Editorial

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Abstract: This introductory paper for the Special Issue, Performance and the City, explores how pervasive digital infrastructure has linked information and communication technology (ICT) inextricably with modern urban planning. It suggests that live performance offers a microcosm in which to work out the intersection of these forces, intrinsically valuable to our capacity for asking questions and making meaning across the vastly different scales now connected. Work in several related fields, and at two University of California, Los Angeles centres, is discussed alongside introductions to the four other papers of the Special Issue. These papers' perspectives – on the city performed, the performer on the street, technology in performance and performance expressing a body's movement through the city – are used as a guide to considering this broad topic.

Keywords: new media; performance; infrastructure; technology; theatre; urbanism; urban planning.

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"Man is small. Therefore small is beautiful."

E.F. Schumacher, *Small is Beautiful: Economics as if People Mattered*, 1973

1 Introduction: performance and the city in the ICT age

To consider live performance is to consider an encounter between human beings. Even with great spectacle surrounding them, this is inescapable by definition. To consider cities is to face many scales of interaction and power. That power is mediated and meted out by technological means, and the interaction organised by urban infrastructures that

act as "shared visions of the possible and acceptable dreams of the innovative" (L.L. Bucciarelli in Star, 1999). This Special Issue examines structural and experiential links between the performance and the urban environment, as mediated by technology. As an ephemeral but powerful avenue for human dreams and visions, performance persists within our globalising world's ongoing reformulations of scale and value. It distils the mundane and the profound alike into something increasingly unusual: an inherently local, temporally unique and often historically based event, which might just as easily be off-the-grid as on it.[1] Such an event feels foreign to internet-fuelled sensibilities: One group of people makes something in real-time, in person, for another, with no artefact to be further distributed, posted to the web, tweeted/twittered or forwarded by e-mail. All that exists is the action itself.

Eugenio Barba (2002), theatre director and scholar, offered that civilisation's current primary objective is "to reach the greatest number of people in the shortest time and as economically as possible". To him, theatre's nature is quite the opposite of this particular preoccupation of progress: "[I]t involves vast expense, a waste of resources, both human and material, not to mention the time needed to prepare a performance that will only be seen by a limited number of spectators". Today, when we have ironically managed to cast 'sustainability' as a driver for growth, this would seem to be death. Yet, our concepts of quality of life still manage to invoke the presence of art created, most inefficiently, for and with others. Consider this description by Australian planner Leonie Sandercock:

> I dream of a city of bread and festivals, where those who don't have the bread aren't excluded from the carnival … I want a city where people can cartwheel across pedestrian crossings without being arrested for playfulness; where everyone can paint the sidewalks, and address passers-by without fear of being shot; where there are places of stimulus and places of meditation; where there is music in public squares, buskers (street entertainers) don't have to have a portfolio and a permit, and street vendors coexist with shopkeepers. (Sandercock, 2003)

Performance confounds the trajectory towards mass experience plus digital customisation, and coincides with new urbanism's slow rebound back towards place-making and emphasis on local culture. It coincides, even, with the open source community's emphasis on shared authorship and the repurposing of digital tools for local use.

Let us unearth and revive the value of the encounter at the root of the live arts. One need only to look Jane Jacobs, Ray Oldenburg or other modern planners to hear how such meetings, in another context, are part of the fabric of our cities. As the infrastructures of cities change and expand to include mobile and wire line networks, smart grids and the like, the connection between human communication and the city becomes more interwoven than ever. Those creating the technical substrate participate in city building, an ancient human activity that, like performance, predates the technologies and engineering processes of today. Like performances, cities are venues for the authentically human: the irrational, the emergent and the tragic, as much as the organised and elegant. As human endeavours, they have much in common. Perhaps there is more to learn from technology in the microcosm of the stage or street corner than simply modes of new spectacle.

The impetus for this issue arose from time spent at the intersection of three different research areas – *performance-and-technology*, *cultural civic computing* and *urban sensing* – and the desire to bring them closer together. The papers, by four theorist-

practitioners – Sergio Costola, Brian Granger, Marianne Weems (interviewed by Bonnie Marranca) and Sara Wookey – tackle tripartite relationships among performance, technology and the city. They take specific and mostly personal perspectives on the city performed, the performer on the street, technology in performance and performance expressing a body's movement through the city.

Given the technology-focused nature of my own research, introduced in more detail below, the allusions to Jerzy Grotowski (1968) thus made far may seem ironic. After all, he eliminated scenography and other technology from his theatre to focus on the performer–spectator relationship. In fact, it is the attention, value and demands placed on both the actor and the audience in Grotowski's theatre that emphasises a necessary confrontation between what performance uniquely is and the use of technology within it. In *Towards a Poor Theatre*, he wrote:

> "The core of the theatre is an encounter. The man who makes an act of self-revelation is, so to speak, one who establishes contact with himself. That is to say, an extreme confrontation, sincere, disciplined, precise and total – not merely a confrontation with his thoughts, but involving his whole being from his instincts and his unconscious right up to his most lucid state."

2   Arrival

For the last eight years, I have pursued the application of 'emerging technologies' to theatre through collaborative productions and workshops, as a designer and technologist. The technologies themselves have spanned from sensing of performer movement and action for the dynamic control of design elements (Burke, 2002), to the automatic incorporation of audience demographics in a dramatic text (Burke and Stein, 2004) and to more recent experiments with game technologies for visual design (Burke, 2008). This work is motivated in equal parts by the new possibilities these technologies offer to the designer, director and performer; the ability of art to unearth and question our assumptions about technology; and the lingering uniqueness of performance as a human encounter in a mediatised world.

Over the same period, I have collaborated regularly with media artist and theorist Fabian Wagmister on media-rich installations that employ similar technologies to create dynamic and participatory experiences with active participants rather than spectators (Wagmister and Burke, 2002). This work has investigated alternatives to the fixed screens of cinema and new media, and considered site-specific uses of information and communications technologies (ICTs), which are often thought of as universally applicable and globally relevant. Much of my perspective on collaboration between the arts and engineering has emerged from this partnership. In 2005, Wagmister shifted his focus to collaborative creation by geographically linked communities, de-emphasising the primacy of the artist and artwork and bringing to the foreground the role that media system can play in civic engagement and urban participation. At the same time, I had started to consult on the construction of performance spaces, so deeper consideration of the social context and built environment was welcome. Wagmister termed the research *cultural civic computing* and since we have collaborated on several projects that I will mention in this paper because of their bridging of media, ICT and the city. These research areas are significant parts of our work at the Center for Research in Engineering, Media and Performance (REMAP) at the University of California, Los Angeles.

In 2006, I began collaborating with another, larger research unit headquartered at UCLA, the National Science Foundation Center for Embedded Networked Sensing (CENS). One of the nation's Science and Technology Centers, each funded by NSF for ten years, CENS researches how wireless sensing systems can transform science in the fields of terrestrial ecology, seismology, contaminant transport observation and management and the study of aquatic microbes (CENS, 2009). CENS created the *Urban Sensing* area in 2006, prompted by the potential of mobile phones to act as widespread, reliable sensors and a need for better resource management, public health and civic engagement tools. The area, led collaboratively by Deborah Estrin, Mark Hansen, Mani Srivastava and myself, is also known as *Participatory Sensing*, because the group has emphasised involving mobile phone owners in the process of what, where and when to sense with their devices (Burke et al., 2006). This work, along with other formative research at MIT, U.C. Berkeley, Dartmouth, Intel and Nokia, has helped to create a new area of technological inquiry.[2]

These research approaches tend to emphasise scale: today, working with the internet and mobile communications, if we cannot someday impact ten thousand or a million users or more, we are concerned that there will be insufficient relevance. Of course, the same technologies can also provide for customisation and personalised use. So we are in a juggling act of priorities, wanting to provide value to individuals by enabling them to arrange and configure their own technologies and at the same time wanting those technologies to be broadly applicable. To strike a balance, Estrin has emphasised research on technologies that also *scale down* and provide value even if only a few people use them at first. At REMAP, Wagmister has pointed out a more general lack of models for group and community computing, and sought to provide alternative models.

Dependent on the human encounter, performance does not scale up in the internet sense because people do not scale up.[3] This poses challenges just not to performance, but for the role of technology in human life. Over 25 years ago, Schumacher, the controversial economist quoted earlier, wrote in his essay 'A Question of Size':

> "While many theoreticians – who may not be too closely in touch with real life – are still engaging in the idolatry of large size, with practical people in the actual world there is a tremendous longing and striving to profit, if at all possible, from the convenience, humanity, and manageability of smallness." (Schumacher, 1973)

Mass customisation, behavioural targeting and self-publishing on the internet could be easily conflated with this notion of 'small', but more strongly connected to it is the increasing credence paid to the 'local' in social, political and economic discussions of today.

3   Performance as laboratory

For Barba, performance is a form of being and reacting. It is about social relationships at an approachable scale, a "chance to meet men and women who do not feel at ease in their condition, and who keep standing on tiptoes as though, one day, they were going to fly" (p.22).

With this same combination of unease and hope, performance makers have also incorporated the technologies of their times as instruments of spectacle and artistry, to

express the contemporary and engage their audiences. Interviewed by Bonnie Marranca in this issue, Marianne Weems of the 'cross-media performance company', Builders Association, calls their use of technology to create the stage picture unavoidable. She explains the origins of the Builders Association's work through an arc of modern US theatre history from The Performance Group and The Living Theatre, often ideologically opposed to the use of media, to The Wooster Group and Mabou Mines, who employ media but still privilege the live actor, to their own.[4] She calls Builders' work itself both a celebration and critique of technology, a 'critical commentary' embedded in 'very high-end delivery'. Their projects, like those by REMAP and other contemporary artists and researchers, repurpose today's tools to serve artistic exploration of the technologies' relationships to the society and to the individual. The creators with the means to do so enjoy their own special privilege: to manipulate and interconnect these technologies in the new ways demanded by an artistic work requires skills and equipment that are expensive commodities, often exceeding what is needed to apply them to their typical context. Even for those who can afford to incorporate them, it is a struggle: for all the perceived 'slickness' of the Builders Association's work, Weems says that audiences do not see the company's "trial and error, the sweat of … heroic collaborators, and absolute jerry-rigging and duct tape…". She suggests that "everyone can relate to this frictive relationship to technology – we struggle with it and depend on it daily".

Much of REMAP's research has sought to lessen the frictions among emerging technology's affordances and the relational and improvisational needs of performance, especially in rehearsal. In order to retain the expressive power of these technologies and fulfil our desire to experiment with them, this is done by trying to use the flexibility of digital technologies themselves. For example, starting with our production of Ionesco's *Macbett*, we have applied the sensing of performer position and movement dynamics to influence design elements (Burke, 2002). As in other experiments with the use of sensors in theatre and dance, we envisioned an increase in control of the performer over the stage environment, echoing the change in relations often imagined for people at large through digital technology. Typically, a performer's action generates impact on stage design only after being observed by an operator, translated to their hands' movement on the physical controls of, for example, a lighting or sound console, which then finally starts a pre-timed effect. New sensing and control technologies can make the stage an instrument played by performers and designer-operators alike, or even an environment with some autonomic perception and response of its own. Reminiscent of Piscator's call for making the stage a play-machine, for Weems, "in [Builders'] performances, sometimes the media becomes the protagonist, and the stage becomes a laboratory for the interactions between human presence and electronic presence".

3.1 *The envisioned and the everyday*

In his paper, Sergio Costola reaches back to the pre-digital, pre-industrial courts of the Italian Renaissance to discuss how, he believes, art in the West was forced for the first time to address a 'power which became technological power'. Referencing Ziarek's *The Force of Art* and Heidegger, Costola begins with the notion that *modern power is always already technological*, and embarks on examining European performance's relationship to the early emergence of this power. Stating more directly what Weems alludes to, Costola draws from Ziarek to argue "that art's importance today cannot be explained simply in aesthetic or cultural terms but has to take into consideration how artworks

question the technological character of modern power". The live event, in particular, has the capacity to place both performer and audience in the midst of that expression of power.

Costola refers not only to theatre as "a dramatic performance that will eventually take place" but also "to all those places that can potentially contain forms of spectacle and modes of social relationship". He articulates a transition from the *city and its citizens in performance*, typical of the medieval time, to a *performance of the city* – or, more specifically, *of a particular idea of the city*, typical of the early modern period. Central to his paper is the presentation of Ludivico Ariosto's play *I suppositi*, staged during the Italian city of Ferrara's carnival celebrations in 1509, on the grounds of the Ducal Palace within a theatre built specifically for it. Ariosto's piece employed the relatively new technology of perspectival painting to represent Ferrara. Perspective had been used, Costola indicates, "since the beginning of the fifteenth century, to promote the primacy of the gaze". He quotes Henri Lefebvre to link perspective to urban form, explaining how its representation

> "became enshrined in architectural and urbanistic practice … Façades were harmonized to create perspectives; entrances and exits, doors and windows, were subordinated to façades – and hence also to perspectives; streets and squares were arranged in accord to the public buildings and palaces of political leaders and institutions (with municipal authority still predominating)."

Perspectival painting is used by Ariosto in what Costola argues is part of a surprisingly radical approach, perhaps as relevant at the time as the Builders Association's repurposing of media technologies is today. Rather than reproducing an idealised version of the city, as would have been expected, the scenic painting depicted a realistic image of the city of Ferrara. Costola describes how, through this and other techniques in the piece, the audience was invited to consider both *the theatrical and real Ferrara simultaneously*, and the play's depiction of 'wholeness, completeness and integrity' of the courtly scene as but one view of the city among many. He deployed the new technology of perspective in a way that both reinforced and challenged the underlying normative assumption of the Duke's power over the city of Ferrara.

Like Ariosto's piece, choreographer and performer Sara Wookey's work *Walking LA* invited its audience to consider a represented city – Los Angeles – juxtaposed with the actual city immediately outside of the performance space. Written about by Wookey for this issue, the project emerged from the photography, journal entries and experiences of urban space from Wookey's walks through L.A. From those walks, she sought a body-based encounter with the city in lieu of the more common perspective from a personal automobile. Her process, of traversing and documenting, incorporated the representational technologies of photography and writing, and the experiential 'technology' of the body, its memory and senses, which we will discuss in the next section. The performance itself employed the body-as-instrument, writing-as-action and both sound and projected image as environment.

In an echo of *I suppositi*'s many Ferraras, Wookey talks about how *Walking LA*'s composer, Michael Deragon, incorporated, rather than fights with the sounds of the city itself, which came in through venue doors and windows during the performance, referencing 'the tension between the imagined city and the actual space of the city'. She links her own experience of the actual city to the creative acts generating the piece: "Walking in and looking at Los Angeles is also to choreograph, to organize, to write, an

experience…", as does Deragon: "For me, the sound of the city becomes the music or the medium from which I draw ideas, arrangements, poetic listening. Listening to Los Angeles is to compose". The actions that Wookey and Deragon describe are part of their creative process, but apply outside of performance as well. As Wagmister has emphasised in REMAP's work, the act of authorship by individuals and groups about their own situations, is at the heart of civic engagement. Acts of appropriation – through annotation, documentation, re-presentation and simply presence – are part of what transforms a swath of urban space to a place that is graspable and collectively owned, one that has human scale (cf. Oldenburg, 1999).

4   View from above

To organise experience in the city is also, often, to work at an altogether different scale – that of cartography. Wookey's paper incorporates digital illustrations by architect Kaitlin Drisko that situate the photographic and journal artefacts of *Walking LA* on hand-drawn maps of the city. On one hand, cartography lifts us to the scale view of planners and monarchs, where many can view but few can impact what they see; on the other hand, neocartography (or neogeography) now promotes the digitally enabled intersection of local knowledge with map-based views, delivered over the internet (Turner, 2006).

Like perspective, modern cartography and digital photography are technologies that, as they have contributed to our capacity to represent the city, also normalise its representations through their particular material nature, underlying assumptions and dominant modes of use. In the same way, perspective had become a default mode of representation by the time Ariosto was working in Ferrara, digital mapping has already had immense impact on how we see the modern city.[5]

At both CENS and REMAP, digital maps by Google, Microsoft and Yahoo have become default tools for spatialised display and organisation of media about the city. In both engineering research and creative expression, we struggle with the limitations and assumptions of their representations, while being excited by how easy they are to create. CENS's new *OurPixel* research project seeks to mix on-the-ground experience, such as that captured in photography and text, from-the-sky views of satellite imaging and digital mapping. It seeks to supplement remote sensing's necessary quantisation of space with reports of the lived experience in each pixel of the satellite image.

REMAP's interactive installation work *Imageability* (Wagmister, 2006) was inspired by planner Kevin Lynch's use of cognitive maps (Lynch, 1960), or drawn from memory of the city by its occupants, to create a tool for querying an 'interpretive database' of media about the city by drawing. Visitors were invited to draw their own paths, areas and points over a more familiar map of the city using a digital tablet display. These sketches were transformed into spatial queries of a historical media database (i.e. what was 'along', 'within' or 'near' those paths, areas and points). The queries returned images that could be arranged in collage on the modified map by the users. Later projects as part of our *Remapping LA* initiative have incorporated community-drawn base maps into digital tours of the city and Situationist-inspired rearrangements of the maps themselves.[6]

5   The body below

London-based artists Blast Theory have created performances that make more direct connections between the body and the digital cartography through the use of global positioning system (GPS) devices. Their piece, *Can You See Me Now?* uses performers as GPS-tracked runners moving through the city in competition with avatars controlled by small audiences. The audience is 'above', viewing a map with the position of the performers and piloting a tireless virtual character after them. The live performer is below, in the words of Blast Theory's website, "getting lost, cold and out of breath on the streets of the city" (Blast Theory, 2009). The project continues the historical role of performers as those who transform or challenge their own bodies on behalf of their spectators. Its combination of human performers, active spectators and digital technology to foreground the distance created between individuals by technology. The structure of the work uses bodies in action as performance uniquely can.

Wookey, as a performer and choreographer, expresses fear at losing the senses of the body.

> "What I learned most from the walking and documenting through photography and writing is, through those technological devices, the presence of the body diminishes… [T]he potential of reclaiming a more body-based experience in the city may not reveal itself through external technologies."

She recalls geographer and social scientist Nigel Thrift's fascination with performance. Thrift revels in how performance can at one time tackle the scale of the 'grand and epic' and yet make the smallest action matter: 'the flicker of an eyebrow to the positioning of a chair' or the 'staging of an entrance'. He refers to this as performance's use of the technologies of 'carnality, space and time'. (Thrift, 2004) Perhaps, here is another possible contribution: In *Epidemiology and Culture*, James Trostle writes, "Understanding how human bodies react to the presence, status, and power of others is another theme receiving integrated attention" in epidemiology (Trostle, 2005). If maps offer the crystallisation of perspective from above, performance distills perspectives on the ground. As an art, it offers everything from the preceding examples to the more experimental and radical action of performance artists, who Dixon (2007) describes as explicitly exploring and enacting "their holistic autonomies and interiorities (gendered, spiritual, emotional, and political), not simply their bodily corporeality". As Weems says, "We have the live bodies, and we can create the mediatised world around them – how do they bleed into each other?"

6   Intertwining infrastructure

For the street performer, there is no distinction between the city and the stage. Brian Granger's paper in this issue derives from his experience as a street performer and considers the relationship of performers to the infrastructure and organisation of the city (the paper's focus is less on the emancipatory potential of street performance of concern to Soyinka and others, than with the everyday confrontation between a single performer and a powerful retail environment). The technologies that he engages with are more elemental than ICT: the role of electrical infrastructure, amplified sound and the (quite analogue) process of permitting. Granger's paper focuses on Santa Monica, California's

Third Street Promenade. Media-saturated and retail-focused, the Promenade offers buskers an organised procession of affluence to tap for spare change – that is, if the performers are willing to compete, in a city-sanctioned manner, with the retail spectacle around them. Granger writes, "If the imagery and messages of the Promenade visitors are to be believed, then [moving forward culturally] means participating in the ongoing performance and consumption of the new along the Promenade". The performers, of course, make a choice to operate at some liminal boundary of this spectacle.

Interestingly, Granger casts the permitting of performers as a technology; it is one of the tools by which control is exercised over the public thoroughfare of the Promenade. He points out the limitations and protections afforded to the performer by the permit, and outlines the bureaucratic and democratic functions it serves. One of many urban processes, permitting selects and sanctions *who* can perform, *where* and *for how long*, for performers on Third Street must move every two hours.

Such institutional processes are becoming inextricably linked to ICT, which is not only a static infrastructure analogous to a roadway, but also a *policy automation engine*. It executes decision-making algorithms that actively implement policy: at the explicit level of laws and ordinances – what systems engineers would term the application level – and, implicitly, at the level of its underlying technologies and protocols. Writing about computer code as infrastructure, Susan Leigh Star suggests that this lower level is important and under-examined: "Perhaps most important of all, what values and ethical principles do we inscribe to the inner depths of the information environment?"

These underlying principles matter. The new infrastructures formed by the internet, wireless communications and digital media are increasingly intertwined with the physical in everything from smart energy grids and traffic control systems to digital billboards, urban surveillance, and, yes – permitting. William Mitchell of MIT starts his book *City of Bits: Space, Place and the Infobahn* with the claim that the most crucial task before us is "imagining and creating digitally mediated environments for the kinds of lives that we will want to lead and the sorts of communities that we will want to have" (1996). The instruction is a significant one. The new infrastructures, like those before them, implement the conventional wisdom and perspective of their time – Bucciarelli's 'acceptable visions of the innovative'. Like never before, they pervade life at all scales. The digital interconnections overlaying our cities share the same core abstractions and actually link the elements of performance, consumer entertainment experience and government.

REMAP delves into this commonality to directly prototype new urban infrastructures for cultural civic computing. In some cases, we have leveraged our institutional position to deploy our own infrastructure, (Samanta, 2008) but much of the work sits atop existing networks to suggest more broadly accessible possibilities. For example, several recent works, including *Imageability*, explore concepts of *collective memory*, in which the public interacts with, contributes to, and curates site-specific historic and cultural media. In the experimental media installation Junction/Juncture, we used dynamic information from major Los Angeles infrastructure (trains, traffic and water flow) in combination with visitor interaction through text messages to influence a dynamically assembled media timeline of local history, which was projected at a large scale in the Los Angeles State Historic Park (REMAP, 2007). The work, a collaboration with the California Department of Parks and Recreation and Walt Disney Imagineering Research and Development, used an SMS interface to receive text messages on a Linux server; game technology to render its collage of images, video and text on-the-fly; computer vision,

which uses cameras as sensors, to sense passenger train and traffic movement adjacent to the park; and accessed US Geological Survey data for water height and flow information from the Los Angeles River.

In listing new technologies for the street performer in public space, Granger mentions publically controllable displays, the visual equivalent of sound amplifiers, for the Promenade's performers, who must compete with everything modern retail storefronts can deploy. Consider a future in which visual, computational and network infrastructure such as that used in Junction/Juncture could be made available for broader cultural use, perhaps through a model akin to public broadcasting. What new digitally connected and inherently local urban performances might this spark?

7   Conclusion

The sharing of time and place around an offering of temporary transformation by one group or another; the repositioning of technology within an intimate human encounter; the use of bodily presence to link the envisioned, the invisible and the everyday – these are anachronisms of performance, high in subjective meaning and low in utilitarian purpose. The papers here are only one foray into their connections to today's urban environments.

Mitchell and Star both implore that we examine the implicit assumptions embedded in our infrastructures – of the lives that we want to lead and the communities that we want to have. In the influential book *Complexity and Contradiction in Architecture* (Venturi, 1977), Pritzker Prize-winning architect Robert Venturi argued that modern regional planning and large architectural projects pose greater challenges than sending a human to the moon and the other ambitious science and engineering projects of our time. Major planning and architectural projects lack the latter's advantage of a concrete, singular goal and must instead navigate a complex mixture of purposes and histories. In creating today's digital infrastructures, we should be mindful that they operate within a realm of such richly diverse and contradictory challenges because of their intersection with the built and cultural environments.

The live arts are part of human capacity to deal with such challenges concretely and imaginatively. The intersection of our digital infrastructure with performance's concentrated action at a human scale is an encounter among forces that was impossible even in the industrial age. Digitally connected to the world at large, and shaped as they are by evolving technical and social structures, our lives within cities remain a series of human encounters. Planner Leonie Sandercock asked for her profession to "plan by negotiating desires and fears, mediating memories and hopes, facilitating change and transformation" (2003). This call resonates with the actions and capacities of live performance.

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Notes

[1] For brevity and clarity, this paper considers only performance with a physical component, not performative expression online.

[2] See, for example, Eagle and Pentland (2006), Eisenman et al. (2006) and Paulos and Jenkins (2005).

[3] Consider, for example, work by Dunbar and others on biologically predicted and empirically supported limits to human social network size, thought to be on the order of a few hundred (e.g. Hill and Dunbar, 2003).

[4] An excellent reference on the use of technology in performance, including work by the Builders Association, is *Digital Performance: A History of New Media in Theatre, Dance, Performance Art and Installation* by Steve Dixon (2007).

[5] So much so, one might pine for neocartographic Cubists to arrive soon.

[6] Alison Sant's 'Redefining the base map' is an interesting starting point on alternative digital mapping (Sant, 2006).