The London Breadcrumb Project and Storytelling as an Act of Resistance in the Digital City

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Abstract

As digital maps become ever more ubiquitous in modern cities, the extent of our reliance upon them is fundamentally altering how city residents connect to the urban landscape around them. Among these changes are differences in the way people construct cognitive and mental maps of the space around them, and the seemingly unquestionable validity and permanent contemporaneity of the maps we reference. This paper discusses the creation of the London Breadcrumb Project, an urban design initiative that aims to reinterpret and disrupt these radically shifting infrastructures through street-level navigation, archival sound art and community dialogue. This paper also details various projects that served as inspiration, elaborating on how their design concepts informed our work.

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Introduction

As Adam Greenfield describes in *Radical Technologies* (2017, p. 26), the advent of GPS mapping represents an unprecedented paradigm shift in human perception of geography. The digital map's dual, novel functionalities of updating and representing a user's location at all times (Greenfield, 2017, p. 26), along with transforming a user into the literal centre of the world (McMullan, 2014), represent a seismic sea change in human perception of local environments. In particular, the relationship between the highly digitised modern city and its citizens is being increasingly moderated through these new media (Rose, 2017). Modern geographers are particularly perceptive of the increasing entanglement of computing's political mechanisms with those of geographic and cartographic practices (Amoore, 2018); however, the sheer scale of these intrusions into existing human geographies represents an often destructive influence on existing and long-held systems of urban knowledge transfer and community-building (Rose, 2017).

This paper argues that it is possible, through small-scale and community-driven initiatives, to undermine, expose, and disrupt the more threatening impulses of these systems in modern urban environments. Particularly, this paper will look at several categories of neighbourhood- or city-scale projects that can be broadly organised under the umbrella of 'storytelling', particularly the practices of counter-mapping, storymapping, and the collection and physicalisation of local oral histories, as well as locative and dis-locative art. This paper specifically examines the varying successes and aims of these projects through the lens of my own work on the London Breadcrumb Project, an urban psychogeographic-cum-navigational design research initiative that took inspiration from these practices.

We chose this research area as it combined my own research interests in psychogeography and urbanism with the focus of my project partner, Cristèle Sarić, on wayfinding and navigation. We were both particularly interested in examining and undermining the digital systems of digital wayfinding and mapping that have become so omnipresent since the turn of the millennium, and saw a navigation design project as an excellent route into doing so.

I. The Digitally Mapped City

The God Trick

In 2015, a case was brought in front of the city council of Buffalo, New York. Roughly a decade before then, residents of the city's 'Fruit Belt' neighbourhood – a predominantly African American, lower income area of the city – had noticed that the region had been incorrectly labelled as 'Medical Park' on Google Maps, a name with which local residents were broadly unfamiliar (Dewey, 2019). While the exact cause was unclear (an opacity that caused further consternation), residents were quick to blame the construction of a large medical research facility nearby (Bacchi, 2019). Eventually, following direct appeal to local government, the original name was restored on Google's services; however, other areas in which this phenomenon has been documented, from the 'East Cut' in San Francisco to a renaming of Detroit's 'Fiskhorn' region to 'Fishkorn', have not had the same fortune in overruling Google's decisions (Nicas, 2018).

While a mismatch between local and digital conceptualisations of an urban area may seem, at face value, an innocuous mistake or growing pain of digitalisation, these inconsistencies are embodied in changes to the space itself, as the changed name spreads to local businesses and gentrification-driving real estate campaigns (Nicas, 2018). While neighbourhood and street naming may seem like a primarily superficial practice, these processes can enact genuine harm when done callously. As suggested by Rose-Redwood (2008), street and neighbourhood names act as sites of conflict over ownership and recognition of social memory, while a qualitative survey of a neighbourhood undergoing gentrification has suggested the use of consistent and historical names as a key marker of social inclusion (Hwang, 2016). Taken in combination, these factors suggest that the opaque systems underpinning Google Maps enact embodied changes on the street-level urban landscape, can engage in the erasure of local heritage, and help propel dangerous processes of gentrification.

These ill effects are exacerbated by the positioning of Google Maps as an omniscient, objective representation of urban space; Quiquivix (2014) rightly borrows the language of Haraway (1988) in describing the service as a manifestation of the 'god-trick'. The god trick of scientific research lies in how it purports itself to be objective, 'seeing everything from nowhere' (Haraway, 1988, p. 581), and in doing so leaves no room for the subjective, messy, or pluriversal. It is not difficult to see how this may describe much cartography throughout history, as maps produced by specific groups for specific purposes become accepted as *de facto* representations of vast, often contested, always subjective landscapes, such as in the

renaming and remapping of Palestine by British cartographers in the mid-20th century (Barclay, 2018), which is further expounded upon later in this essay.

However, this takes on new dimensions with the introduction of the crowd-sourced and data-focused techniques that Google uses to populate its maps. The company proudly state that they gather over 20 million pieces of user-sourced data every day, and take this in combination with imagery-driven data gathering and 'authoritative sources' to build their services (Russell and Lookingbill, 2019). In doing so, the onus of validity appears transferred from a single stakeholder to an incomprehensibly large group of separate data providers, and this serves to reduce the issue of the map's 'truthfulness' to a binary question: either a map is complete, fully updated, and correct, or it simply requires more data until it is so. Subjective neighbourhood names and contested borders are resolved into issues of data gathering and verification, and fuzzy or subjective interpretations are granted little to no space. Occasionally, when these conflicting voices are at a scale too large to be satisfactorily swept under the rug, such as in the case of disputed borders between nations, the inability of the application to permit fuzziness is exposed. The only recourse is to present multiple different versions, each with its own seeming authority, depending on who is looking (Bensinger, 2020).

Cognitive Mapping

Of course, the digital mapping revolution has not merely taken place from above. GPS-powered street-level navigation makes up a key component of the offered services of modern mapping applications, and with over 1 billion monthly users (Russell and Lookingbill, 2019), it stands to reason that Google Maps and its competitors represent a key mode of navigation for, at minimum, a sizeable portion of the world's digitally enabled population. This is an observation supported in our research process for the London Breadcrumb Project: of a group of 12 users interviewed at any early stage, all aged between 20 and 30 and newcomers to London, everyone mentioned some combination of Google Maps, Apple Maps and Citymapper as their primary method for navigating the city. It is worth considering, therefore, how these applications inform the user-level process of cognitive mapping, a process by which geographic space is stored mentally, replete with its spatial, emotional and temporal dimensions (Kitchin, 1994).

In *Inner Navigation*, engineer Erik Jonsson details multiple stories of people, particularly tourists or recent immigrants, becoming lost in urban environments soon after arriving (Jonsson, 2002). Jonsson's book largely focuses on the construction of cognitive maps upon arrival in unfamiliar space, and makes a particular point of the differences between these cognitive maps and the topographic, aerial-view maps that served as the primary navigational aids for pedestrians at the time of writing. Jonsson's viewpoint is

succinctly expressed when he discusses the experience of viewing eye-level photographs, taken as souvenirs on holiday: while the top-down view of a familiar area will never spark immediate recognition or familiarity, a photograph "fits right into our cognitive map because the map is also a representation of the area as seen from where we actually are…This is another indication that our cognitive map does *not* look like a topographic map." (Jonsson, 2002, pp. 71-72) Jonsson also argues that an overreliance on navigational aids results in much poorer construction of these cognitive maps (Jonsson, 2002, p. 157), a claim made at a time when 'navigational aids' referred more to urban signage and topographic maps than the navigation aids we have today.

While Jonsson's book is largely atheoretical, constructing its arguments around individual and broadly anecdotal case studies, some of its predictions and statements have been borne out in empirical study. Admittedly, research into the effects of digital maps on an individual's sense of direction remains sparse (Chang, 2015). However, the limited peer-reviewed studies available do correspond on several key points: when it comes to quantitative metrics regarding spatial recognition, digital-only navigators acquire less information when navigating a route for the first time, display less knowledge about areas they have passed through, all with little to no reported improvement in their senses of anxiety and confusion while navigating (Field, O'Brien and Beale, 2011; Vaez, Burke and Yu, 2020; Chang, 2015). This, perhaps, gives credence to an extrapolation of Jonsson's earlier theories of navigational aid. If a reliance on urban signage, paper maps and compasses leads to a deficit of cognitive mapping ability in the turn-of-the-century urban resident, then a new reliance on following a blue line on a map could well be enacting an even more severe form of damage on this ability.

With this said, consider the way in which street-level navigation has been reshaped in order to fit the aerial-view maps offered by these services, particularly for pedestrians. The process of locating oneself on a paper map has been largely subsumed by a compass that recalculates the world in regard to a user's orientation, rather than the other way around, and the necessary friction of comparing top-down road layouts to the street-level shape of junctions and interchanges has been sanded down. At risk of oversimplifying the expansive topic of design friction, the removal of friction results in movement from mindful task completion towards the automatic, and can hinder skill acquisition (Cox *et al.,* 2016; Mejtoft, Hale and Söderström, 2019; Ericson, 2022). Without the ability to transfer geographic knowledge from a top-down map to street-level urban landscapes, users who heavily rely on GPS navigation to get around may well find much more difficulty in constructing cognitive maps of unfamiliar areas that exist separately to the aerial views offered by these services.

A lack of a cognitive map may be a more serious inhibitor to local awareness than is immediately clear. Cognitive and mental maps are used heavily as research methods in risk analysis, particularly around perceived risk (Wood *et al.,* 2012; Bakhtavar *et al.,* 2021; Manton *et al.,* 2016). This would imply that the lack of a situated and detailed cognitive map makes a resident a less trustworthy or comprehensive source of information around the functional behaviour of an urban area. Pánek (2016) takes this claim one step further, arguing that mental maps are a vital starting off point for local participation in remapping and reshaping urban landscapes. It stands to reason, therefore, that an erosion in the formation of these tools is tantamount to an erosion of local knowledge, and that increasing over-reliance on digital navigation tools may well, in tandem with the destructive 'god-trick' tendencies of those same systems, risk a more serious decay in the relationship between city and citizen.

II. The London Breadcrumb Project

Motivation

The London Breadcrumb Project originated as a response to this degradation of cognitive mapping ability. Our belief was that if digital wayfinding services are inhibiting the exploratory tendencies of newcomers to urban environments, then a restoration of analogue wayfinding techniques could prompt deeper and more mindful exploration of unfamiliar urban space, introducing sufficient amounts of intentional friction into this process in order to help users in constructing more comprehensive cognitive maps. This prompted the design of a compass that would provide as-the-crow-flies directional guidance to user-defined points in a local area. Our aim was that, by providing directions with deliberate ambiguity as to route selection (i.e. forcing users to examine their physical environment to determine the best way to satisfy the directional prompts), users could build these cognitive maps while engaging in a semi-guided exploration of the space, which would give new residents a firmer footing in their sense of belonging in the area.

Throughout the design iteration process, however, we found ourselves (as well as the various groups of testing participants we worked alongside) increasingly drawn to researching the form that the user-defined 'waypoints' – the titular 'breadcrumbs' of the project – could take. Speaking to people who had recently moved to London as our core user group, we became increasingly aware of a desire among the user group to be introduced to the area by people with a deal of authentic local knowledge; this primarily took the form of travel blogs and social media accounts for our users, an observation that reflects the findings of recent studies into destination communication among young people (Kim and Kim, 2020; Pachucki, Grohs and Scholl-Grissemann, 2022; Scholl-Grissemann, Peters and Teichmann,

2020). The project, therefore, gradually took the shape of a dialogue between long-term and incoming residents on the scale of neighbourhoods across the city, at which point we turned to the storytelling methods introduced in section 3 as key sources of inspiration for establishing this dialogue.

Outcome

The final implementation of the project consisted of several components. The first and most visible component is a digitally augmented 'compass', bright yellow and hexagonal, that points towards the location of the nearest breadcrumb. The compass is powered by digital compass and GPS sensors connected to a microprocessor, and updates roughly 10 times a second with the direction that the user must move in. Small internal lights change from blue to red to indicate distance (taken directly from a wayfinding workshop performed with members of our target user group, where 'hot' and 'cold' imagery became a key strategy for communicating distance non-verbally). The box is small and light enough to be held comfortably in one hand, and may be lifted up towards eye level in order to increase harmony between the navigation interface and the surrounding environment.

While the compass makes use of digital technologies to function, it is designed to act and feel like an analogue object, borrowing heavily from skeuomorphic aesthetic languages associated with traditional compasses and chronometry. When describing the functionality of digitally mediated cities, Rose (2017) draws from Stiegler's theories of generational transmission, advocating for a reinvention of the 'short-circuiting' of knowledge transfer that is brought on by ubiquitous digital media. While Rose opposes calling for outright resistance against this short-circuiting, she supports the inclusion of 'long-circuiting' as a method of differentiation. Taking a cue from Mattern's (2021) proposal that analogue data collection promotes "slower, more intentional, reflective, site-specific, embodied" engagement with data gathering processes and locations, the semiotics of our tool are intended to evoke and promote this extension of the wayfinding process through time.

A digital and communications component is also vital to the project. The compass is designed to be presented with little guidance in public spaces that new residents frequently travel to, such as GP surgeries, local libraries, and rental accommodation buildings; however, to supplement the tool itself, flyers and communications are provided to guide users through the process of its use. The digital component comes in the form of a webpage that allows for the user-driven creation of the breadcrumbs themselves. Long-term residents are encouraged to share audio recordings of stories they associate with particular locations in the city; an early example we gathered was from a participant who remembered being bought live eels from a pie and mash shop when he first moved to Dalston, in north London, before

the shop shut down several years later. These stories can then be submitted for moderation and transformation into soundscapes.

The soundscapes are the key component of the project as it relates to the theme of urban storytelling. The user-submitted audio files act as self-curated oral histories of a long-term resident's local area, and the moderation process ensures that the stories can be particularly embodied in a physical location. These clips are then combined with historical sound footage from the area itself, largely sourced from the London Sound Survey, a large repository of found and archival sound organised by location around the city (Rawes, 2020). The resulting soundscape can then be played by scanning a sticker placed in the very same location to which the story refers, or on the site where the location was, if it no longer exists. Drawing inspiration from hauntological music and sound art projects that work extensively with archival footage, such as The Focus Group and The Caretaker (Sexton, 2012; Fisher, 2012), the sounds are intended to give the historical and rapidly changing elements of urban landscapes a form of embodied and longer-lasting presence, evoking this transience and local history more vividly than the stories on their own.

III. Storytelling Methods

This section of the paper details the various storytelling mechanisms that the London Breadcrumb Project drew upon in its design, and the aspects of each that the project aimed to implement in various forms.

Oral Histories

When aiming to meaningfully capture the subjective realities of an area or city, oral histories immediately emerged as a viable strategy. The potential utility of oral histories in historical research has been famously expounded by Portelli (1981), who draws particular attention to the subjectivities present in spoken narration. In fact, Portelli is especially careful to establish, in the context of their usefulness as historiographical sources, that "oral historical sources are *narrative* sources" (Portelli, 1981, emphasis in original). It is through these narratives that subjectivities are permitted to exist, as they reflect a person's interpretation more so than they reflect objective fact. This carries particular importance for communities where subjective histories have been historically suppressed, such as in queer communities for whom oral historiography has become an active form of resistance against the erasure of street-level realities in urban life (Murphy, Pierce and Ruiz, 2019).

Design implementations that we explored here included the work [murmur] (Roussel, Micallef and Sawhney, 2002) , an originally Toronto-based project in which oral histories from city residents were connected to phone lines, and the numbers printed on signs at the location they were discussing. Calling the number would allow users to hear a

recounted narrative regarding their current location. Through this locative process in which physical presence at the relevant location is expected, if not required, existing technology is leveraged to connect the present realities of a space to its past through pure narrative.

This represented a major aim of the London Breadcrumb Project. Taking from [murmur] the idea that situating these stories in physical space was, in itself, an act of propagating and physicalising these oral narratives, the implementation of our soundscapes took on an increasingly centralised focus. Regrettably, due to safeguarding concerns among our participants, we were forced in our first examples of supplied soundscapes to use actors to recreate the narratives from transcriptions and written testimony (thus suppressing, to a degree, what Portelli (1981) considers a valuable asset of oral histories: the exact rhythm and pacing of a speaker imparting information that is normally lost in the process of transcription). In a potential expansion of the project, this would be mitigated by organising storytelling workshops with particularly underrepresented groups in present historiography, in order to more actively collate and curate these narrative sources.

Dislocation

If [murmur] is an example of locative navigation, in which narratives of locations were embedded in the locations themselves, then consider how this differs from projects that are deliberately *dis*locative, finding space in the ambiguities in comparing space. Dislocative arts – artistic undertakings which overlay, confuse, or disrupt various spatial representations – represent a growing response to the seeming omniscience of digital mapping (Pinder, 2013). Shual's project YouAreNotHere.org (Shual, 2009), for example, in which tourists were asked to navigate a map of Gaza while in Tel Aviv, or a map of Baghdad while in New York, invokes similar oral history techniques to [murmur] (also, interestingly, using the semiotic device of a phone call). This can be read as a response to the claimed absolutism of locative systems as a whole, including both paper maps and GPS. Part of our goals with the London Breadcrumb Project was to adapt these same aims to the novel landscape of digital ubiquity, a phenomenon that underwent even greater onset since YouAreNotHere's initial undertaking.

It is also worth considering how this same dislocation can be implemented but with regards to time as opposed to position. Crang and Graham (2007) describe this phenomenon as "a destabilization of spaces, a haunting of place with absent others". In this we see the same driving forces that motivate much hauntological sound art – the transformation of these 'absent others' into a more experiential presence. Crang and Graham make particular reference to Cardiff and Miller's sound and video walks, in which media artefacts such as audio clips or videos from different time periods are overlaid over the course of an exploration of the present incarnation of their space (Cardiff and Miller,2014). This evokes a similar sensation of the 'haunting' of the urban landscape, and ties this sensation more

closely to a route rather than a location. This has the effect of bringing about, in a user, the feeling of walking in somebody else's footsteps. Neighbourhood-scale examples include the recent exhibition *Everything is Different, Nothing has Changed* at the Tower Hamlets archive (Ideastore, 2023), in which three separate projects see archival oral histories combined with local sound recordings, recreated in space through physically constructed space (a set of benches with draped washing lines) or deliberately obsolete technologies (an old Kodak film display case).

These dislocative practices, it is important to note, do not approach existing infrastructures in the same way as spatially dislocative art does, i.e. as a disruption of the unquestionable nature of digital maps as absolute authorities. Rather, these particular dislocative projects, rather than a response to a representation of space, may be interpreted within the context of their representation of time. A key feature of digital maps is their 'now-ness', a constant process of updating and erasing in which the only existing map is the most recent. By preserving and propagating historical presence through archival sounds and obsolete media, this dislocation of time serves to disrupt the constant and absolute contemporaneity of these systems, bringing a separately unquestioned aspect of the infrastructures into more stark relief. With the London Breadcrumb Project, our reintroduction of archival sounds into urban space, embodied through the creation of localised soundscapes at each breadcrumb's location, aims to combine the narrative subjectivity of our collated oral histories with a clear awareness of the spectres that haunt rapidly changing urban environments – one foot, one eye, one ear deliberately pointed towards the past.

Counter-mapping and Storymapping

When considering how to resist the encroachment of insufficient mapping technologies onto urban landscapes, there is one immediately obvious strategy: if the maps imposed upon a community are unfit for the community's purpose, the community may create their own. The creation of community maps can bring back into focus "the complex matrix of institutions, practices, and discourses on which [maps] depend" (Pickles, 2006, p. 348), especially when these institutions are engaged in active suppression of local subjective experience.

In few places is this practice more pronounced than in Israeli-occupied areas of Palestine; the creation of maps by occupying bodies – including British forces in the early 20th century – has long served as a direct act of control over the region in the form of renaming and suppression of local communities (Barclay, 2018). In recent years, several forms of digitally enabled resistant counter-mapping have arisen in the region, from the digitisation and propagation of maps created before this wave of community renaming took official effect (Barclay, 2018) to direct leveraging of Google's own mapping services to

rename towns and redraw borders (Quiquivix, 2014). These projects do not create these maps as claims towards objectively truthful representations of the space; rather, the act of creating these maps exposes that same goal of truth as an act of violent assertion, the transformation of colonial aspirations into unquestionable realities (Quiquivix, 2014).

On smaller, individual scales, some of the principles of counter-mapping can be considered when studying the act of personalised map-making. In his discussion of the map as a 'quasi-object' in the context of actor-network theory, Duggan (2017) shares field studies with local urban community members who had transformed maps and atlases into exhaustive documents of their personal relationship with the city through notes, drawings and physical manipulation of the paper medium. While the creation of these personal maps are less explicit acts of resistance to existing infrastructures, they serve similar goals of co-creation and a rejection of the authority of existing mapping systems, demonstrating the power of artefact manipulation and reinvention in the practice of urban place-making.

In these practices, we see the same goals that underpin storymapping, a co-creation process in which narrative data crowdsourced from a participatory community is aggregated to build maps that reflect the embodied experiences of the community members themselves (Dodge and Kitchin, 2013). One highly successful example of this is Queering the Map, a self-described counter-mapping project in which queer users share personal, anonymised stories on a map at a granularity of their choice (Kirby *et al.,* 2021), creating an interactive visualisation of subjective, queer experiences across the world. The result is a powerful artefact in which the presence of these historically suppressed narratives is made explicit and nigh-omnipresent, with user-sourced stories covering the map. This demonstrates the ability of propagating local stories to create newly embodied physicalisations of subjective narrative in a way that leverages the technology of digital maps as an act of radical reinterpretation.

Storymapping practices were a key influence on the development and design of the London Breadcrumb Project. The interaction between our digital and physical components is intended to result in an interplay between the goals of projects such as Queering the Map and [murmur]. The sharing of stories is made dislocative – there is no geo-location requirement for a participating user to share and tag their own stories on the map – while the placement of the breadcrumbs is necessarily a physical and street-level act. This deliberate process of spanning cartographic and on-the-ground experiences of space aims to act as a further reinforcement of our goals to explore and reinterpret the relationship between these two interpretations of place, further permitting the construction of cognitive maps and providing a route in for urban newcomers to begin exploring the subjectivities of their new home.

Conclusion

The London Breadcrumb Project has been an attempt to take some of the stories that are created throughout the lifetime of a city and grant them a semblance of physicalisation in the landscape itself. In doing so, we hope that we have created a mechanism for a more authentic, more embodied exploration of urban space for those new to it, enabling the formation of deeper and more meaningful connections to their new environments. This essay has, I hope, demonstrated the value in story-driven approaches to urban design, in which the subjectivities of a city's residents are granted the space they need to help shape the places they live. As our stories themselves are created and redefined by the environments in which they take place, so too must our environments be allowed to be shaped by our stories.

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