SPONTANEOUS ACCESS: REFLEXIONS ON DESIGNING CITIES AND TRANSPORT
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Preface

I grew up in Columbia, Maryland, a highly planned new city from the 1960s. As I was constantly reminded in the promotional literature, it was a better place to live with fewer problems than unplanned sprawling suburbs or the decaying inner city.¹

Living in the Next America sparked an interest in city planning, and after some diversions into electrical engineering, including a stint as a co-op student-worker at Hayes Microcomputer Products (the modem company), I returned to planning by way of civil engineering. I did a year of grad school in city planning at Georgia Tech and took a summer job in Silver Spring, Maryland at the Maryland-National Capital Park and Planning Commission – Montgomery County Planning Department (MNCPPC-MCPD – they didn’t hire you unless you could say that abbreviation five times fast). They hired me full-time as a planner to work on the transportation model, so I dropped out of planning school.

Columbia, like most suburbs, was sterile – nothing was out-of-place. It differed from suburbs in scale, some 14,178 acres (57.38 km²), and in orderliness.

Not just the housing, but the schools, retail, and offices and industry were all where they belonged, i.e. where the planners put them. Like most suburbs (and frankly most cities), everything closed on time (9 pm) aside from a few pubs (very explicitly no bars, and not until Columbia had come of age (well, turned 10) were pubs allowed), night clubs, and movie theaters.

Was there a way to gain the benefits of Columbia without its costs? Can we build a better city with appropriate, but not stifling planning regulation? Can this be decentralized, or more precisely, what is the most appropriate mix of centralized and decentralized decision-making?

Spontaneous Access, while it can be read in isolation, is one volume of a set of books on transport. The theme echoes that of a 2007 book I wrote with Kevin Krizek: Planning for Place and Plexus: Metropolitan Land Use and Transport.

Much of Spontaneous Access is drawn from my blog The Transportist, http://transportist.org/, or streets.mn, http://streets.mn/, although it has been significantly edited and reorganized from posts that may have appeared there. The http://transportist.org blog was previously known as the http://transportationist.org.

¹ (Levinson, 2003)
The title is apt as we are dealing with networks that operate over physical space and time, where spatial and temporal relationships between network elements shape their use and form. The location of activities also gives obvious shape to the network, and the configuration of the network dictates what activities will be located at what places. The schedule of activities dictates the use of the network, and thus the capacity that is required to achieve a particular quality of use.

*Planning for Place and Plexus* views the world focusing on the idea of agency, and the relationships between agents, who may be travelers, firms, or governments. It thus aims for developing a positive understanding of cities and their networks do work. *Spontaneous Access* considers in more depth the physical network underpinnings that shape, and are shaped by, the relationships between agents. It talks to the perspective of the central planner/engineer/architect who is designing systems to serve users, by examining the world from the perspective of an informed user. It provides a worldview which complements that described in other books, but also goes more in-depth into normative design principles.

*The Transportation Experience: Policy, Planning, and Deployment* with Bill Garrison guides the reader to how transport systems came to be, but can really be thought about as macro-transport. That work sets the stage for *Spontaneous Access* which is far more micro in its approach.

It differs from two earlier works. The first, *Financing Transportation Networks*, based on my dissertation *On Whom the Toll Falls*, examined issues about how to pay for roads, and considered the tradeoff between taxes and tolls. It described that choice as endogenous to the question of jurisdiction size and the amount of inter-jurisdictional travel. Resources are a critical factor in this book. Understanding money flows is not independent of the design decisions we make.

The second, *Evolving Transportation Networks*, with my brilliant student Feng Xie, examined how networks grow and co-evolve with cities. Networks and technologies have trajectories that are broadly independent of individual decisions. But the devil is in the details. Technologies that worked well in one place don’t in another, and that is in part a question of implementation and contextualization of the design. As the well-quoted philosopher Anonymous said:

“In theory, theory and practice are the same, in practice they are not.”

There are several themes in the book.
Cities and their networks operate on multiple timescales simultaneously. Traffic lights change by the second, rights-of-way last millennia. Cities see massive daily flows of people in and out. The core, timeless, enduring elements contrast with the faddish ephemera that too much effort is focused on. The future is emerging, but determining what we are looking forward to will be enduring or ephemeral should be the critical focus of anyone involved with transport and city design.

This book does not shy away from the normative and prescriptive. In this it differs from much academic work, including my own, which tends to the positive and descriptive. Principles are laid out, which I believe to be true and correct, many of which are not scientific in the way they are framed. They of course may lead to testable hypotheses, but they are also value-based.

The idea of the ‘spontaneous city,’ one that serves needs and wants in real-time, is a theme running through both the title and the text. What conditions encourage people to take advantage of their city (and therefore make it stronger)? What conditions worsen life for the users of the city?

The emergence of new transport technologies gives us a chance to restore and correct, to right what is wrong with the places we live. From the railroad and electric streetcar creating separation between places where people lived and where they worked, to the elevator enabling high rise construction, to the motorcar which put suburbanization into overdrive, all significant transport innovations reshape cities. The new autonomous vehicle, the new electric vehicle, the new shared vehicle, the vehicle form, shape, and size are a transformation of similar scale and scope. These changes will create opportunities over the coming decades, which we can seize or reject.

This book is about how cities do work, how cities can work, and how cities should work. In part it is about traditional fields of planning and engineering, but takes a much broader concept of design principles than those fields usually do. This is because it is also about evolution and it is about opportunism. The world is changing fast. We can make it a more humane place than it has ever been, or we can allow it to devolve into a more brutish environment, where we remain a victim of our
collectively built environments, rather than their master.

When the book speaks of ‘cities’ it really means the entire metropolitan ‘urban system,’ not just the historic core city (or the central business district). Downtown is but a part of the city, and the central city in many metropolises is neither a plurality of residents nor workers.

Much of this book includes complaint, and it may feel like shouting into the wind. But every complaint is about a design failure, either with intention or by accident, that degrades experience for everyone, or degrades the experience of some for the benefit of others. Life is comprised of tradeoffs, but not all tradeoffs are made at the appropriate rate of exchange. Both cities and their transport networks are the product of thoughtful human actions and unconscious emergent processes, where systematic behavior drives the underlying logic of designs.

The optimal design of transport networks to serve the goal of spontaneous access cannot be determined in the absence of knowledge about the actual development pattern. The optimal development pattern cannot be known without regards to the plan of the network. Discovering the right combinations of networks, land use, and other urban features is what makes cities successful. The measure of their success is their population, their wealth, their happiness.

But even more importantly, the optimal transport network for the technology of one era is not necessarily the optimal network of the future, and the same is true for development.
1

The City Spontaneous

Shortly after our daughter Olivia’s birth in March 2007, my wife required a breast pump. This is common for new mothers expressing milk, but we were in the UK and our pump was in the US, and incompatible due to differing electrical standards in any case. While pumps are not terribly rare, they are medical devices and could only be acquired in real-time at a pharmacy. It was a Sunday evening, about 7 pm. In the US the ‘I want it and I want it now’ culture...
has produced a 24-hour/7-day-a-week/52-week-a-year expectation of availability of just about anything, including pumps.  

London, despite some surface similarities, is no Minneapolis. We were to find that all of the typical drug stores: namely Boots the Chemist and Superdrug were closed, not merely on our local High Street in Putney, but everywhere.

Fortunately, the Internet informed us that Zafash Pharmacy, London’s only 24-hour pharmacy, on Old Brompton Road near Earl’s Court was open. From our Putney flat, I took the 22 bus there, got the goods, and returned on the 74 and 22 buses, with a total time of 67 minutes door-to-door-to-door. Google Maps put the distance at 3.4 miles via road, and said it would take 8 minutes by car ... there is not a chance this would have been true, even at 7 pm on a Sunday night. Along the way I encountered (and avoided) large numbers of drunk local footie fans coming from a Chelsea match, played nearby at Stamford Bridge.

Can it possibly be that London, England, a city of 8 million people, has only one 24-hour pharmacy? For a city that is a contender for ‘capital of the world,’ this is surprising. One could talk about Zafash, run by immigrants or maybe 2nd generation Londoners who have a unique entrepreneurial spirit, and how great that is. Still, it would be par for the course in the US. In my mind the question isn’t why they are open, but why the others were closed.

Perhaps regulation has something to do with it, I don’t know the extent to which neighborhoods have imposed zoning regulations limiting hours of operation, but restaurants and pubs could somehow figure out how to be open, despite their extra noise. Perhaps it is the costs of paying overtime. Perhaps is is the draining of the entrepreneurial spirit in this home to capitalism. Perhaps it is collusion, since if they are all closed, you will just have to shop when it is convenient for the chemist, not for you. In contrast, US pharmacies are in fierce competition with supermarkets (which have been 24 hours in many locales for a couple of decades now, starting since they were doing overnight stocking anyway).

While I could understand why the local stationers isn’t 24 hours, paper is seldom an emergency item, drugs and medical equipment are. In addition to being bad for customers, it seems that business here is leaving money on the table.

Cities enable spontaneous action. In its strongest form, the ability to engage in ‘spontaneous action’ is the ability to do whatever, whenever. The phrasing might imply exciting and entertaining things: going out to a concert or a ballgame, playing

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1 In the US, 24 hour on-demand carpet installation is available.

2 This is the reason that auto dealers are closed on Sundays in Minnesota by state law, it is not that auto dealers are particularly pious, it is that you will buy a car anyway, so why make it convenient.
parkour, kayaking on a river, or robbing a bank, but most things are quite mundane, from getting a pint-of-milk to going to the apothecary.

Spontaneous action requires at least two elements.

1. **The presence of things to do.** The thing must be where I want it to be, and it must be open or available when I want to use it.

2. **The ability to reach those things.** I need to have a means of transporting myself conveniently from where I am, to where I want to be, when I want to go there. In short, there must be both destinations and networks that satisfy action.

In the real world, spontaneous action is limited to what others are willing to allow or accommodate. The world, fortunately, is no Springfield 'Do What You Feel Festival.'³ There are many things, that for technical or economic reasons, I cannot acquire, and many activities I cannot engage in because they do not exist. Others are prohibited by law or custom, like robbing a bank, and thus have a high likelihood of imposing penalties I might not want, like attending prison or being transported to a foreign land. Others are simply discouraged by reputation effects, and the desire to not only do what I want today, but to retain the option to do what I want tomorrow.

There are many locations that have networks, and people who have vehicles, that allow them to move about easily. In any small town or rural area, someone who has a car can easily move about, but there is, from the big city perspective, nowhere to go. These areas have high mobility.

Some places have lots of activity, most notably high density cities. However because of crowding it may be difficult to move around very much, these places may be congested, limiting the speed and comfort of travel.

In the best cities, there are many places to go and things to do. In those cities, the network is constructed with appropriate differentiation so faster and direct links connect dense places. The relatively slow speed of large cities (compared with suburbs or rural areas) is compensated for by the short distance, so that these areas have high accessibility.

**Different people want different things.** If we all wanted the same things, life would be pretty boring. Still accessibility is something that almost everyone does want, though everyone also has a limit to how much money and time they will pay for it.

³ The Simpson’s Episode Season 5, Episode 7: “Bart’s Inner Child.” Following a self-help guru, the town of Springfield decides to act like Bart, disaster ensues.
Places with higher accessibility allow more spontaneous action than places with lower accessibility. Land prices are higher in places with high accessibility both because of the scarcity of such places and their value.

There is a premium to be paid for the ability to engage in spontaneous action. In economic terms, this is an option value that people hold. Even if they never go to a club, or a show, or a game, or the museum, or the local dairy store, or the particular specialist shop (like the bookstore specializing in gambling books I found in London, in Figure 1.2), accessibility gives them the option of engaging in that activity.

One opposite of spontaneous action is scheduled action. If I cannot engage in things when I want, I must plan in advance when to do them. This may be because of other people’s constraints, or limitations to the transport system, or hours of business of the thing I seek. The advantage of a large city is the increased flexibility, the high frequency of transit services, and the increased likelihood of finding a 24-hour store specializing in what you seek (London’s lack of 24-hour services notwithstanding).

New technologies make on-demand travel and activity easier. Without requiring the night bus and night train, mobility-as-a-service, ranging from taxis to car-sharing, to a future with cloud-commuting based driverless cars, relaxes many of the temporal constraints of travel for the carless. Automation enables stores and services to be available 24 hours a day. One can imagine going to an unstaffed corner shop and being able to buy goods pretty easily. More futuristically, online purchasing (via voice control) with robotic or aerial drone deliveries make the acquisition of stuff easier.

Yet automation still has limits. Meeting of random people at a place requires other people to be there. Meeting specific people requires engaging in the frictions of pre-planning and coordination. But with apps for social connection with both friends and strangers, spontaneity reigns.
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