

Infra-City: Speculations on Flux and History in Infrastructure-Making

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Infra-City:

To speak about infrastructure is to invoke both the promise of a future as well as imminent trauma. Underground or above ground, systems that makes urban flows possible are always a threat, even when black-boxed and separated from the smooth flow of conscious urban life (Graham 2010). The city might be turned into a weapon or the city is constantly broken and must be fixed. The city is overflowing and must be contained or the city is too contained and must grow and let off steam. The story of infrastructure always begins with one or another of these historical moments – it is never a story of which infrastructure is itself the subject but a narrative about growth, decay or the end of the city, in which infrastructure happens to play a leading role. This paper grows out of eavesdropping on many conversations about infrastructure not the least of which are the shrill cries of despair about the “infrastructure problems” of mega-cities of the South. My intuition is that part of the context for these conversations is a fundamental disconnection between the ‘real’ of infrastructure as the organizational medium of urban life and the various models and propositions from which urbanism is seen to derive, such as the metropolis, the global city, the mega-city and the world city to name just a few popular models that dominate urban theorizing. This disconnection gives rise to numerous ethical challenges on how to reconcile to the ongoing and actually existing practices of urbanism in cities today when the normative horizons provided by models have given way to an incessant present of speculative practices, detached from ideas of the “near future” (Guyer 2007) that dominated mid-20th century planning imaginaries.

My point of departure is an understanding of the city as territory consolidated through a *structural* coupling of people and infrastructures and an assumption that this structural coupling is historically specific in different urban contexts. In the contemporary moment, we are drawn by this problem of coupling because of the visibility of the displacement of massive numbers of ordinary residents in places like Mumbai, Cape Town, Rio and Beijing to name only a few, to make way for new infrastructural formulations. My suggestion is that an ethnographic investigation of these moments of infrastructural (re)formulation together with a theory of history that attends to issues of causality, contingency and anticipation in everyday action will provide a platform for clarifying the ethical challenges under which urban life-worlds are formed and inhabited by various actors who become “city-makers.” These include planners and policy makers, private sector barons and politicians as well as the ordinary residents of places like Mumbai whose displacement makes way for new infrastructural formulations at a massive scale.

Specifically, such an ethnographic investigation opens the door for considering the ‘feedback’ effect of the propositions through which the structural coupling of people and infrastructure occurs, considering these propositions as acts of reconditioning the urban environments from which infrastructure systems are circumscribed to produce regularity, predictability and territorial consolidation towards specific, instrumental or utopian ends ranging from surplus generation to participatory democracy. Such propositional acts are increasingly visible in cities today as citizens participate in rethinking their neighborhoods through self-conscious proposition-making acts at different scales – from small-scale data gathering exercises to versions of ‘design charettes,’

irrespective of whether or not these acts have any measure of success considered in the instrumental sense. The idea of the imminent end of the city, that is so present in contemporary urban discourse (especially about cities of the Global South) invokes a response that is now familiar in cities across the world: incessant talk of infrastructure building and financing, talk of movement and flow, constant disjuncture and permanent flux.¹ This idea also increasingly informs urban activism that focuses its attentions on infrastructure building. So what is given about infrastructure? Only this, it would seem – that infrastructure is never given *a priori* but it must be produced, it must be made, incessantly, through various discourses and experiences, most prominently those of destruction, decay and inadequacy. Might there be discourses other than those of destruction, decay and inadequacy that inform the production of infrastructure, material and conceptual?

I suggest here that a deeper examination of propositional, pragmatic actions provide sites at which the history of (infra)structure becomes visible as a reformulation that feeds back specific ideas about the future into an urban imaginary and is therefore a significant site for investigation. Even as a clear physical trace that confirms to a plan for creating infrastructure and a discourse that delineates “a series of norms and procedures... that align provision and consumption with minimal mediation” (Simone 2008), infrastructure is always an achievement, an outcome of a combat against nature or against specific social forces as in Hausmann’s Paris and therefore, at some level, an act of design. Infrastructure making or coding the specific disposition of infrastructure (Easterling 2011) is thus an act of design that then constitutes a new relational agency in the urban environment.

For example, the switch from tank and well based water supply in the early history of South Asian cities to tap water supply, delivered into the home severed social and political relations that were coded around rights to water shares in a well. However, because of the scarcity of taps in relation to the burgeoning population, the tap as an actant effectively consolidated a different set of hierarchical and exclusionary relations in comparison with the tank. When considering such effects as “feedback” effects or loops into the infrastructure making process, we are able to see how significant it is to consider the histories of infrastructure making in relation to its coding.² The uses of infrastructure, active assertions in relation to infrastructure are also what renovate its meanings and dispositions so that the “form” of infrastructure lies not in its object-ness but in the operations that inform and renovate infrastructure ceaselessly. These renovations too must be considered in the realm of design rather than viewing design as finally constituting fully formed and normed objects. In the cities of the Global South, various “small acts” of design are constantly renovating urban environment and also, further widening the disjunctures between surface and underground, to use the metropolitan metaphor. What they do is to introduce new imaginaries of infrastructure-making, which challenge the “mega-project” imaginary (see Benjamin 2008) and introduce new forms of political claims, which draw on languages other than those of rights and entitlements.

¹ Architects and urban designers however, continue to be ever hopeful of detecting patterns amidst the seeming chaos and articulating propositions in relation to these emergent patterns. For one interesting and critical perspective on emergent urban form, see McGrath and Shane (forthcoming).

² Eyal Weizman (2004) shows how Hausmann’s infrastructure making coded the disposition of serving as a battlefield into every modern city, everywhere. This coding comes to fruition now in the way that cities are turned regularly into battlefields.

In relation to infrastructure, acts of design generally draw on three distinct propositions about the structural coupling of people and infrastructure – the first emphasizes the determinism of technological systems in consolidating urban territories, the second concerns cities as zones of affect constituted by the everyday actions of people to achieve regularities³ normally attributed to the mediation of infrastructural technologies; while the third proposition builds on recent theoretical positions that argue for recognizing the “I” as a compound of the traditional ontological categories of human and non-human (see Bennett 2009, Latour and Hermant 2006). In this paper, I do not consider the feedback effects of these self-conscious acts of design but rather those moments at which socio-cultural and political specificities of the structural coupling of people and infrastructure might become visible. Such moments emerge in the course of pragmatic, everyday acts of making the city as life-world on the one hand and in course of the dramatic collapse of infrastructural systems on the other hand. These are situations of a different order than acts of design and yet they also make visible a different understanding of history – not as an ordering of significant events but as the constitutive feedback of everyday acts of infrastructure-making into the urban environment that in turn affect the urban system, even if in minor and imperceptible ways.

To study these moments, I deploy the concept of urban density which seems particularly salient in Mumbai, a city that is said to have some of the highest human densities per square kilometer in the world. Here I interpret density not as a given attribute of urban space, a passive calculus that arises as a function of numbers and their normative environmental needs but as active spatio-temporal configurations that make visible styles of structural coupling, between human and non-human actors, and cultural-conceptual histories with the dispositions of non-human actants. Density, in other words, enables us to be “attentive to practical problems posed by the coexistence of such large numbers of people on such a small surface area” (Latour and Hernant 2006) but its consideration in the cases I present here specifically highlights the ways in which loops are created between experience and concept that provide avenues for decisions to be based on different causal ideas relating to the future – including, most starkly, temporal anticipation or structural reproduction and, at a further remove, speculations about contingency and its effects on the system’s ontological stability.

I turn now to an archive of ethnographic observations, or, contextual, situated observations of the ways in which people intersect with infrastructural formulations in everyday life. This archive is established, in the first instance, from the personal experience of participant observation, both as an anthropologist and as an ordinary resident of Mumbai. As the latter, I have rich memories of being in different kinds of crowds, always aware and awed by the sensory experience of being within. As a high-school and university student in Mumbai, I commuted 3 hours each day on the rickety and infrequent “Harbour Line” service of the Central Railways. The journey in the morning in the packed ladies’ compartment listening to housewives describing their routines to each other on their way to offices was broken only a few stations later when my friend and namesake joined the compartment. Our favorite way to “pass time” (or timepass, which is a distinct word and concept in many Indian urban pidgins) was to sing to each other, showing off our most recent lessons in classical music, turning a rather dreary journey into a routine of pleasure. When others did the same and annoyed

³ As Simone puts it, these are “regularities that ensue from a process of incessant convertibility – turning commodities, found objects, resources, and bodies into uses previously unimaginable or constrained” (2008)

us, we came to understand in turn our own status as irritants to the compartment as a whole, even if this was a whole fragmented into distinct groups intent on seeking their own forms of pleasure.

Yet these daily journeys rarely broke down into discordant or cacophonous noise. At lunchtimes in downtown Mumbai, flowing along with the crowds on the sidewalks of the business district, I often caught bits of tunes hummed by someone in the crowd, always perfectly in tune. But these peaceful, sometimes even pleasant everyday experiences were jarred once in every while when the train service broke down or the city outside was occupied by a massive crowd of protesters. I look back at experiences, which were not connected to my later analytic life as an anthropologist when I developed a conceptual vocabulary to handle such experiences as part of an archive. However, to narrate these very personal experiences I turn here to the voices of others and their particular, lyrical abstractions of similar experiences, wagering that these voices render possible a view of the sociality of subjective, phenomenological experience and thus enable us to connect experience to an ethical order whose subjects are diffused in space yet connected in a phenomenological sense. I find my own voice in an act of ventriloquism, through the published fragments that reflect my own felt archive.

Proximate Distances: Density and the 'Effective City'

In Kiran Nagarkar's novel *Ravan and Eddie*, set in a prototypical Mumbai *chawl*, we find the following description of a Mumbai commuter train, seen through the eyes of one of the novel's two child protagonists:

[Ravan] had reached the Byculla bridge. A local train swept past without stopping at the station. Like a sponge being squeezed, the people on the platform shrank back. There were commuters hanging from the bars of the carriage windows. Some stood precariously on god alone knows what between compartments. Every once in a while a trousered leg or an arm swung wildly but hurriedly got back to its owner when a signal pole of the support of a bridge rushed past. The sides of the train were bulging with the pressure of people packed into it (How many passengers does a Bombay 'local' hold anyway? Twenty-five thousand? Thirty? Forty?) Any moment now that speeding solid iron shell was going to split open and thousands upon thousands of bodies were going to be flung all over Bombay, all the way to Borivali and Virar, some falling into the Thane creek, some into the Arabian Sea. Almost by rote, Ravan had stuck his head into one of the diamond-shaped openings in the gridiron of the bridge. This was, after all, one of the most exciting places in the universe. (1995: 20)

The sense of perverse excitement conveyed in this passage is a wonderful example of the ways in which a dominant, mythic image of Mumbai comes to be felt and experienced, even by a child growing up in the city. Ravan's Bombay⁴ is a place in which these congealed images of awesome crowds and pressure are ubiquitous and overbearing, everywhere in the public discourse about the

⁴ Bombay was officially renamed Mumbai shortly after the publication of Nagarkar's novel, an acclaimed biographic sketch of a particular universe of working-class neighborhoods that were about to be radically transformed in the coming decade. On the politics of naming and renaming, see Hansen 2001.

decline of the city and its *bulging* infrastructure. The train, seen through Ravan's eyes, is a solid iron shell that is also bulging and elastic, a melding of the human commuter with the solid iron shell. On the platform, the mass of commuters waiting become one as a sponge, shrinking back in unison from the speeding monster. This endless elasticity and melding with matter is finally mirrored by Ravan's act of squeezing his head between the railings of the bridge. The everyday experience of the city for the child, as one of the most exciting places in the universe, is one in which infrastructure is alive, not merely functional or even magical (as many interpretations of technology in the colonial and post-colonial world are apt to suggest).

The *chawl* itself – in which the drama of *Ravan and Eddie* is set – is, of course, one of the most potent images of crowding and density in Mumbai. It is a site, not only of new forms of sociality – intense and intimate relations forged by the very architectural form of the tenement structure – but also therefore a site at which the conceptual notion of the private is materially negotiated and the infrastructure through which the norm of private experience is coded. The tiny *chawl* rooms of Mumbai seem endlessly elastic to many observers, ever expanding to accommodate multi-generational families. Most literally, such expansions take the form of 'lofting' and adding in private washing and bathing facilities and sometimes even private bathrooms (a more recent feature of *chawl* modifications).

These additions radically alter the metabolism of the building even as the expansion of families and the influx of new members into *chawl* space requires the occupation of all common spaces such as the verandahs that run along the length of the buildings and even the stairwells at all times of day and night. Portions under the stairwells are often turned into shops and accommodations for tradesmen. These spaces double up for other uses by night and the relations they engender have been interpreted as half-way points between the familiar social life of the village and the anonymity of the metropolis in the worlds of early migrants. The intimacy between strangers, marked by caste, language and region is one of the celebrated characteristics of *chawl* life in the films and literature which emphasize forms of sociality and affiliation that are not based on kinship ties alone.⁵ However, as Nagarkar's novel emphasizes, the same qualities also turn the *chawl* into a site of conflict and mutual contempt, bred by familiarity, proximity and of course by the mutual recognition afforded to stranger's of each others' ethnic or linguistic or caste provenance.⁶ Indeed, one could interpret the private as an intensely conflicted zone between communion, community and conflict. *Ravan and Eddie's* plot in fact turns around a deadly conflict set in the 'Central Works Department' *chawl* number 17 whose floors are divided between Hindu and Roman Catholic families.

⁵ These new forms of community – at once social and political – are discussed in detail by Kaviraj (1997) in his essay on the development of the public sphere in colonial and post-colonial Calcutta. Kaviraj is specifically concerned with the 'modernity' of colonial and post-colonial cities and with the transformations of concepts of public and private as they are translated into the vernacular of Bengali society and into the pragmatics of everyday urban living. While Kaviraj does an admirable job of considering the history of these concepts in relation to material, spatial practices, he does not specifically consider the field of technological infrastructure as a medium for the consolidation of territory. Nevertheless his essay is crucial and instructive in reminding us of the *detournements* or inversions that make possible the emergence of new understandings of concepts that urban theory often considers to be settled.

⁶ Rajnarayan Chandavarkar's writings on working-class Mumbai and the material contexts of its neighborhoods also warn against the romanticization of *chawl* life and against the homogenization of community in those contexts. His work is a powerful reminder of the conflicts that inform the construction of working-class identity everywhere.

This melding of people with the built environment continues to define a visual-conceptual apprehension of the urban density of Mumbai today. During his first visit to Mumbai in 2004, Daniel Liebeskind, the well-known architect and a designer of the ground zero site in New York, remarked: "Mumbai is clearly a city that eludes architects who see the city as a material object. It's a city where human beings are far more important than brick and mortar, concrete, glass and steel." Mumbai disappears as sheer material fact to be substituted by sheer demographic density that constitutes its visual overlay, taking over even the traditional space of infrastructure as the city's substrate. In terms of numbers, it is well known that Mumbai's neighborhoods have some of the highest human densities per square kilometer in the world. In recent years, these densities have been conceived as infrastructural 'problems' to be manipulated in order to produce an overarching argument for redesign and redevelopment. However, the train compartment and the *chawl* are manifestations of what historian Jim Masselos (2003) has called the "effective city," a city in which bodies are continuously in motion and thus, the structural coupling of people and infrastructure acquires a functional dimension, making the city hang together, as an economic and social machine. According to a study quoted by Masselos, during the 1990s, Mumbai's local trains carried nearly five and a half million people each day, or roughly half the number of people carried by the entire national railway system.

This visual-conceptual effect of the dense massing of bodies overwhelms the architectural sense of "space as an implication of objects... [and] as the medium of our relationships" as the architect-philosopher Lebbeus Woods puts it. What sorts of relations then, are possible when density defines the structural coupling of people and infrastructure, a density that visually overwhelms space itself as a medium of experience? In the passage from *Ravan and Eddie*, the train is a speeding, solid shell, a universal and neutral container of bodies that it would be flung into different parts of Mumbai. This description might conjure up the image of an amorphous mass, of bodies without identity, merely sharing a common destiny through a common journey. The imaginary of the mass, associated in social theory with exceptional demographic states such as those of the crowd and the mob, is an everyday experience in Mumbai although its 'reality' effectively differentiates it from the concept of the mass. If the crowd and the mob are treated in social theory as exceptions specifically associated with violence, the local train appears as a container for a mass that is in fact peaceable on more or less a daily basis. This understanding is spelled out in Suketu Mehta's best selling book on Mumbai, *Maximum City* (2004):

"If you are late for work in Mumbai and reach the station just as the train is leaving the platform, don't despair. You can run up to the packed compartments and find many hands unfolding like petals to pull you on board. And while you will probably have to hang on to the door-frame with your fingertips, you are still grateful for the empathy of your fellow passengers, already packed tighter than cattle, their shirts drenched with sweat in the badly ventilated compartment. They know that your boss might yell at you or cut your pay if you miss this train. And at the moment of contact, they do not know if the hand reaching out for theirs belongs to a Hindu or a Muslim or a Christian or a Brahmin or an Untouchable. Come on board, they say. We'll adjust."

In this passage Mehta adds a more nuanced sociological dimension to the amorphous, pulsating mass described by the child protagonist, Ravan. Although Mehta's take on the crowd has been criticized by many as romantic, this passage is useful in that it makes visible a practice of 'adjusting' as a principle means of claiming a place in the crowd. Adjusting implies a practice of persons with already formed and distinct identities rather than those strangers who come to populate the canonical texts of urban theory, best described by Robert Musil's term, 'the man without qualities,' ambivalent and without a moral spine. The 'badly ventilated' compartment becomes the site of another drama, that of physical proximity between citizens whose everyday ethos is, by implication, geared towards avoidance and social distance between castes, communities and classes. The train compartment, packed with this seemingly amorphous mass is, in reality, a complex intermingling of otherwise disparate universes. The idea of cohesive densities, with common goals and interests is supplemented by a practice and a philosophy of 'adjusting' which turns out to be a key social practice in the creation of everyday density in Mumbai in the *chawl* as much as in the railway compartment.

In direct response to the above passage from *Maximum City*, Rohit Gupta, a blogger from Mumbai wrote:

"Being a Bombay resident, I do not like the crude exoticisms offered by tourists like Mr. Mehta... These hands that pull you upon the train is a particularly interesting case in point. Normally when this happens, it is because you are being pulled by a work-buddy, since you work in the same office/factory, get on at the same station or whatever, and you do this everyday... When the evening rush hour trains leave from Churchgate, what people standing near the doors (these are open trains) do is that they create a human door, an impenetrable blockade so that they can at least breathe for the next hour of the journey... What he ascribes altruistic motives to are mainly phenomenon found everywhere in social chaos."

These criticisms do not detract from the observation about 'adjusting' but rather add another layer to it. Instead of specific motives – such as altruism – guiding the process of adjustment, we see other, more micro-dimensions at work within the behaviour of the crowd that highlight two aspects that are salient to this discussion. First, they point to the underlying violence of these practices of 'adjusting'. Second, they also add a material dimension to *adjusting* as an everyday practice of the structural coupling of people with infrastructure. The formation of the 'human door' blockade, for example, is not an unconscious practice but rather one that is generative of both spatial and social relations at once.

Other ethnographic moments reveal and supplement this literary and journalistic sense that orderliness is a hard-won and carefully achieved quality of the Mumbai crowd. For example, when a poll conducted by the magazine *Reader's Digest* voted Mumbai the 'rudest city' in the world, there was an outpouring of protest not only from residents of the city but also from admirers of Mumbai living in other cities. The tip-over point or the threshold at which the crowd turns into a mob is product of careful management and practice of adjustment of interests, both within the crowd and as it conjoins with the technologies of the 'effective city'. These practices serve as a counterpoint to the image of sheer numbers of people and the magnificent, terrifying dimension of being caught in the flow of persons in the city. The fragile reversibility of the crowd from the violent substrate of

modern political society to its quotidian counterpart of 'adjusted differences' is a key feature of the local train as a distinct site of density understood as shared urban destiny of people coupled with infrastructure. Density here becomes a complex phenomenon involving dynamic intersections between the amorphous mass created through the movement of persons across city space, the vehicles of such movement and the embedded potential for social conflict and disaster.

This ethos of everyday adjustment has also been usurped by agents of state bureaucracy from time to time and rearticulated as a practice of 'calibration' or fine-tuning. A black comedic situation, described in the British humour magazine, *Private Eye*, attests to such moments and I quote it here to illustrate the social potential of such actions as the one that an official spokesman of the Indian railways is describing in the following passage:

... from now on, our first class compartments will be fitted with hundred watt lights, but the second class compartment will only have sixty-watt lights. Considering that an average second-class fare is one-third that of a first class fare, they ought by rights to be getting only thirty-three watts. So in reality, our administration is being kind and generous in giving them almost double that power, with no matching increase in fares... We have a number of ideas, which will be taken up in stages for implementation. Take the case of fans. The second class already have fewer fans, naturally, but a commuter standing under a fan in second class currently receives as much air as a first class passenger similarly placed. So, to reflect the difference in fares, we are planning to reduce the speed of fan rotation in second class compartments, and our engineering department is currently modifying their design.

The fine-tuning of the mass and its adjustment to various criteria of social difference inscribes the possibility of generative social potential into seemingly simple acts of design such as reducing the speed of fan rotation or changing the light-bulbs to a lower wattage to signify class status. Such adjustments, both those practiced within compartments as well as those practiced by bureaucratic designers of human and material hierarchies suggest that the mass is a site at which the structural coupling of people and infrastructure embed potentials for both producing peace on an everyday basis as well as turning a situation violent. Rather than an anonymous crowd, the literature of and on Bombay-Mumbai reveals a highly socialized crowd, attuned in relation to infrastructural codes, existing as a function of where one lives (Borivali, Vihar and so on), or of social differences 'adjusted' to the materials of the 'effective city' or of differences that are fine-tuned by the top down actions of the state and the bureaucratic apparatus. These practices of adjustment and fine-tuning underlie the phenomenology of the effective city as it appears and disappears, clad in or melding with the iron armor of technologies of mobility. These effective densities or points and propositions of structural coupling between people and infrastructure generate, as their predicate, the order of the effective city. But this order is fragile and indeed characterized by a temporality that is very different from the temporality of 'progress', which is imagined to be marching inexorably forward yet detached from eschatological imaginings of end times (Koselleck 1990). In the contemporary city, these fragile orders are frequently reversible, rendering the city constantly open to the risk of the accidental and the unanticipated. In the following section, I consider an instance of infrastructural collapse, a moment when the effective city is reversed, with blockage replacing movement.

Inside-Out: Streets and the Extension of Private Life

While the Mumbai local train serves as a container for the crowd and a site for the placid expression of density as an attribute of the 'effective city', a city that hangs together, at least for the moment, the urban street provides a different lens from which to examine the structural coupling of people and infrastructure. Apart from gatherings and processions, that take place with regularity on the street of Mumbai, in the last decade, the streets have also turned into expressions of a different kind of density, defined by disconnection and immobility. On two recent occasions of 'network failure' – first, the devastating flood on 26 July 2005 and the serial bomb attacks on 11 July 2006 – we see this new form of density that stops the flow of the effective city and the street into a frozen representation of the effective city. For even in these moments of collapse there is a dynamic at work, one that reveals something of the environment and ecology of the effective city. On both occasions, the centralized infrastructure of mobility – the street and the train system – turned into a weapon in the hands of inimical forces. These events reveal the form of the functional city as a socio-technical system achieved through action and movement. In their own way, these events underlined the idea that the effective city exists as a function of movement rather than existing *a priori* as a normative abstraction. The blockage of the passages of circulation extended a private world onto the street, creating, for a brief period, an awesome manifestation of the actually existing city.

The downpour of nearly one metre of rain on the afternoon of 26 July 2005, led to the sudden flooding of streets across northern Mumbai. Blocked storm water drains made it impossible for most of the water to drain into the sea, leading to a situation where both naturally low-lying areas and areas newly rendered low-lying due to the construction of new roads and buildings turned into lakes, trapping people, animals and vehicles. Around 500 people drowned while millions of commuters who used the railway and bus system were trapped with no alternative but to walk home from their workplaces, traversing distances of between ten to forty kilometers on foot. The flooding in many parts along their path led to massive slowdowns in their movement with those living farthest away taking days to reach home. Their paths were marked by the kindness and comforts afforded them by strangers who opened their homes and passed out food and drink to the walkers. All these actions were lauded by the press, citizens and politicians as exemplars of the 'spirit of Mumbai,' its essential kindness and cosmopolitanism. According to this rhetoric, this 'spirit' was manifested in the breakdown of many social barriers, with slum-dwellers who lived along the highways helping stranded motorists even as their own homes were sinking and with middle-class housewives opening their homes to strangers, disregarding the usual fears surrounding the stranger in the home. But these acts of charity and kindness on the street must be considered against the everyday streetscape of Mumbai, a teeming, crowded, competitive space marked by displays of inequality as well as defiance of the norms of civic space.

Mumbai's streets are constituted by a visual cacophony of activities – both domestic and commercial – that would normally belong in interior, enclosed spaces. From travelers and scholars both, the accounts of Mumbai's visual field are characterized by a consistent reversal of inside and outside, private and public. Domestic lives might be conducted entirely on the streets, sometimes in the open or inside tiny, temporary shacks. Moreover the pavements can serve as unfurling scenic backdrops as the active, mobile subject takes in a variety of activities unfolding in the background, such as cooking, washing, bathing and sleeping or work-related activities like shoe shining, welding

or general repairing or widespread vending activities. These forms of extending 'inside' space and activities, of reversing inside and outside, makes the street vulnerable to a kind of living that exposes and calls into question the meanings of the interior or the private, in relation to the public or the outside. The conceptual cross-mapping of these categories has been wonderfully explored by Sudipta Kaviraj in his essay "Filth and the Public Sphere," in which he generates a concept history of the public in the context of colonial and post-colonial India. He writes that during the early colonial period, the street in relation to the home was not understood so much as a material-geographic distinction as a conceptual one. The street was physically outside the home but it was also conceptually understood through the category of the "outside," distinct from the concept of the public, as a space lacking any personal association and identification through common civic norms and therefore lacking association with any kind of obligation, constraining its use to only certain activities. In the Indian context, Kaviraj shows that, for the bourgeois middle classes, the street/outside is understood as a "conceptually *insignificant* negative of the inside" (emphasis added), which explains the phlegmatic response to the people treating the street as a space to dump their household filth as well as why the middle-classes did not really react until recently to the domestication of the street by an influx of people with nowhere else to go.

In his autobiographic novel, *Shantaram*, the Australian writer Gregory David Roberts describes Mumbai street life extensively drawing on his experiences as a fugitive convict fleeing Australia and finding refuge in the slums and streets of Mumbai, losing himself in the crush of humanity so thick that even a very large and conspicuous white man could escape notice from the city's police. Here, Roberts describes the night:

The nights, at least, were quiet... the beggars, junkies, and hookers who weren't already home or hiding were chased from the footpaths. Steel shutters came down over the shop windows. White calico cloths were thrown over the tables in all the markets and bazaars. Quiet and emptiness descended. In the whirl and crush of people and purposes in Bombay's daylight scramble, it was impossible to imagine those deserted silences. But each and every night was the same: soundless, beautiful and threatening. Bombay became a haunted house. (Roberts 2003: 179)

It is telling that Roberts uses the metaphor of haunting to describe the reversal of night and day, of purposeful crowding and silence. Night is not only, in other words, radically unlike day, rather it is like an afterimage of a street by day, teeming with activities of all kinds, a mixed-use zone in the social rather than the technocratic sense. The extensions of the inside to the street, to make space for the slowly moving and sometimes immobile crowds during the two events of network failure I mention here, can also, similarly, be read through the idea of haunting. What I am suggesting is that this incessant, everyday extension of private lives onto the street as part of the city's efficacy, creates its own textures of density of and on the street against which the crowds created by incidents of network failure might be understood. The place and position of the middle-class, the relatively more privileged commuter is made visible and evident only when juxtaposed against the existing fabric and meanings of the street upon which it is superimposed.

A contrast here, with the North-East US and Canadian Blackout of 2003 as experienced in the city of New York might be useful. Numerous observers have commented that during this event, the

crowds that filled the city – residents walking home – were orderly and obedient, especially in contrast with the events marking an earlier Blackout in the 1970s. The contrast is a measure of how the city itself has changed during the interim, especially in terms of its demography and the material qualities of its space. The increased privatization and fragmentation of space as a consequence of increasing gentrification of mixed and low-income neighborhoods has produced an overall interiorization of the street. Thus, one might suggest that the orderly files of residents walking towards home during the Blackout were in a space already transformed and rendered inscrutable to the manipulation of the masses as a political force. In Mumbai, by contrast, the experience of the flood of July 2005 was haunted both by the everyday uses of the street as well as by the contemporary experience of urban spatial transformation and its history – of deindustrialization, ruin and the spectacle of conspicuous wealth – writ large. As historian Gyan Prakash (2006: 78) writes, “it was as if the water had forced the city to bring its innards out in the open, exposing its decaying, putrid secrets.” Yet this brief, and for some, all too brief exposure of those innards and secrets was immediately covered up by a discourse celebrating the ‘spirit of the city,’ and, more specifically, the unifying effects of the flood on a deeply divided citizenry.

A popular news channel, broadcasting flood stories live served up headlines like ‘Dreams of Shanghai are broken’. Such headlines suggested that the flood had exposed the fundamental inability of the city to ‘improve’ or to catch up with Shanghai, its most recent role model and ideal. Shanghai dreams were particularly significant from the standpoint of politicians and elites engaged since 2003 in a massive urban renovation project to turn Mumbai into a ‘world-class’ city. The stories of the city’s ‘spirit’ were especially important to sell the idea that these dreams could not be broken even if ‘practical difficulties’ like the flood were a setback. The generally poignant imagery of the orderly crowds trudging homeward through water and mud, amid floating animal carcasses, garbage and the debris of household goods, and the stories of help received by these unfortunate thousands (many of whom spent more than 24 hours returning home) are subsumed in this discourse of the ‘spirit of Mumbai’. This spirit, of course, became all the more evident when contrasted with the experiences of residents of New Orleans after Hurricane Katrina wreaked similar havoc upon their city. Buried within this discourse about the ‘spirit of Mumbai’ is an image of an orderly density, able to function even in the absence of the ‘effective city.’

The ‘effective city’, in the reading of historian Jim Masselos, is “one defined and patterned by the daily commuter journey through which, every morning, Mumbai redefines itself in an immense collective awakening ... the daily commuter journey constitutes a defining moment in urban life; an affirmation of city unity.” (Masselos, 2003, p. 31) This daily commuter movement thus gives a pattern, purpose and destination to the crowd constituting the ‘effective city’. In a startling inversion, the ‘effective city’, formed by movement through the streets ended up occupying the street as an immobile mass, thereby turning the street into a concrete, visual expression of density instead of a conduit for its circulation and dissemination. Network failure thus rendered the effective city into a city on the street and the effective city became a delivery system of victims as infrastructure turned into a weapon against the city.

The effective city was temporarily suspended in the moment of the flood. Tales of the flood also evoke a different sense of orderliness and effectiveness, one that is patterned by the floating debris of household goods and shack frames, animal carcasses and human waste whose presence in the water brought to the fore the city’s intimate spatial formation through reclamations of various sorts –

of land from the sea, of land from marshes and of land from landfills of garbage and construction debris. All of these reclamations were exposed effectively as the foundations of the city over which the 'unifying' commuter communities that Masselos speaks of were formed.

The experience of density in the moment of the flood is therefore qualitatively different from that in the daily journey which I examined in the earlier section both from the outside (through the eyes of the child-protagonist Ravan) and from the inside (as in the descriptions of Suketu Mehta). The inside and the outside of the crowd – that *ur* construct of density, massing and spacelessness which constitutes the effective subject and social manifestation of urban density – formed by the flood can similarly be analyzed through the lens of the 'effective city'. From the outside, this mass formation, the manifestation of urban density turned inside out, appears orderly and appears to be following well defined paths, mapped through the experience of countless daily journeys to and from work, in the service of the productive city. Viewed from the inside, however, this formation's sociality can be described through its encounter both with the material debris and with the everyday life-world of the street, both described above.

In sharp contrast to the reports in the media, my friends who were amongst those walking home and taking days to return as well as others I interviewed in the aftermath of the flood⁷ have described the fear they experienced during their nightmarish journeys home. This fear was not just of being electrocuted by a stray live wire or of falling into an open drain (as did happen) or of being trapped in one's own car and drowning, but what was also described as a fear, specifically of strangers. The very strangers with whom accommodations or adjustments might be made in a train compartment despite harbored suspicions, are the ones who were feared out on the streets. Youth gangs roaming the streets, ostensibly extending a helping hand, were doubly suspect. Their mischievous, violent and dangerous abandon, an extension of their 'normal' behaviour – interpreted sometimes through the concept of *masti* (a dangerous abandon) – was also in evidence as their everyday life-world in the street was temporarily extended by the flood to include people normally considered too respectable to share in their own, dystopic and violent experiences of the city.

Journalist Dilip D'Souza wrote in his column on the *Rediff* website a few days after the flood, "I found myself accosted on the flyover by a gang of drunk toughs, laughing but faintly threatening as they demanded I take a photograph of them. 'You didn't take it', said one belligerently when I was done, 'you just looked at us through your lens!'. 'Yeah, yeah, go on', said another, with a hint of menace, 'you're going to show the world how dirty Bombay is!' (D'Souza, 2005, p. 28) This idea of being looked at through another's lens is clearly intriguing for a whole social group of disenfranchised youth who know that their own experiences are made available to the public only as emblems of the city's problems while the suppression of their voices and images is necessary for anticipating the city's future as a proper bourgeois metropolis (Chatterjee 2004).

Predictably, such encounters within the crowd, between, for example, youth gangs and walkers, normally removed and protected from such encounters with the faces of violence, brute, masculine

⁷ I myself spent the days after the flood trapped rather comfortably, albeit without running water or electricity, for several days in my apartment on a high floor of one of the recently constructed high-rises. When the flood rushing down my street slowed a little, I was out amongst the crowds rushing to help neighbors further 'downstream' in our neighborhood's overflowing storm water drainage system but without much cost to myself since I could always trudge back up to my apartment.

physical strength and hooliganism, were quickly suppressed in favour of more 'celebratory' stories of the indefatigable spirit of Mumbai. This spirit itself is considered the means by which the poor and disenfranchised citizens of Mumbai are expected to pull themselves into the emerging 'world-class' Mumbai shaped by dreams of Shanghai. Viewed from the inside, the flood orchestrated multiple encounters, juxtapositions and proximities amongst groups normally carefully separated and socially distanced despite their physical proximities. We might thus say that the *experience* of density is, therefore, not just about physical proximity but the social and infrastructural engineering of proximate distancing.

Two days after the flood, rumours of a tsunami directed only towards the poor in slums, caused a stampede in Nehru Nagar, a slum colony that was already very badly affected by the flood. But such events only served quickly to re-establish the social distance as they reinforced the views and stereotypes held by the rich about the poor, by the middle-class about migrants and squatters and by the poor about the elite, and by pushing all against the awesome wrath of nature. The close brush between classes and groups that had occurred as people sheltered wherever they could only served to highlight actual distance even though many, if not most, slums intimately share physical space with more 'permanent' structures, through the practice of packing housing into every available open space, through sanction or aggression. Nehru Nagar, for instance, is packed up against the more prosperous western suburbs like Santa Cruz and Juhu. Many middle-class families in these areas, for instance, were dismayed to find the families of their household help sheltering in the public spaces of their buildings as their shacks were drowned or washed away even though these people had intimate connections to their everyday lives and entered and exited their buildings freely as household labour.

Thus, the un-differentiated mass of those making up the 'effective city' in Jim Masselos's terms, can be further distinguished by the nature of these encounters that reinforce what we might call the experience of proximate distance as a *social diacritic* of urban density. Similarly, one can analyze the encounters of the crowd with the debris described above, each of which might be read as fragments of a social history of existing in the city. The mattresses, pots and pans, the television sets, radios and armoires, the corpses of animals kept at the abattoir or at home, the tarpaulin, sticks and tin frames from which the temporary architecture of the city is fashioned and the abandoned bicycles, cars and scooters, marooned buses and trains stopped dead in their tracks – are all turned, in the moment of the flood, into ephemera, material ruins through which the life-world of the city could be grasped by its weary masses. Here, the phenomenological experiences of the crowd and practices of adjustment encounter those of aspiration and achievement, through the life and death of objects that may have been discarded anyway through the cycles of personal histories of consumption or may have been picked up as debris by others too poor to consume except the trash and debris discarded by the better off.

Jugaad or Actually Existing Urbanisms:

These ethnographic descriptions of moments in which the structural couplings of people and

infrastructure become visible or, are made visible by following certainly rapidly circulating traces⁸ point to the ways in which infrastructure, as a medium of social relations, is produced or made incessantly in pragmatic acts of inhabiting the city. The systemic consolidation of urban territory as a terrain of work, production, desire, pleasure and consumption occurs through the information gathered, processed and transmitted through the medium of infrastructure. In this concluding section, I would like to explore the examples presented above in terms of what information is being transmitted and the manner in which such information is systemically processed. In both cases – whether infrastructure is the medium of connectivity or of collapse – the social is traced in its formation, bringing up an old anthropological conundrum about the relationship between structure and event or between structure and memory. For the problem of structure is one of continuity, predictability or, at any rate regularities, which would produce the co-existence of large numbers of people on a daily basis and even enable them to survive catastrophic events as a group. In his classic book of essays on island societies, Marshall Sahlins offers two propositions about the relation between structure and event – the first is that the “transformation of a mode of culture is a mode of its reproduction” and the second is that “cultural categories acquire new functional values in acts of reference.” (p.138) These propositions, offered in relation to culture as a system of categories which structure acts of subjective reference, however, position structure as a synthetic, analytic concept. By contrast, *infrastructure* is a fundamentally realist concept, peculiarly detached from the conditions that produce meaning for the subject or the observer – at the very most, referentiality is obtained but in a broken fashion, directed by forces other than the human and by media other than language.

The sense of the real that emerges through systematic theorizations of infrastructure is one of a field of forces, constantly transformed not only by conscious acts of fabrication and design but also less visible phenomenological practices drawing on the potential expressed in material dispositions inherent in infrastructural formulations. Thus the remarkable series of ‘innovative fixes’ that define the public spaces of most South Asian as well as other cities – ranging from the transformations of sidewalks into active marketplaces to the use of large diameter sewage pipes as building materials for propping up homes to using the railway compartment as a site for practicing forms of ‘adjustment’ as *precurative* forms of conviviality – should be taken note but outside of the usual discourses of despair or redemption achieved by being able to celebrate the ingenuity of the poor, the marginalized and the excluded in their practices of inhabitation.

These practices, born of necessity, do have a quality of artfulness about them, which is undeniable. Many practicing contemporary artists based in India turn to such situations routinely for ‘inspirations’, ranging from recreations of situations and experiences (Hema Upadhaya, Meera Devidayal, Bose Krishnamachari to mention only a few) to the production of situations in which

⁸ As Latour and Hermant (2006) put it, “There is not exactly an outside to the social, if by this word, already more precise, we mean a certain form of rapid circulation of traces. The outside, the general framework, is not what dominates me; it is what I dominate with my gaze. But what I dominate I don’t see unless I refrain from looking outside, otherwise I am immediately limited to my own point of view. Hence there is never much sense in distinguishing the individual and the context, the limited point of view and the unlimited panorama, the perspective and that which is seen to have no perspective. It is better to distinguish the person looking from a window and not seeing anything, who has no idea who they are or what they should do, from the person who, in a continuous flow of traces, picks out an image that will teach them both who they are, in particular and the global frame in which they should be situated. Either I really see and I see nothing, I am nothing; or I see nothing directly, I look at a trace and I begin to really see, I gradually become someone.” (11: emphasis added)

networked forms of community might emerge as a work of art (Raqs Media Collective). Such practices bring visibility to the diversity and creativity of life-worlds emerging in the shadows of poverty and deprivation. The problem however, is to move from images and representations to propositions, which requires considering a range of ethical questions. The celebration of *jugaad* or innovative, improvisational urban practices and the objects they produce as temporary 'fixes' or solutions to systemic problems is problematic in that such celebration either assimilates innovation to the sphere of capitalist entrepreneurship (which includes the vast majority of professional design practices as well) and, even more perniciously, turns the conditions for contemplating necessary ethical problems into permanently speculative and provisional ones.

In his historical anthropology of media technologies in urban Nigeria, Brian Larkin (2008) argues for "treating media technologies as parts of a much wider logic and form of infrastructure" which, in turn enables him to "open up new ways of thinking about the production of Nigerian urban space *over time*." The logic and form of infrastructure is connected, in turn, to the "institutional discursive contexts that accompany objects and which establish them as facts in the world." These contexts, he suggests are similar to Foucault's concept of "archive" "not as a collection of documents or things but as the form of political exteriority that makes objects appear to have certain meanings and not other ones." (247) I began my own discussion of infrastructure under the sign of "crisis," in need of renovation and then proceeded to examine situations of urban density that made visible different dimensions of the structural coupling between people and infrastructure as contexts within which different forms of sociality emerge. When a continuous discourse of crisis about the loss of instrumental efficiency in the city's underground norms the practices and imaginaries of infrastructure-making, it becomes the form of "political exteriority that makes objects appear to have certain meanings and not other ones."

It is important to remember that particular forms of sociality emerge, however, in conjunction with and indeed, inseparable from the qualities of infrastructure as material forms or the dispositions of materials as constituting their form (Easterling 2011). In turn, if we think of infrastructure through the logic of media or as "media objects," as Larkin suggests, we might also use these emergent forms of sociality and their effects as interpreted above as evidence for the ways in which infrastructure serves as a medium of spatio-political reconditioning (Easterling, n.d.). Infrastructure as organizational medium might constitute the "real" underlying the ideal of the modern metropolis, the mega-city, the global city and so on.

Yet, as media objects, infrastructures are not mere carriers of information but also conditioners of systems through their capacity to process information and to feed it back into the urban system, thereby influencing its goals and orientations. The acts of urbanism analyzed in this essay are spatio-political reconditionings of a particular sort – they depart from normative understandings of the effects of the structural coupling between people and infrastructure and build affective arguments for the inhabiting the city. The emergent forms of sociality must always be considered against the backdrop of an archive as the "form of political exteriority." This raises, once again, the specter or the trace of the public as an archival substrate for ethical discussions of the city and its future rather than the metropolis as technical achievement in which the public on the surface is coded and constituted by the instrumental efficacy of the technological underground.

In a place like Mumbai, the disjuncture between surface and underground is vivid – it is most

palpable in the visual experience of the city as a messy and ad hoc agglomeration of forms bearing no formal, relation to one another reflecting a particular aesthetic based on geometric regularities of objects implicated in space. Such messy forms signal a ludic element at work – the play of changing urban development regulations, investment flows and business cycle caprices and the desires of powerful urban residents for upgraded neighborhoods coming together to modify the city's development plan, bit by bit. But they also signal a politics of gridlock at work – a snarl brought about by the continual renovation and modification of the underground itself by alternative imaginaries of infrastructure making, coexisting with and pushing up against the imaginaries of the “mega” (Benjamin 2008). Critiques of such gridlock are forced to draw on the metropolis and its ghosts, to confront the immanent and imminent death of the city either in as in fully realized utopia of the metropolis or in the shattering of the ideal of the metropolis. The reflective ethical framework of the public, essential to this understanding of time is being replaced by a speculative ethical framework that operates through the embrace of predictable uncertainty as a force shaping everyday life and reflected in situations of infrastructural flux. I do not have the space here to develop this point further but only to say that in order to understand this emergent speculative ethos better, it is necessary to recognize those moments at which imaginaries of infrastructure making meet the relational agency of material infrastructures in the urban environment as constitutive of the ethical conditions for inhabiting the city today.

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