Meaning and Practice in Encounters with Urban Space:
Notes for presentation at the Urban Talk workshop, Intel Research, Berkeley, July 2004.
Paul Dourish

Geof Bowker published a fascinating article entitled "Biodiversity Datadiversity," on the informational aspects of the biodiversity movement, in which he notes a fundamental iniquity in biodiversity spending. There are tens of thousands of species of beetle, but it's hard to get funds to preserve their diversity ("Save the beetle!") while it's easy to generate support for protecting species like elk, moose, or bison. These are what are known in biodiversity circles as the "charismatic megafauna," a wonderful phrase. I was reminded of this by the sequence of urban images going by today – it seems that San Francisco and New York are the charismatic megafauna of urban computing (charismatic mega-urbs?)

Much of the classical imagery of the urban is stuff like this [images of NY and SF] – a celebration of architecture and urban forms. I think what is more of interest to us today, though, and certainly what will be more of interest to me for the next ten minutes, is a view from ground level, and an exploration of the human encounter with the urban environment. I am concerned with people's experience of urban and other landscapes; not least because it is this experience that is disrupted and transformed when we layer new technological opportunities onto those spaces.

This issue of layering is a key one which I'll come back to. In this [Edinburgh] image, for example, we can see many forms of layering. First, a physical layering; most European cities operate on more than simply three dimensions. Second, a complex layering of history; there are elements of many hundreds of years of history in this image. And third, a layering of forms of experience – religious, secular, commercial, civic, personal, and more.

Kevin Lynch has perhaps most famously explored this question of the urban environment as encountered by the people who occupy it. This [region sketch] is one of the images from his study in Boston – not a study of Boston itself, but a study of people's mental maps of Boston, Boston as they encounter it. Their Boston is one of loosely-defined regions, paths, landmarks, and networks.

This is, I think, an interesting perspective – the form of the city as a consequence of one's actions there. The ways in which people encounter a space, and find it structured for them in terms of their opportunities to act, can yield many different ways to see it and experience it.

This [Marseille] is a map of fifteenth century Marseille that I took from Daniel Smail's book, "Imaginary Cartographies." Smail explores the emergence of a primary aspect of our experience of urban settings – street addressing. In the 1400's, street addressing as a form of reference had yet to emerge. In the records that Smail explores, there are three competing forms of location identification. The first is a form of navigation by regions and neighbourhoods; informal understandings of the city in terms of the people who live there, the work that they do, the churches that they attend, and so forth. The second is a form of navigation by landmarks; squares, statues, churches, civil buildings, and so forth. The third is based not on streets but on "islands," what we would call city blocks. Interestingly, this view of islands seems to color the entire experience of the city; businesses cluster not on streets, but on islands, so that one has the Island of the Shoemakers, or fish merchants, and so on. Lynch talks of the ways in which people imagine cities, but these imaginary cartographies are much more radically different from our own, and really condition our experience of the city.

In Smail's Marseille, the idea of streets as the primary way in which location should be described emerges only slowly, and its appearance seems to be conditioned by a couple of factors. One is that there is little need for most people to be able to refer to location anyway, because they simply don't exhibit the kinds of mobility that we associate with cities. That is not their experience of the

city; they don't roam around it. The first people who need to be able to identify locations are those who own the buildings; but they tend to own islands, so that's just fine. Streets start to become more relevant to the notaries who draw up contracts for a wide range of interactions and exchanges (far more than we would, today, appeal to a lawyer for.) They need to be able to identify people by their residences. But – and this is the key part – the notaries do move around the city. They are the first people who, on a consistent basis, start to think about the city in terms of navigation, and for whom the streets become figure rather than ground.

Any of you who have ever tried to find your way around Tokyo – a large urban area largely without street names – should have some familiarity with this idea of quite different experiences of the form and structure of a city. One encounters it as a different set of structures and opportunities for action.

Cities, essentially, are layerings of infrastructures [street signage]. I read infrastructure broadly here; not just power, water, and sewage, but other infrastructures that define elements of the city. The naming of streets is an infrastructure for encountering and experiencing the city – street naming defines patterns of sameness and difference that critically define what you see when you look around you. At the same time, we have many different infrastructures that define one's experience. Transportation systems are an obvious example. For example, when I first started visiting London, my experience of the city was of a series of islands connected by Tube stops – until one day I walked down the street and realized that some of those stops were only a couple of blocks apart, and suddenly I could experience the city as a continuous phenomenon. Traffic flows, parking patterns, regions and neighbourhoods, these are all things that I want to think of here as infrastructures that shape one's experience.

The technologies we are exploring add new infrastructural layers [UCI wireless map]. Ever had to wander around an unfamiliar city trying to guess where there might be an Internet café? Or how about having to step around the corner to get a better cell phone signal? Choosing a hotel on the basis of 802.11b or GPRS coverage? Wireless technologies impose new physical infrastructures that are invisibly layered on the existing visible physical world. Here's a thought experiment. There are probably 50 Bluetooth devices here, most of which are beaconing. How could I walk from this spot to the other side of the room without ever letting the cell phone in my pocket come within range of another Bluetooth device?

The central argument here is that spaces have structure and meaning for us in terms of our relationship to a variety of infrastructures of action and interpretation. Critically, this is not simply a feature of urban living; it applies too in thoroughly non-urban settings [Bornholm]. These are not experiences unique to cities. Australian aboriginal peoples, for example, experience the land in terms of the way that their lineage lines confer a ritual responsibility for the land; not just for protecting it, but for dreaming it into existence. On a more local level, they also experience it in terms of the intersection of patterns of habitation and kinship structures; places where I might encounter my second cousins, etc. This structuring of space is every bit as meaningful and present as my experience of cities as the set of places I can reach via the J Line, or those areas where I might expect to find a good martini.

So what? Well, I want to end with three consequences for how we think about technologies and urban environments.

The first is that architecture is all about boundaries and transitions and their intersection with human and social practice. That's really what we're talking about when we talk about mobile computing and networking in urban settings. We need to think architecturally about the technologies that we develop and deploy, the human side of infrastructures.

The second is that new technologies inherently cause people to re-encounter spaces. This isn't a question of mediation, but rather one of simultaneous layering. The fascinating thing about the move from the systems we built on the wired internet to those that we experience through wireless and mobile networks is that we are creating not a virtual but a thoroughly physical infrastructure, and we need to think about it as one that is interwoven with the existing physical structure of space.

Third, there is already a complex interaction between space, infrastructure, and experience. The spaces into which new technologies are deployed are not stable, not uniform, and not given. Technology can destabilize and transform these interactions, but will only ever be one part of the mix.