thought provoking and necessary.

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