

Deb Verhoeven, Kate Bowles, Colin Arrowsmith

Mapping the Movies

Reflections on the Use of Geospatial Technologies for Historical Cinema Audience Research

If space is rather a simultaneity of stories-so-far, then places are collections of those stories, articulations within the wider power-geometries of space. Their character will be a product of these intersections within that wider setting, and of what is made of them. And, too, of the non-meetings-up, the disconnections and the relations not established, the exclusions. All this contributes to the specificity of place.

Doreen Massey, *For Space*

The Geographies of Cinema-going: Multiple Specificities of Place and Time

This chapter offers a reflection on the practical and conceptual opportunities that arise when scholars from different disciplines collaborate on the historical investigation of cinema-going as a cultural practice. Our experience involves direct collaboration in a pilot study of Greek cinema-going in Melbourne, which we describe here in detail, as well as various shared conversations across our separate projects. What interests us is not only the practical detail about how such interdisciplinary mapping projects might best be undertaken, but also the broader scholarly implications of the application of Geographic Information Systems (GIS) software to the representation of historical data relevant to film studies. How might ‘mapping the movies’ for example, help us grasp the multiple cultural intersections which constitute each cinema-going experience? How might geo-spatial maps facilitate our understanding of cinema experiences in terms of the local specificities of place and time, as well as the flow of national and transnational media circulation?

Our experience suggests that when film historians turn from the investigation of film content to evaluate the wider processes of cultural learning which take place in and around the particular venues where films are screened, two interrelated shifts occur. The first is that we start to collect different kinds of data, and as we do this, we begin to imagine new shapes to conventional “film

studies databases". For example, rather than pulling together all the available data on particular *films*, from their production to their plot highlights, the techno-stylistic hallmarks of their presentation, and the reviews and critical opinions occasioned by their release, we become interested in both social and physical data on the locations of *cinemas*, and in the analysis of their impact on local economies and communities. In addition, rather than assuming that each cinema reproduces similarly the general circumstances of film consumption, we now become interested in the differences between cinemas, and the connections that link them in terms of industrial patterns of distribution and exhibition. Cinema venues start to appear as key points in commercial networks, and, in a practical sense, as data fields in their own right, creating a new interrogation strategy for existing data sets which are ordinarily concerned with the properties of films and the companies which have produced them.

The second shift relates to the questions that this relatively new kind of evidence provokes: what extra-cinematic elements help us to understand why a particular movie plays to a packed house in one location and is withdrawn quickly from another? What are the cultural or economic features which differentiate one picture theatre from another situated nearby? What changes over time help us to understand why a neglected theatre can be successfully revived, or why a flourishing business can start to fail? These questions challenge the presumption that the distribution and exhibition industries are exclusively (or even primarily) engaged in selling films, and therefore that the apparent popularity or otherwise of the cinema-going occasion is driven by variations in the content of those films. Instead we can begin to imagine a more fundamental transformation of the films themselves as they move between venues, even if in a material sense we are tracking the same physical print, perhaps in slightly shabbier condition after its life on the road. Recognising the distinction between cinema venues helps us to understand that members of the audience in the packed house might experience the film quite differently than the smaller audience at another picture theatre, and it legitimates our interest in the surrounding elements that contribute to this transformation of a cultural event that has been assumed to be roughly the same wherever it occurs.

This approach enables us to think of movies not as immutable texts that construct the same fixed horizon of interpretative possibility wherever they go, but to imagine them instead as one element in a place-based cultural performance whose hallmark is not similarity, but specificity. For a cinema-goer to connect with the screening of a film print in a public venue, several specific journeys in both time and space have to be undertaken. In the first place, the venue has to exist, both physically and conceptually, as a place where films are screened, and this does not happen by chance. Whether a screening venue is a

picture palace or a local hall, whether it is a sustained or faltering commercial operation, a community-run initiative, or a one-off fundraiser, there has to have been some prior evaluation of the territorial shape and social nature of the local constituency upon which it can draw. Precisely because film screenings are not impromptu gatherings, except in very unusual circumstances, consideration must have been given to the practicalities of transport options to the destination, as well as the co-location of cinemas with supporting business and cultural infrastructure. Like all buildings, therefore, cinemas come inscribed with their own journeys through time: their histories of being planned, rethought, opened, closed, sold, redeveloped, and so on.

Having first been historically positioned, the cinema venue then commences its horizontal operations as a particular point within a network of distribution territories. Films are explicitly manufactured for repeat screening, for travel from one destination to another. While digital distribution adjusts this aspect, it remains the case that historically, the transport of film cans has been as critical to the screening event as the transport of the potential film consumer. Each screening venue is interconnected within a market economy, both by the physical transport routes along which the film cans travel, as well as by commercial linkages ranging from national theatre chains to local venue co-ownership. In this way, the study of something as prosaic as train timetables becomes significant in understanding how and why films appear at particular locations (see Thorne 2007). And while the market exerts an influence on cinema programming, this influence is not one that we can simply characterise as “movies on demand”. Rather, market responses at one location may influence hopeful programming choices at another. It is for this reason that the overall physical, discursive and commercial connectivity of the market is critical to understanding the context for elements which might be distinctive at one venue, or shared among localities with something in common – rural cinemas, for example.

Finally, because cinema attendance is also necessarily premeditated, we need to think carefully about the common image of the cinema audience as always already seated in the theatre, gazing up at the screen. How did they get there? How far did they travel? When and why did they decide to come, and where did they encounter the program details or advertising? How will they get home? For any audience to assemble, each individual submits to the logic of a cultural grid created out of all the pre-existing developments within an operational network of exhibition and distribution. They undertake a journey which begins with a prior decision made at another location: they travel the designated route at the preordained time; they show up at the screening at the beginning rather than the end; operate within the social conventions of the particular public assembled at the venue; and then commit a preset portion of

personal time to a shared social event whose success is conceived of as much in terms of public order as personal satisfaction. This prompts us to ask new questions: how has the technological improvement in transport infrastructure over time, effectively reduced the distance between a cinema and its audience, recalling Don Janelle's concept of space-time convergence (Janelle, 1968)? Can we see an audience being drawn from further and further away, as the road network or public transport improves?

None of this is controversial, nor are these characteristics peculiar to cinema. Nevertheless, they represent methodological challenges for cinema researchers, both in terms of how to collect and represent data, and in terms of the value of this kind of data to film studies' traditional project of generating large scale generalisations about the medium and its significance.

Mapping the Meaning of Cinema-going

To move from these entanglements of quantitative and qualitative historical data to the production of maps is a seemingly straightforward matter. In one sense, of course, such maps are simply different visualisations of data collections, and no more than the next logical step from the development of major databases. This is, however, a step away from our capacity to produce generalisations from the data. A map tips the representational balance towards the particular, and restrains the scalability of results. It is for example, difficult to argue for the typicality of a map, when its representational strength (which is not without limits) lies in its precise relation to one particular place. The map therefore invokes all of the research anxieties generated by the proliferation of microhistories: what can we transfer from one local case study to a larger framework?

To begin with a very straightforward example of the way in which spatial investigations can expand our understanding of cinema-going processes at particular locations, while at the same time possibly restricting their relevance to those locations, Kate Bowles has used topographic maps in combination with historic photographs to explore the journeys undertaken by families living on farms outside a very small rural Australian town on the far south coast of New South Wales. The purpose of this exercise in thinking about locality is to assess the impact of flooding and road development on the potential audience for a picture show operating in the local hall in the late 1920s. Using maps as research tools to explore the gradient of transport routes around the district, as well as to analyse the pattern of rivers and creeks, has exposed the significant disincentive of setting out from a particular farm by foot or by bicycle without benefit of street lighting, travelling on unsealed roads, to meet up with a film

arriving from a different direction, and an itinerant operator whose truck (and projection equipment) might be on the wrong side of a washed out bridge some miles away. In 1928, for example, when serious flooding occurred repeatedly throughout the district, and key bridges were not repaired for several months, the local cinema venue struggled to maintain a reliable weekly audience, and the community had to engage in a range of increasingly hectic fundraising activities to subsidise the operation of their failing picture show (Bowles, 2007). But while topography helps us to appreciate what the problem might have been – and that it might not have been primarily caused by the film programming at the venue – the opportunity to scale up and make generalisations from this case study is limited. In the same way that a map of one town cannot help you find the post office in another town, the particularity of research findings from one historical map of cinema-going practices can be difficult to transfer, and this does represent an immediate challenge to the validity and usefulness of the mapping project.

Or does it? Our argument is that in methodological terms, individual maps have the tendency to recommend questions rather than to exemplify their answers; it is the means by which a map reveals or proposes ideas in one location that can be transferred to another and which suggests the map's most significant value. This capacity for maps to recommend rather than simply exemplify is evident in Jeffrey Klenotic's detailed work on the arrival and closure of cinemas in Springfield, Massachusetts, in 1926 (see Klenotic 1998 and 2001). Klenotic has mapped the changing urban demography of individual Springfield neighbourhoods at a time when competing independents and theatre chains were seeking to establish optimum locations for new cinemas. Using GIS to house and represent residually available demographic data together with the street locations of particular cinemas, in a series of tiles that show how quickly the distribution of cinemas changed in a short timeframe, Klenotic's maps are also interpretive in the most straightforward sense, in that they are based on a survey of perceptions of Springfield neighbourhoods gathered in the early 1920s. Klenotic's specific findings therefore relate to the relationship between individual cinemas in Springfield and the neighbourhoods that surrounded them. His interest is in mapping the idiosyncracies of a discursively constituted engagement with local reputational geographies: good neighbourhoods, bad neighbourhoods, and ways of travelling through them. Whilst this is clearly of interest to other historians of Springfield, the findings themselves cannot be used to argue that this relationship between cinemas and communities was shaped exactly the same way in other American cities at that time. Rather, the usefulness of Klenotic's maps to other studies such as ours has been to model an approach to the analysis of proximal relationships, and to demonstrate the fruitful interrelation of social and spatial data with the kinds of data which cin-

ema historians are more used to collecting: what screened, and where, and when.

While Klenotic's analysis is of particular value to Springfield, his approach also has the potential to expand our knowledge of the historic presence of the cinema industry in a distant location such as Australia. By beginning the project of mapping the Australian distribution and exhibition landscape, including the screenings of specific film titles and the opening and closing of particular cinemas, we are seeking insights into the possible interrelationships between predominantly imported films, their Australian cinema audiences, and the specificities of place which shape and are shaped by those local communities. Historical cultural mapping in this context is a research strategy specifically designed to open up new questions regarding the evident Australian cultural capacity for localisation of foreign product, and to use distribution data (the opening and run zone clearance patterns for 'significant' movies) to analyse the perceived level of cultural importance of particular geographical locations within the Australian market.

The Practical Challenge of Mapping Cinema Geographies

The collaboration between cinema researchers and geospatial researchers in achieving some of these research objectives has the practical effect of doubling our capacity to approach the task, but it also multiplies the complications. We are now confronted by conceptual hesitations both from a historical perspective unused to taking geography into account, and from geo-spatial practices facing up to the representation of history. The practical challenges emerging from the exposure of cinema history to geospatial analysis prompt us towards new data standards, and require us to develop the capacity to work with different sets of professional sensitivities and definitions of rigour.

The primary challenge in the field relates to the availability of relevant data. Today, records of cinema audience attendance are computerised for the purpose of financial reporting; pre and post war attendances were hand written on locally maintained ledgers. Many of these ledgers and logbooks have since been lost or destroyed because of their perceived ephemerality. Similarly, census data in Australia is for the most part unavailable in a digital format.¹ Related to data availability is the problem of reliance both on large data sets and the need to keep up with geospatial research and development. Census data,

1 According to the Australian Bureau of Statistics, only census data collected since 1996 is available in digital format (Australian Bureau of Statistics, 2007b) and electronic records before this are difficult to obtain.

information on transportation routes, and background topographic information for Australia run into gigabytes of data – this makes mapping by manual methods virtually impossible. Advances in spatial technologies, including GIS, global positioning systems and remote sensing, make available a range of tools for automating the combining, mapping and analyses of large spatial data sets. But the potential to upgrade to the sophisticated use of these technologies is not necessarily a realistic professional expectation for the cinema historian, and relies on a long-term collaboration rather than merely opportunistic consultation with the geospatial researchers who are involved in the development of new spatial technologies to obtain meaningful results.

The combination of often patchy data from cinema records with voluminous data from other sources raises particular problems in terms of the combination of data sets. Base topographic data, for example, is sourced from relevant government databases including state and federal government mapping authorities. Data will have been originally digitised from hardcopy maps ranging in scales from 1:1,000,000 for nation-wide data up to scales exceeding 1:25,000 for state derived data in and around regional and urban centres. Census data is aggregated to statistical divisions down to collector districts and from 2006 onwards at the newly derived “mesh blocks” (Australian Bureau of Statistics 2007). State government infrastructure departments have derived transportation routes, and cinema locations can be geocoded via street address or through field derived GPS locations. This variety of sources of data, which may be held on differing geographic datums in a range of geographic projections and co-ordinate systems, presents a particular challenge to film historians and geographers who intend to unify this data to facilitate spatial analyses across geographical themes.

Furthermore, consideration must be given to the quality of the data, in terms of its content and spatial accuracy, if a single spatial database is to be successfully used as a mechanism for undertaking geographical analysis for cinema audience research. The Victorian Spatial Information Strategy 2004-2007 (Victorian Spatial Council 2006) identifies four components in the consideration of data quality: positional and attribute accuracy, logical consistency, completeness and lineage. Taken together, these are measures of “nearness to the truth”, the key indicators of exposure to the risk that the transfer of data either from positional readings, or from one mapping system to another (from paper-based parish maps, for example, into a digital format), may generate a complex set of spatial uncertainties which may transfer into the final analysis.

But perhaps the most interesting challenge, and the one which explicitly connects the concerns of spatial researchers to those of cultural historians, relates to the inherently static nature of spatial technologies. Whilst mapping social diversity has long been conducted by social geographers, mapping the

changes in spatial patterns for micro-historical studies presents the geographer/spatial analyst with a particular challenge. GIS are inherently static and enable spatial patterns to be described at a single point in time. Space and time however, are conceptually inseparable (Massey 2005). Recent attempts have been made to address management of space and time in GIS (for example Peuquet 1994; Egenhofer and Golledge 1998; Langran 1992; Huisman and Forer 1998). Mark et al (2001) have proposed a research project that focuses on the extraction of health related information using geospatial lifelines similar to those described by Hagerstrand (1970). McBride et al (2003) describe a number of models to manage space-time data including snap-shot and animation, and mobile object simulation models. If the mapping of cinema-going practices is to be a step forward for film studies, this inherent limitation in the representation of space as always frozen in time needs careful exploration.

A Case Study in Historical Mapping: The Greek Cinema Circuit in Melbourne

Between 1949 and the early 1980s a thriving cinema circuit made up of some 30 venues, operated to service a large Greek diasporic audience in metropolitan Melbourne. In the period following WWII, hundreds of thousands of Greeks had migrated to Australia. Between 1952, when a bilateral agreement on immigration between Australia and Greece was signed, and 1974, some 220,000 Greeks came to Australia. Melbourne remains the ethnolinguistic centre of Hellenism in Australia with a concentration of approximately 215,000 Greeks and Greek Cypriots compared to approximately 160,000 in New South Wales (Tamis 2005: 63).

Deb Verhoeven and Colin Arrowsmith have collaborated on a pilot study of the spatial relationship between these migrant audiences and the cinemas which were devoted to serving them. Our initial purpose in generating maps of the locations of these venues was to look for the proximity of cinemas to the demographic location of Greek migrants and to examine the audience's facility of access (either by walking or public transport). We were looking for key factors that contributed to the success of the Greek cinema circuits in Melbourne in a period otherwise noted for cinema closures (see Verhoeven 2007). For example, of the 124 cinemas operating in Melbourne's suburbs in 1956, almost fifty percent had closed by 1961 (Catrice 2005). Brett Stokes, a geospatial science researcher using data gathered by Michelle Mantsio, a cinema studies researcher, initially presented a series of graphic maps set in the years in which census data was available (1947, 1954, 1961, 1968, 1975, 1981). As we ex-

pected, these maps indicate that the venues corresponded quite closely to demographic concentrations.

However we had not anticipated what would be revealed when the available data was animated to encompass temporal change. What the animated version of the maps illustrates, and which is not clearly evident in the static maps, is a particular relationship between demographic change and the appearance or closure of cinemas. In this case study, Greek language cinemas tend to arrive *in advance* in areas where Greek migrant community concentration develops most intensity, and they tend to close *prior* to the dispersal of that same community. There is some room for ambiguity in this analysis due to the periodisation of census data. However the location of many of the cinemas does seem to pre-empt demographic change over two or three census surveys. This leads to several interesting considerations about the anticipatory role of cinemas in relation to community congregation, while substantiating (and complicating) the link between cinemas and community formation that has to date been largely taken for granted. What arises from the animated map is a series of new questions that we had not initially thought to ask. What role does the cinema provide for diasporic communities in constructing or relocating the 'local' within a global cultural ecumene? How might cinemas participate in processes of territorialisation and re-territorialisation; in the intensities of connectivity afforded when communities live in close proximity to other community members? Did these culture-specific cinemas have a pre-emptory role, as harbingers of cultural-demographic change in a given location? Did they have a specific temporal as well as a spatial relationship to demographic clusters? Is the establishment of other local businesses servicing the community directly related to the presence of the cinemas and the establishment of the community in a particular place – in other words, what comes first: the customer, the souvlakeria, the Church or the cinema?

These are not questions about horizontal integration (an economic factor we were already researching in relation to the diasporic Greek exhibitors and distributors) but questions about the combinatory influence of specific community infrastructure. The next stage of this process for us will be to investigate the historical development of commercial and recreational services in a sample location to determine where and when the cinema 'fits in'. This will complement and draw together our more detailed research into the film businesses themselves and the audiences (for whom attending the cinema was one activity amongst many).

On this last point then, we can also observe that maps might equally be about dis-locating as locating cinemas, and cinema studies, as a site of 'pure' analysis. Historical maps have the potential to demonstrate flows of historical and spatial change and stasis; but they also demonstrate to us the interconnect-

edness of events and places; provoke us to see ‘the cinema’ as a progression of located socio-spatial events that address rather than produce historical or spatial specificity, what Ryszard Kapuscinski calls ‘provincialism’. Kapuscinski cautions against provincialism as a form of both spatial and temporal solipsism:

We normally associate the concept of provincialism with geographic space. A provincial is one whose worldview is shaped by a certain marginal area to which he ascribes an undue importance, inaptly universalising the particular... [but] there are spatial and temporal provincials. Every globe, every map of the world, shows the former how lost and blind they are in their provincialism; similarly, every history ... demonstrates to the latter that the present existed always, that history is merely an uninterrupted progression of presents, that what for us are ancient events were for those who lived them immediate and present reality. (Kapuscinski 2007: 270-271)

The challenge for film studies is therefore quite significant: if, as we are suggesting, maps shift us from the vertical claims of exemplification to the horizontal reaches of interconnectedness, then they also impel us to decentre the cinema, revealing it as one place amidst other locations, one moment in the busy context of everyday life.

Some Conclusions: Working With(in) the Limits of Maps

Combining the academic skills of the geospatial scientist with that of the film scholar helps us rethink the ways in which we have interpreted film visitation patterns in the past, by widening our scope to consider the physical, commercial and social coordinates and contours of the everyday life surrounding the cinema venue. This connects our work to earlier historical social mapping – the work of social historian Henry L. Taylor (1984), for example, who used a number of maps in addition to other sources to analyse the black ghetto-formation process in Cincinnati during the nineteenth century. For Taylor, the primary benefit of the use of maps lay in the expansion of ways to visualise research findings: “The maps not only confirm and support the descriptive data in the various historical sources but also enrich the data by providing a concrete, visual perspective that reduces complex data to simpler, more easily understandable terms modelling various types of spatial relations in the urban environment” (45). To this we would add that maps are also in themselves tools for analysis and discovery. The use of maps changes how we conceptualise historical cultural research (we need to look more widely and differently at

what is before us), it challenges us to ask different questions, and it changes how we articulate our findings.

The utility of this research strategy is not only historical; at the same time as expanding our understanding of past cinema-going practices, it enables us to develop instruments to help the contemporary film production, distribution and exhibition industries analyse the decision-making behaviours of particular audiences in specific geographic locations. This connects us, however, to a conversation which has been occurring among cultural geographers for some time, about the limiting nature of the map as a means of representing the complexities of human cultural interaction. Doreen Massey's thoughtful remonstrations suggest that there is a degree of hubris in the mapping project, as conventionally conceived. In seeking to fix, pinpoint and position cultural events within a "slice through space" as she describes it, we are at risk of believing that the unmappable elements of space are those elements we can do without. One outcome of this foreclosure on surprise is the creation of maps which achieve representational fidelity in some ways, and forcefully misrepresent the nuanced, street-level and everyday nature of cultural experience in others. As Australian historian of the holocaust Inga Clendinnen (2006) writes:

I have seen a number of two-dimensional plans of Treblinka, and tried to absorb them; examining them soberly, carefully matching the number in this square to that descriptive tag. It was a laborious business, and at the end the plan on the paper was transferred into my head and that was all that has happened. All that peering and matching had worked like a sedative upon the imagination: the image lay flat and flaccid, obstinately abstract, obstinately dead. (165)

This bracing observation is one that we need to keep at the forefront of our planning as our ongoing cinema-going research develops. It reminds us that for mapping to be a productive development for film studies, it needs to work by engaging our imagination, and challenging our assumptions. Mapping is a legitimate means of visualising the research we have already undertaken, but it offers most when it raises new questions about spatial and temporal connectivity, rather than promising closure on the question of what was going on in the past. In foregrounding the inherently limited nature of mapping, conceptually as well as practically, we hope nonetheless to demonstrate that cinema studies has something important to learn from the techniques developed by geographers. We also hope to show that we have something to contribute to the discussion, from what our research has already taught us about the always incomplete and dislocated nature of our imaginative immersion in ephemeral social history.

Bibliography

- Australian Bureau of Statistics. "2006 Census: Mesh Blocks." www.abs.gov.au/websitedbs/D3310114.nsf/4a256353001af3ed4b2562bb00121564/66d7c6ca64345e1aca2572aa0080e199!OpenDocument (first published 27 March 2007a; accessed: 01/06/07).
- Australian Bureau of Statistics. Personal communication with ABS enquiry line 01/06/2007b.
- Catrice, D. "Cinemas." *The Encyclopedia of Melbourne*. Ed. A. Brown-May, S. Swain. Melbourne: Cambridge University Press, 2005: 135.
- Clendinnen, I. "Building Treblinka." *Agamemnon's Kiss*. Melbourne: Text Publishing, 2006.
- Egenhofer, M. and R. Golledge (eds.). *Spatial and Temporal Reasoning in Geographic Information Systems*. New York: Oxford University Press, 1998.
- Langran, G. *Time in Geographic Information Systems*. London: Taylor & Francis, 1992.
- Hägerstrand, T. "What about People in Regional Science?" *Papers of Regional Science Association* 24 (1970): 7-21.
- Huisman, O. and P. Forer. "Towards a Geometric Framework for Modelling Space-Time Opportunities and Interaction Potential." *Proceedings of International Geographical Union*, Lisbon, Portugal: 1998.
- Janelle, D. G. "Central Place Development in a Time-Space Framework." *The Professional Geographer* 20 (1968): 5-10.
- Kapuscinski, R. *Travels with Herodotus*. Trans. Klara Glowczewska. New York: A. A. Knopf, 2007.
- Klenotic, J. "Class Markers in the Mass Movie Audience: A Case Study in the Cultural Geography of Moviegoing." *The Communication Review*, 2.4 (1998): 461-495.
- Klenotic, J. "'Like Nickels in a Slot': Children of the American Working Classes at the Neighborhood Movie House." *The Velvet Light Trap* 48 (2001): 20-33.
- Massey, D. *For Space*. London: Sage, 2005: 130.
- Mark, D., M. Egenhofer, L. Bian and J. Rogerson. "Spatiotemporal GIS analysis for environmental health: solutions using geospatial lifelines." *Geography and Medicine*. Ed. Flahault et al. Paris: Elsevier, 2001: 65-80.

- McBride, S., C. Bellman and C. Arrowsmith. "Developing space-time models and representation for GIS." *Proceedings of the Spatial Sciences Coalition Conference*, Canberra, September 2003.
- Peuquet, D. "It's about time: A conceptual framework for the representation of temporal dynamics in geographic information systems." *Annals of the Association of America Geographers* 84 (1994): 441-461.
- Ritchie, J. *Report on Regional Cinema*. Glen Innes, *Arts North West*, 1996:8.
- Smith, B. "Bringing the Movies Back to the Country: Regional Cinema in New South Wales." *Metro*, 127-128 (2001): 50-52.
- Tamis, A. *The Greeks in Australia*. Melbourne: Cambridge University Press, 2005.
- Taylor H. "The Use of Maps in the Study of the Black Ghetto-Formation Process: Cincinnati, 1802– 1910." *Historical Methods* 17.2 (1984): 44–58.
- Thorne. "Rethinking Distribution: Developing the parameters for a micro-analysis of the movement of motion pictures." *Studies in Australasian Cinema* 1.3 (2007): 315-331.
- Verhoeven, D. "Twice Born – Dionysos Films and the establishment of an antipodean Greek film circuit." *Studies in Australasian Cinema*, 1.3 (2007): 275-298.
- Victorian Spatial Council. "Spatial Information Data Quality Guidelines for Victoria." Available online at [www.land.vic.gov.au/CA256F310024B628/0/F25DB401F08EC2F4CA25726000029E21/\\$File/VGIS+2004-2007+Data+Quality+Guidelines+December+2006.pdf](http://www.land.vic.gov.au/CA256F310024B628/0/F25DB401F08EC2F4CA25726000029E21/$File/VGIS+2004-2007+Data+Quality+Guidelines+December+2006.pdf) (2006; accessed 09/05/07).

