CREATING A LANDSCAPE OF MEMORY: THE POTENTIAL OF HUMANITIES GIS

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In late spring 1994 civic and neighborhood leaders gathered at United Way headquarters in Indianapolis to continue work on a community-based assessment strategy. It was another in a long series of meetings, all designed to create indicators to guide the allocation of philanthropic dollars toward the city’s most pressing problems. The process had been frustrating and wearying for staff and volunteers alike. Consultants had mined the available data and created reams of charts, graphs, and tables, which always seemed to be in disarray as participants shuffled papers in a futile attempt to compare neighborhoods, to find correlations among indicators, or to discover, with dismay, incomplete or misleading data. Often dispirited at the end of a long session, the group increasingly turned to experts for direction and answers.

But this meeting would prove to be dramatically different. Using Geographic Information Systems (GIS) technology, the Polis Center, an applied research unit at Indiana University Purdue University Indianapolis (IUPUI), had created a dynamic and scaleable mapping environment to manage and display the data that so often overwhelmed the participants. Called SAVI (for Social Assets and Vulnerability Indicators), this community information system integrated multiple datasets within a set of common geographies from county and township to neighborhood and census tract and visualized them on a map. Suddenly the participants saw their city and its parts as a common space. They noticed at a glance the proximity of their separate communities to the whole and to other areas. They spotted with ease the spatial patterns of social problems and the availability of community assets—a health clinic, a social service agency, a faith-based organization—to address their concerns.

More interesting was another response: the map evoked memories in the form of explanations about whether and why this neighborhood or that place had the character ascribed to it. “I grew up in Martindale-Brightwood,”
one participant noted, as he looked at a map that showed the former working class neighborhoods to be sites of high crime, poverty, and low educational attainment. “What you are looking at is the result of the interstates that ripped the heart from these communities in the 1960s. I can’t tell you how many families, including mine, were forced to abandon our homes and how many small businesses closed. No wonder this neighborhood is in crisis; it was wrecked a long time ago.” Another person found the city’s history of unofficial red-lining contained on the map. “Brightwood was a predominately white community within my lifetime,” she recalled, “but now it is all black—and that’s because whites could move but blacks couldn’t.” Someone else saw that the map failed to identify the strongest institutions in the neighborhood, its numerous small churches. “These places have always been the heart of this area,” he noted, recounting story after story of interventions and encounters that had changed lives. “If this area can be rebuilt,” he continued, “it will begin in these places.” By the end of the evening, the participants had crafted a richly detailed sociology of an inner-city community, informed by the map but made compelling by the complex layering of memory and history.1

Ten years later and half a world away, a similar drama played out, this time in an indigenous village in the mountains southeast of Taipei, Taiwan. In a metal community building, a dozen or so elders sat awkwardly around tables, facing a large white bed sheet draped on the back wall. Standing by this impromptu projection screen were two researchers from National Taiwan University, one an anthropologist, the other a geographer. Previous visits had resulted in the collection of oral histories and attempts to compare official accounts of the region with the experiences of what the researchers knew to be a disadvantaged group. But the project was not going well. The villagers were uncomfortable with tape recorders and were suspicious of the motives of these young professionals from the big city of Taipei. They became animated only when recalling tales of hunts in the surrounding mountains, many now under the control of timber interests. Each family traditionally had a special hunting ground, but the language used by the villagers to describe this important activity was too vague and too spatially imprecise to be useful to the researchers.

In a last effort to engage the group, the geographer created a mosaic of detailed aerial photographs of the village and its mountains and draped them over a terrain model in a near 3-D image that he now projected on the bed sheet. At first the elders stared without comment, but when the image tilted to provide a more natural perspective—and especially when it began a fly-through—they suddenly left their chairs and clustered around the makeshift screen. Pointing excitedly, they marked their family’s traditional space, trying to push the map backwards and forwards and smiling broadly when they discovered how to zoom in for a closer look. Now their stories took life, with detailed descriptions of past
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practices—and past discriminations—made more vivid when told within this well-known, if virtual, environment. Buoyed by this experience, the villagers asked the researchers to come back, not once but for several more sessions until finally they had told their stories of a remembered past.2

Indianapolis. Taiwan. Two worlds far removed from each other, yet two similar encounters. In both instances, people experienced the power of the map to evoke history and memory, to prompt narrative, to define community. In both Indiana and Taiwan the map spurred thick descriptions of the environment it represented, but the GIS could not capture the rich associations people had with these spaces, associations based on memories that provided meaning and transformed space into place. The witnesses around those maps were testifying to the power of place to define who we are, both individually and culturally. What is authentic about us—our very identity—is inextricably bound up with the places we claim as our own. As American novelist Eudora Welty once observed, “place has a more lasting identity than we have, and we unswervingly attach ourselves to identity.”3

What happened in these two widely separated places also reflects what scholars have labeled more broadly as “the spatial turn,” the recognition of how concepts of space bind history, culture, and memory as much as they do attributes of a physical world. The humanities traditionally have been conceived and organized within a temporal framework, a notion influenced by nineteenth century scientific schemes of sequential or evolutionary development in which society and culture move from one stage to another, all linked to periods of time. History was the keystone discipline among the various branches of the humanities because it dealt with time explicitly; philosophy, literature, and the arts depended on their special histories to give shape their subjects. Time was more than our agent, it was our master. Space was the unexamined landscape on which time played out its game.

Over the past several decades, concepts of space have taken on new meaning for humanists. First in postcolonial studies and then in other areas, scholars questioned the developmental schema imposed on colonized cultures and multicultural societies. This spatial turn began in the pioneering works of social scientists such as Clifford Geertz, Erving Goffman, and Anthony Giddens and has been advanced in the humanities through the work of Michel Foucault, Michel de Certeau, Edward Said and others whose investigation of space took the form of a focus on the “local” and on context. Themes of regions, diasporas, and contact zones and rubrics such as “border” and “boundary” have largely replaced periodization as a way of ordering scholarly investigations. An equivalent concern with material culture, the built environment, and local representation in dress, food, music and other cultural markers of space and place has accompanied and reinforced this shift. Climate, topology, and hydrology—all of
which were important to early 20th century *annalistes*—likewise are reemerging as important considerations in the investigation of literatures, histories, and social and political ecologies.⁴

Increasingly our work as humanists centers on ideas of movement and encounter, on what happens in the spaces between cultures, on processes of transculturation, and on how differently separate cultures perceive the worlds they inhabit. We also have turned attention to gendered and racialized spaces, as well as to the body in space. We have found value in concepts of interior and intimate spaces. In each of these ways, we have asked new questions about human experiences and gained new perspectives.⁵ Although still lacking a sufficient theory that links real with metaphorical space, we have enriched our understanding by considering how a sense of space and spatiality has shaped both ourselves and the “other,” giving truth to William Blake’s lines:

> “If the doors of perception were cleansed, everything would appear to man as it is: infinite.
>
> For man has closed himself up, till he sees all things thro’ narrow chinks of his cavern.”⁶

New technologies have both facilitated and burdened this (re)discovery of space. At its core, GIS is a mapping technology with properties that should appeal to historians and other humanists who are interested in place. Its fodder is physical space—location—and all attributes that coexist with it. Though humanists may conceptualize space in flexible terms, the evidence we use comes from some place no matter how loosely defined. This spatial tag, of course, is the key in GIS to relating one piece of evidence to another from the same geography. Historical data typically has better spatial than temporal markers, although not always, so GIS is equipped to handle most of the evidence we use in our work. If the evidence has a known location—and the degree of granularity may vary widely—it may be used profitably within a GIS.

The power of GIS lies in its ability to integrate data from a common space, regardless of its format, and to visualize the results in combinations of transparent layers on a map of the geography shared by the data. The spatial integration of information means we can keep evidence of different types in relationship with each other by virtue of their common location, it also helps us develop multiple views of the data. We can construct multiple perspectives, much as we might in our verbal descriptions of the past. We can shift scales quickly, zoom in and out, and view levels of detail. Spatial relationships can prompt questions we might otherwise ignore; we can intuit connections for further exploration.⁷ We can treat these multiple perspectives literally or figuratively. Military historians can place opposing commanders in known locations on a battlefield and determine what they might have seen from their vantage point, or they can use evidence from a hundred soldiers to represent the chaos of war.
Urban scholars can simulate the vistas and voices of a cityscape, using a map with great economy to do what it takes volumes to do otherwise. Multiple perspectives and shifting scales may cause problems for the cartographer but not necessarily the humanist. Reasoning by analogy is part of the scholar’s approach to evidence, as is comparison of events across time and culture. Both advance our impulse to understand something by reference to another, similar instance, regardless of origin or circumstances, at least initially, and both invite the development of multiple simultaneous views, from local to global, for the same problem. In an 1830 essay British historian Thomas Carlyle noted how such multiplicity is inherent in the nature of events: an observation is successive in its recounting, with one thing following another, while the “things done were often simultaneous; the things done were not in a series, but a group.”

A singular view, no matter how precise, is the enemy of comprehension because it inevitably misrepresents what we know of lost worlds. We also understand culture as web-like, to use philosopher Michael Oakeshott’s phrase, because we see everything as related in some way to everything else. Within new spatial technologies, we can allow multiple views to reside simultaneously in the spaces we are seeking to understand.

We are ill-prepared to take advantage of the visual capabilities of GIS, however, for reasons that relate to our scholarly traditions as much as to the technology. Our disciplines are logo-centric. We find words, with their halos of meaning, better suited for describing the complexity, ambiguity, and uncertainty we see in our subjects. Well-chosen words can evoke multiple meanings and images instantly—Holocaust, for instance, defines a 20th century regime of horror and calls to mind images ranging from a Warsaw ghetto and gas ovens to the cinematic figure of a small girl in a red coat—and for this reason we prefer them to visualisations, which use a vocabulary foreign to us.

Even if we were fluent in visual communication, GIS until recently has had only limited ability to move us beyond a map of geographical space into a richer, more evocative world of imagery based on history and memory. But increasingly—and rapidly—it offers capabilities that we could employ with profit, although on the whole we have not. Over the past few years, GIScientists have made advances in spatial multi-media, in GIS-enabled web services, geo-visualisation, cyber geography, and virtual reality that provide capabilities far exceeding the abilities of GIS on its own. This convergence of technologies has the potential to revolutionize the role of place in the humanities by allowing us to move far beyond the static map, to shift from two dimensions to multidimensional representations, to develop interactive systems, and to explore space and place dynamically—in effect, to create virtual worlds embodying what we know about space and place.

On the whole, we have done little to seize the opportunity represented by this convergence of technologies. Most use of GIS in historical and cultural studies
remains largely application-driven and tied to the more obvious tasks of census boundary delineation and map-making. While not seeking to minimize the importance of such work, it has rarely addressed the broader, more fundamental issues that surround the introduction of a spatial technology such as GIS into the humanities.

There are core reasons why GIS found early use and ready acceptance in the sciences and social sciences rather than in the more qualitatively-based humanities. The humanities pose far greater epistemological and ontological issues that challenge the technology in a number of ways. Variability, interdependency, contingency, uncertainty, agency, and nuance are our tricks of trade, so we askance at any method or tool that appears to reduce complex events to simple schemes. GIS is a computer technology that that does not tolerate ambiguity, expressing all matter as zeroes and ones and demanding mutually exclusive categories in its data structures. Its insistence on precision does not fit the worldview of humanists; indeed, our disciplines appear at times to embrace an uncertainty principle—the more precisely you measure one variable, the less precise are other variables.

Also, GIS does not handle time well, nor does it facilitate narrative. Time is merely an attribute of space within a GIS, but it is a much more complicated concept for humanists, who well understand T.S. Eliot’s sense of

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\text{Time present and time past } \\
\text{Are both present in time future } \\
\text{And time future in time past.}^{12}
\]

In landscapes and timescapes, we impose imprecise divisions—eras and epochs, cultural footprints and spheres of influence—that allow us to manage complexity. We move freely across these grids, ignoring issues of scale, as we compare and contrast one place or one time with another in an effort to recapture a sense of the whole. Our goal is not to recreate or map the past, but to identify its causal threads and to understand its complex social and cultural rhythms. We employ narrative, not algorithms, to qualify, highlight, or subdue these threads and rely upon emphasis, nuance, and other literary devices to achieve the complex construction of past worlds. Given this stance, it is no accident that geographic information systems, a tool initially developed for earth scientists, have made few inroads into history and the other humanities.

Yet of all modern information technologies, GIS may hold the most potential for helping us advance our understanding of place and memory, for at least two reasons: it maps information, thus employing a format and a metaphor with which humanists are conversant; and it integrates and visualizes information, making it possible to see the complexity we find in society and culture.
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The technology is powerful and it is becoming ubiquitous in our common lives, even if, at present, it still does meet our needs completely. Our challenge is not to abandon it or allow the technology to narrow our view, but rather to explore first whether it is possible to conceive of a humanities GIS, one that is receptive to other ways of knowing. Can we use this powerful technology to move beyond its highly structured Cartesian world to one richly textured with the histories, memories, and experiences that define the places where we live? Can it meet the needs of our disciplines, in other words, instead of asking us to accommodate its demands? And if we are capable of reshaping the technology, how in turn might its use reshape what we do?

Seeking to fuse GIS with the humanities is challenging in the extreme, but already we have glimpses of what this technology can produce when applied to the problems in our disciplines. Within the field of cultural heritage, archaeologists have used GIS and computer animations to reconstruct the Roman Forum, for example, creating a 3-D world that allows users to walk through buildings that no longer exist, except as ruins. We can experience these spaces at various times of the day and seasons of the year. We see more clearly a structure’s mass and how it clustered with other forms to mold a dense urban space. In this virtual environment we gain an immediate, intuitive feel for proximity and power. This constructed memory of a lost space helps us recapture a sense of place that informs and enriches our understanding of ancient Rome.13

In similar fashion, historians and material culturists have joined with archeologists to fashion Virtual Jamestown. This project, in turn, is seedbed for an even more ambitious attempt to push the technology toward the humanities by placing Jamestown at one vertex of Atlantic World encounters. Its goal is to re-populate a virtual world with the sense of possibilities embedded in the past, what Paul Carter has called “intentional history.”14 Viewed within the spatial context for their actions, which includes the presence of proximate cultures, whether indigenous tribes, Spanish, Africans, or Dutch, we then can understand better how contingencies became lost as they butted against the encountered realities within the space the English claimed in 1607.15

A paradigm project underway at West Virginia University, a partner of Florida State University and the Polis Center at IUPUI in the Virtual Center for Humanities GIS, aims to go even further by combining immersive technologies with GIS to re-create a sense of nineteenth-century Morgantown. Working from digitized Sanborn maps and extant photographs of buildings and streets, users enter a CAVE, a projection-based virtual reality system, and find themselves in another time and place, with the ability to navigate through an environment in which they now are a part. Soon they will be able to enter and explore a building, moving from room to room and examining the material objects within it. By adding sounds, smells, and touch, all within the capability of existing technology, this virtual reconstruction would engage four primary
senses, making the experience even more real for participants.\textsuperscript{16} Once expensive, the costs of immersive environments are dropping rapidly, but, in fact, a CAVE is not essential for making an immersive environment open to humanists. As any parent of school-age children knows—or as any devotee of Second Life can testify—gaming technology already allows us to explore virtual worlds with a high degree both of verisimilitude and agency.\textsuperscript{17}

Even if it is becoming possible to imagine new, technology-based ways of exploring questions of heritage and culture, how do we make memory dynamic and vital within them? To date, we have incorporated memory into our websites and other digital products in much the same way we engage it in traditional scholarship, as part of an expert narrative. The primary evidence we use in each instance—documents, images, maps, material objects—represent personal and cultural memories that serve as mediators between us and the worlds they represent. We select and interpret these artifacts of memory to frame our understanding of the past. We use them within a book, an essay, or a website to structure a universe and make an argument. In this sense, technology makes the process of knowledge creation we have always employed, but the difference we see most often is one of degree, not kind. We have not used its capabilities to enable our understanding of memory to be as dynamic as the act of remembering itself, and it is to this end that we must direct technology if it is to help us open the past to the multiple perspectives and contingencies we know existed in the past.

Memory is essential for our identity, whether as individuals or as a society, but it remains problematic as evidence because it always is informed by what has happened in the interim between an event and the act of recall. This condition makes memory dynamic, malleable, and contested. Except, perhaps, for intensely emotional events that remain fresh for us, we are remembering the last time we remembered. With each instance of recall, we remove even more of the contingency or sense of possibility that once existed. Through this process we construct the stories of our self, and in this way we create the various narratives that recount our communal history.\textsuperscript{18} But unlike personal memory, which seeks to reconcile or hide our interior conflicts, communal memory becomes highly contested public space. The stakes of this struggle are high because the outcome confers legitimacy, yet we also know that memory privileges what we want or need to believe. As a society, it means that we have often removed from our public memory the voices of dissent, and we have expunged from our physical and cultural landscape the “shadowed ground” that reflects our shame.\textsuperscript{19}

How then do we attempt to recover the unrecoverable and find our way through memory to the past? Of course, we cannot, and it is futile to try. We live only in the moment poised precariously between past and future, fully conscious of the influence of both. But what we can do is inform the present more fully with the artifacts of social memory, the evidence of recall from various times
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and various perspectives. One means to this end is through “deep mapping,” an avant-garde technique first urged by the Situationists International in 1950s France. Popularized by author William Least Heat-Moon in *PrairyErth (A Deep Map)*, the approach “attempts to record and represent the grain and patina of place through juxtapositions and interpenetrations of the historical and the contemporary, the political and the poetic, the discursive and the sensual, ...”

In its methods it conflates oral testimony, anthology, memoir, biography, images, natural history and everything you might ever want to say about a place, resulting in an eclectic work akin to 18th and early 19th century gazetteers and travel accounts. Its best form results in a subtle and multilayered view of a small area of the earth.

Described as a new creative space, deep maps have several qualities well-suited to a landscape of memory. They are meant to be visual, time-based, and structurally open. They are genuinely multi-media and multilayered. They do not seek authority or objectivity but involve negotiation between insiders and outsiders, experts and contributors, over what is represented and how. Framed as a conversation and not a statement, deep maps are inherently unstable, continually unfolding and changing in response to new data, new perspectives, new insights.

It is not necessary to adhere to hazy theories of psychogeography or to the neo-Romanticism of the British idea of “spirit of place” to find an analog between the deep map and advanced spatial technologies. Geographic information systems operate as a series of transparent layers, each representing a different theme and tied to a specific location on planet earth. These layers are transparent, although the user can make any layer or combination of layers opaque while leaving others visible. In the environmental sciences, for example, one layer might be rivers and streams, another wetlands, a third floodplains, a fourth population, a fifth roads and bridges, a sixth utility lines, and so forth. By using information about rainfall amounts and rates within a predictive model, we can turn on and off layers to see what areas and which populations, habitats, and infrastructure will be affected most quickly by flooding and how best to plan for relief and recovery. We can view these layers in the sequence predicted by the model or we can view only the layers that most immediately affect human health and safety.

A deep map of memory ideally would work in a similar fashion. Each artifact from a place—a letter, memoir, photograph, painting, oral account, video, and so forth—would constitute a separate layer of memory that we could arrange sequentially through time, with as many stacks of layers as the evidence permits. Each layer would represent a memory anchored in time and space, thus allowing us to keep them in relationship, and each stack of layers would contain the unique view over time, the dynamic memory, of an individual, a family, an organization, or some other social unit. The layers could incorporate active and passive...
memories, the memories generated by intentional recall as well as memories
left to us in some fixed form. They also might contain memory accounts from
the natural world, such as found in meteorological and geological records.
The layers of a deep map need not be restricted to a known or discoverable
documentary record but could be opened, wiki-like, to anyone with a memory to
contribute, with each time-stamped twice to designate a current recollection of
an earlier day. However structured, these layers would operate as do other layers
within a GIS, viewed individually or collectively as a whole or within groups,
but all tied to time and space as perspectives on the places that interest us.

In this manner, GIS can help us create a landscape of memory, but what might
it look like in relation, say, to the past of particular place and how would it
change the way we study the places we live? The first question is easier to answer
because we can make the examples tangible, but the second question is the most
important because its answer poses a challenge to our disciplinary traditions.

Consider the case of Indiana, a state in the Midwestern United States that,
in the nineteenth century, boasted a famous utopian experiment in communal
living, New Harmony. Planned communities offer a convenient way to think
about a landscape of memory as a construction of history because the founders
left evidence of their intentions. New Harmony, of course, is among the most
prominent of these efforts in American history. Embedded metaphorically in its
village plat are the memories of two nineteenth-century utopian communities
that occupied the same physical space—the pre-millennial gathering of George
Rapp and his disciples and the later secular commune of Robert Dale Owen
and his followers. We have countless letters, diaries, declarations, travelers’
tales, court documents, paintings, sketches, photographs, and other evidence
of how residents and others remembered the places and events of their
time. We also have information from excavations, reconstructions, tourist
comments, folklore, topographical and environmental data, including, most
recently, satellite imagery. Each of these memory records contains a singular
view from a point in time and space; collectively, they are a richly textured,
multi-layered, complex, and chaotic set of memories that define the place we
know as New Harmony.

Of course, any number of cyber formats could contain all this evidence, but
only a GIS-enabled deep map of this landscape of memory allows us to move
easily within and among layers of information. Memory layers remain fixed by
time and space but they can be viewed horizontally, vertically, and diagonally:
for instance, we can compare Owens’ diary with his distanced reflections of a
decade later; we can contrast them with the views of his contemporaries, both at
the time and later; or, we can put his reminiscence next to the memories recorded
by others closer in time and space to the event in question. We can add memory
to this landscape as we discover it and as we create it, and we can keep our view
on New Harmony or we can see this place in a wider context. This deep map,
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while focused intensely on New Harmony, is scaleable. We can see the village as a whole, but we also can go to any part of it. We can discover as well what is happening beyond the bounds of this place: we can situate New Harmony in any number of wider worlds—southwestern Indiana, the state at large, the nation—and all tied to time as well as space but traceable in simultaneous, sequential, or discontinuous ways.

Equally important we can use these memories to visualise New Harmony, as it was, as it is, as dreamers imagined it would be. The deep map and its landscape of memory are meant to be visual. It immerses users in an experiential world in which uncertainty, ambiguity, and contingency are ever-present, influenced by what was known (or believed) about the past and what was hoped for or feared in the future. It is here where traditional GIS faces its sternest test because it cannot yet create such a rich visual environment, much less work with such imprecision and fluidity as the nature of our questions and evidence demands. But the rapid convergence of GIS with other technologies, especially multimedia and gaming tools, suggests that we are not far from the point when it will be possible to construct deep maps and landscapes of memory for any place where people leave records of their experiences.

When this happens, what will it mean for us as humanists? Assuming continued progress in making the technology more complete and easier to use, it is possible to construct at least two views of a GIS-based landscape of memory. In the first scenario, humanities GIS is a powerful tool in the management and analysis of evidence. It makes its scholarly contribution primarily by locating historical and cultural exegesis more explicitly in space and time. It does not replace the scholarly or expert narrative as much as it aids it: it finds patterns, facilitates comparisons, enhances perspective, and illustrates data, among other benefits, but it ultimately finds expression in the traditional, peer-reviewed forms accepted by our disciplines. In this view, GIS provides geographical context and depth to an expert interpretation of the past.

In the second scenario, the technology offers the potential for an open, unique post-modern scholarship, an alternate construction of history and culture that embraces multiplicity, simultaneity, complexity, and subjectivity. Postmodernism sharply challenges the concept of objectivity, the lodestar of so-called scientific history since the late 19th century, and the supremacy of empiricism in favor of knowledge based on all the senses. It has called into question the primacy of texts and logic as the foundation of knowledge. In its epistemology, history is not a grand narrative—an authoritative story of a society’s past—but instead a fragmented, provisional, contingent understanding framed by multiple voices and multiple stories, each conditioned by the unique experiences and particular cultures that gave rise to them.

A GIS-facilitated landscape of memory may ultimately make its contribution by embracing a new, reflexive epistemology that integrates the multiple voices,
views, and memories of our past and allowing them to be seen and examined at various scales. It can reveal the simultaneous context that we accept as real but cannot obtain by words alone. It can reduced the distance between the observer and the observed and permit the past to be as dynamic and contingent as the present. It will allow us to fuse qualitative and quantitative data within real and conceptual space. In sum, it promises an alternate view of history and culture through the dynamic representation of memory and place, a view that is visual and experiential. It would stand alongside—but does not replace—traditional expert narratives, but it would open history and the humanities to participation by the naive and knowledgeable alike. We are not yet at this point, but some day we could be. It is a vision worth pursuing.

END NOTES

1. As executive director of the Polis Center, the author participated in this planning process. The quotes are taken from personal notes of the meeting described above. Similar experiences are common in the mapping of community information, as reported by a Government Accountability Office study, Informing our nation, GAO-05-01 (Washington, D.C.: Government Printing Office, 2005). For more on the role of GIS in community information systems, see D. Weiner, T. M. Harris, and W. J. Craig, ‘Community participation and geographic information systems’, in W. J. Craig, ed., Community participation and geographic information systems (London: Taylor and Francis, 2002), 3–16.


4. Denis Cosgrove discusses this spatial turn specifically in relation to landscapes, real and figurative, in ‘Landscape and landschaft’, GHI Bulletin, 35 (Fall 2004), 57–71. Also see K. Olwig, Landscape, nature and the body politic: from Britain’s renaissance to America’s new world (Madison, Wisc.: University of Wisconsin Press, 2002).

5. Yi-Tu Tuan discusses the emotional and perceptual meanings of space in several books, including Space and place: the perspective of experience (Minneapolis: University of Minnesota Press, 1977); Place, art, and self (Santa Fe, New Mexico: Center for American Places, 2004), and Landscapes of fear (New York: Pantheon Books, 1979). A leading practitioner of the idea of gendered and racialized spaces is D. Massey, Space, place, and gender (Minneapolis, University of Minnesota Press, 1994), especially 1–24.


7. Much of the argument for spatial thinking in the social sciences can be extended to the humanities. See M. F. Goodchild and D. G. Janelle, ‘Thinking spatially in the social sciences’, 108.

8 A useful discussion of analogical reasoning as a metaphorical mapping can be found in J. L. Gaddis, The landscape of history: how historians map the past (New York: Oxford University Press, 2002), Ch. 4.


The Digital Roman Forum project may be viewed at http://dlib.etc.ucla.edu/projects/Forum. The Virtual Heritage Network (VHN) and the International Symposium on Virtual Reality, Archaeology, and Cultural Heritage (VAST) have produced numerous publications that generally fall into the categories of short essay case studies or anthologies of their annual conference proceedings that focus on the techniques and experiences of individual virtual heritage projects. Despite this bounty of rich but complex literature for cultural resource managers, no helpful guide exists for gaining a broad-based perspective to the emerging field of virtual heritage.

13 Paul Carter, The road to Botany Bay (London: Faber & Faber, 1987), 1–3. Carter observed elsewhere that ‘in a culture of coincidence a local history is always the history of a possible place, one that can boast no name of its own, only a rising tower of voices obliquely mirrored in quiet water.’ ‘Culture of Coincidence: Notes on a Performance Piece called ‘Mirror States’, Continuum: the Australian journal of media & culture, 3 (1990), 126.

14 This method ‘deconstructs historically mapped space; releasing space from the bonds of colonial and historical discourses. It liberates these places by transforming them once again into space and making them available for (re)writing history.’ P. Roe, ‘Textual tourism: negotiating the spaces of reading,’ SPAN: journal of the South Pacific association for commonwealth literature and language studies, 33 (1992), 91.

15 A description of the West Virginia CA VE project can be found in ArcNews, 28:4 (Winter 2006/2007), 26–27.


17 The literature on memory is vast, but a handy introduction may be found in John Sutton, ‘Memory’, Stanford encyclopedia of philosophy, http://plato.stanford.edu/entries/memory/.


An attempt to create a ‘deep map’ is found in the Three Landscapes Project, a Stanford University collaboration involving an artist, a theologian, and an archaeologist. The result may be seen at http://metamedia.stanford.edu/~mshanks/threelandscapes/index.html.

Guy-Ernest Debord, a leader of the Situationalist International, described psychogeography as ‘the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals.’ ‘Introduction to a critique of urban geography’, Les Levres Nues, 6 (1955), as republished at http://library.nothingness.org/articles/SI/en/display/2.

Spirit of place refers to the unique, distinctive and cherished aspects of a place; often those celebrated by artists and writers, but also those cherished in folk tales, festivals and celebrations. It is thus as much in the invisible weave of culture (stories, art, memories, beliefs, histories, etc) as it is the tangible physical aspects of a place (monuments, boundaries, rivers, woods, architectural style, rural crafts styles, pathways, views, and so on) or its interpersonal aspects (the presence of relatives, friends and kindred spirits, and the like). Often the term is applied to a rural or a relatively unspoiled or regenerated place—whereas the very similar term sense of place would tend to be more domestic, urban, or suburban in tone. See, for example, S. Clifford and A. King, England in particular: a celebration of the commonplace, the local, the vernacular and the distinctive (London: Hodder & Stoughton Ltd., 2006).

Although the attack on objectivity is a centerpiece of postmodern criticism, historians have fought bitterly over this issue for decades, as Peter Novak discusses in his prize-winning monograph, That noble dream: the ‘objectivity’ question and the American historical profession (Cambridge, UK: Cambridge University Press, 1988).

In geography, much of the critical discourse on postmodernism and GIS occurs in the sub-field of Public Participation GIS, within what is known as the Social Critique of GIS. A useful perspective from feminist research is M. Kwan, ‘Feminist visualisation: re-envisioning GIS as a method in feminist geographic research’, Annals of the association of American geographers, 92 (2002), 645–661. This potential path for GIS parallels the proposed applications of virtual reality (VR) and its application to the humanities and social sciences. See, for instance, the Journal of the association for history and computing, 6 (2003), for several articles about the possibilities in history for VR and other immersive environments.