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# Fetishizing the Modern City: The Phantasmagoria of Urban Technological Networks\*

MARIA KAIKA AND ERIK SWYNGEDOUW

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The question that now begins to gnaw at your mind is more anguished: outside Penthesilea does an outside exist? Or, no matter how far you go from the city, will you only pass from one limbo to another, never managing to leave it? (Calvino, 1979: 122).

## Introduction

Technological networks (water, gas, electricity, information etc.) are constitutive parts of the urban. They are the mediators through which the perpetual process of transformation of nature into city takes place (Russell *et al.*, 1997). Technological networks are the material mediators between nature and the city; they carry the flow and the process of transformation of one into the other. The city is a space of flows, of flux, of translocation. The urban fabric and the technological networks that carry the flows are a nexus of entry-exit points of a myriad of interconnected circuits and conduits. The city becomes a perpetual passing through of deterritorialized materials. Deleuze and Guattari (1997: 313–16) capture this dialectic of process and thing in their definition of the city as follows:

The town is the correlate of the road. The town exists only as a function of circulation and of circuits; it is a singular point on the circuits which create it and which it creates. It is defined by entries and exits: something must enter and exit from it. It imposes a frequency. It effects a polarisation of matter, inert, living or human; it causes the phylum, the flow, to pass through specific places, along horizontal lines. It is a phenomenon of transconsistency, a network, because it is fundamentally in contact with other towns. It represents a threshold of deterritorialization because whatever the material involved, it must be deterritorialized enough to enter the network, to submit to polarisation, to follow the circuit of urban and road recoding. The maximum deterritorialization appears in the tendency . . . to separate from the backcountry, from the countryside.

Deleuze and Guattari insist how the city is a circulatory conduit, a flux that is always material (in all possible senses, including symbolic and discursive flows), but never fixed. Of course, scripting the city as a process of flows is not particularly new (Merrifield,

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1993; Sennet, 1994; Harvey, 1996), although it is remarkably absent from much of contemporary urban research. However, urban networks in the contemporary city are largely hidden, opaque, invisible, disappearing underground, locked into pipes, cables, conduits, tubes, passages and electronic waves. It is exactly this hidden form that renders the tense relationship between nature and the city blurred, that contributes to severing the process of social transformation of nature from the process of urbanization. Perhaps more importantly, the hidden flows and their technological framing render occult the social relations and power mechanisms that are scripted in and enacted through these flows.

However, urban networks have not always been opaque. Along with their 'urban dowry' — water towers, dams, pumping stations, power plants, gas stations etc. — they have undergone important historical changes in their visual role and their material importance in the cityscape. In particular, during the early stages of nineteenth-century modernization, urban networks and their connecting iconic landmarks were prominently visual and present (Portaliou, 1998). When the urban became constructed as agglomerated use values that turned the city into a theatre of accumulation and economic growth, urban networks became the iconic embodiments of and shrines to a technologically scripted image and practice of progress. Once completed, the networks became buried underground, invisible, rendered banal and relegated to an apparently marginal, subterranean urban underworld.

If we consider the city as a process of transformed nature, as the metabolic and social transformation of nature through human labour, the city turns into a 'hybrid' of the natural and the cultural, the environmental and the social (Latour, 1993; Swyngedouw, 1996; Swyngedouw and Kaika, 2000). Entering the city posits the city as a flow, a flux and a movement, and suggests social, material and symbolic transformations and permutations. It also puts the focus on the process of commodification. Indeed, commodification, understood fundamentally as a social and cultural process of inserting socially metabolized goods into commodity or market relations, becomes in the modern city the form and medium through which 'nature' is turned into urbanity and the production of an urban environment. Of course, as we shall argue below, a process of fetishization parallels commodification. Fetishization is exactly the process through which the commodity form becomes *the* form of existence, severed from its historical and geographical (hence social) process of production; a process that is, of course, full of ambiguities and contradictions.

In this paper, we shall take water as the emblematic example to excavate the shifting meanings of urban technological networks. Indeed, as water becomes commodified and fetishized, nature itself becomes re-invented in its urban form (aesthetic, moral, cultural codings of hygiene, purity, cleanliness etc.) and severed from the grey, 'muddy', kaleidoscopic meanings and uses of water as a mere use-value. Burying the flow of water via subterranean and often distant pinpointed technological mediations (dams, purification plants, pumping stations) facilitates and contributes to masking the social relations through which the metabolic urbanization of water takes place. The veiled subterranean networking of water facilitates severing the intimate bond between use value, exchange value and social power. The discrete technologies themselves become enshrined as the sources of all the wonders of the city's water. When Jules Verne (1863) in his mid-nineteenth century futuristic account of 1960s Paris views the Seine, he still sees giant waterworks and mesmerizing pumping stations along the banks of the Seine in central Paris as the beating heart that satisfies the thirst of the city. In his early modern projection of the late modern city, the commodification of water is there for all to gaze at and contemplate. Dams, water towers, sewage systems and the like were celebrated as glorious icons, carefully designed, ornamented, and prominently located in the city, celebrating the modern promise of progress. During the twentieth century, the symbolic and material shrines of progress started to lose their mobilizing powers and began to disappear from the cityscape. Water towers, dams and plants became mere engineering

constructs, often abandoned and dilapidated, while the water flows disappeared underground and in-house. They also disappeared from the urban imagination.

Although the importance of the operational, economic and social role of technology networks in the function of the modern city has been addressed in academic literature (Castells, 1985; Chant, 1989; Franklin, 1990; Graham and Marvin, 1996), it can be argued that their cultural, ideological and aesthetic role has been largely overlooked or neglected. This is not particularly surprising given their visual absence and lack of transparency. In this paper we shall address the dialectics between the economic/functional role of urban networks on the one hand, and their aesthetic/ideological and cultural position and representation on the other. This will permit us to grasp the shift from celebrating urban technological networks in the beginning of modernity to their subsequent underground burial during high-modernity. This, in turn, is closely associated with the dialectic of visibility/opacity of networks and with the changing aesthetic role of their 'dowry' in the urban environment.

Commodity fetishism is the entry into our excavation of the dialectics between the economic/political and the cultural/ideological role of networks, and the hide/show of their material existence in the urban. 'Commodity fetishism' uniquely permits the bringing together of economics, politics and culture. Urban networks became 'urban fetishes' during early modernity, 'compulsively' admired and marvelled at, materially and culturally supporting and enacting an ideology of progress. The subsequent failure of this 'ideology of progress' is paralleled by their underground disappearance during high-modernity, while the abandonment of their urban dowry announced a recasting of modernity in new ways.

## On commodity fetishism

There it is a definite social relation between men, that assumes, in their eyes, the fantastic [phantasmagoric] form of a relation between things. In order therefore, to find an analogy, we must have recourse to the mist-enveloped regions of the religious world. In that world the productions of the human brain appear as independent beings endowed with life and entering into relation both with one another and the human race. So it is in the world of commodities with the products of men's hands. This I call the Fetishism, which attaches itself to the products of labour so soon as they are produced as commodities, and which is therefore inseparable from the production of commodities. This Fetishism of commodities has its origin ... in the peculiar social character of the labour that produces them (Marx, 1976: 165).

All goods necessary to sustain human lives are produced. Water, food, clothing, housing, even air, undergo a production process involving the extraction of raw materials and their subsequent transformation through human labour (Cronon, 1991; Swyngedouw, 1996). Under market exchange conditions and capitalist relations of production, these goods enter the social and urban fabric as commodities. The particular use values of goods that satisfy the wants and desires of individuals and social groups become combined with the distinct, universal and homogenized characteristic of their exchange value (Marx, 1976). The exchange value acquired by commodities is based precisely on the fact that they are produced under specific social relations of production (Lefebvre, 1991). This production process presupposes the transformation of nature through human labour. Although the natural foundation of this socioenvironmental metabolism that we call the labour process is an essential mechanism in the creation of exchange value of commodities, the link between nature and the final product (commodities) is severed and the socioeconomic conditions of their production are obscured. Commodities begin to appear as mere embodiments or containers of exchange value. In this way commodities become 'naturalized', and the qualitative relations involved in their production process become

quantified. Blurring the socioenvironmental process of their production by foregrounding their character as universally exchangeable for anything else becomes an amazingly powerful mechanism. Severing materially and symbolically the connection between producing exchange and use values contributes to masking the qualitative social and environmental relations of production. Acquiring exchange value, without revealing at the same time the social power relations of their production, permits commodities to be presented as exceptional, as outside and over the thing that really makes them exceptional (i.e. the social metabolism of nature). The special character of commodities, the thing that makes them desirable and makes consumers want to pay the price, comes from presenting the commodity as an autonomous entity, as having a life of its own and a value in itself. In short, commodification turns the commodity into a fetish (Pietz, 1993). According to Marx, commodities become fetishes when the quantification of qualitative relations allows for abstraction to take over (Marx, 1976; Mitchell, 1986). With this abstraction 'comes the danger of obscuring the nature of social reality' (Best, 1994: 44). From then onwards, 'commodities supply their own ideology in the market' (Eagleton, 1991: 37). Hence, commodity fetishism provides a cunning answer to the contradictions stemming from the need to sustain and increase the exchange value of commodities without revealing the socioenvironmental relations of their production. It is a kind of perverse 'exchange', producing 'material relations between persons and social relations between things' (Marx, 1976: 165).

Indeed, the autonomy of the commodity as a fetish and the desire to acquire the commodity often do not even depend on its use value, or on the buying capacity of the consumer. One can perfectly well desire a commodity which one cannot afford (Buck-Morss, 1995). The price the consumer is prepared to pay for a commodity depends heavily on the ability of the market to render opaque the socioenvironmental relations embodied in the production process of commodities and to celebrate their uniqueness and phantom-like character. The fetish character of commodities often turns them into objects of desire in themselves and for themselves, independent from their use value. It is, Benjamin argues (cited in Buck-Morss, 1995: 181), exactly this very 'estrangement of commodities' that makes them capable of becoming 'wish images'. Commodities do not only carry their materiality, but also the promise and the dream of a better society and a happier life. The delights and the desires of the 'fetish', something we are continuously reminded of through the spectacular commodified displays of shopping centres and the promises of advertisements, permit us exactly to recast and re-imagine the world in a 'delightful' manner. Of course, this double contradictory characteristic of fetishization invariably fails to deliver on its promises as the perpetual nourishment of the old with the new, and the phantasmagoric character of the commodity, subverts the possibility of actually experiencing and living the desires promised by the commodity.

## **The fetishization of the urban: technological networks and their 'urban dowry'**

Like other commodities in a market economy, the urban environment (roads, parks, buildings, networks) is also produced and commodified through the same process of transformation of nature by human labour (Harvey and Chatterjee, 1973; Davis, 1990; Lefebvre, 1991). However, although the urban is part and parcel of our everyday experience, the human labour and social power relations involved in the process of its production are forgotten. The production of the urban remains, therefore, unquestioned and the urban becomes 'naturalized', as if it had always been there on the one hand, and as distinct and separate from nature on the other. Yet, the urban undergoes the same process of production/commodification and fetishization, similar to other commodities.

Technological networks are a constitutive part of the urban as a collective means of consumption (Lojkin, 1976; Castells, 1977). The latter adds a particular twist to the process of their commodification and fetishization. The use value of networks dwells exactly in their capacity of and role in facilitating the process of socioenvironmental transformation and metabolization; the networks permit exactly the urbanization of nature *and* the fetishization of the commodities it carries. Water supply networks, for example, are the means of transforming H<sub>2</sub>O (a natural element) into potable, clean, translucent water (a socially produced commodity embodying powerful cultural and social meanings) (Illich, 1986; Swyngedouw, 1997). Water enters one end of the network as H<sub>2</sub>O and subsequently undergoes a chemical and social transformation to end up at the other end (the tap) as potable water, as a commodity properly priced and treated. Networks express through their material existence the socioeconomic process and the material flow of this transformation of nature into commodities. They represent, as they cut their way through and underneath the urban, the production process.

They are the prerequisite for delivering the final product of the process of transformation of nature (water coming out of the tap, for example) to the city and to the market. Water, gas, electricity etc. cannot be delivered, priced or sold without a prior connection of the customer to the respective network. The exchange value of networks stems from the indispensable character of this connection to exist for both the market and the urban to function. However, until recently (when they started becoming privatized), there was no 'price tag' attached to them as in the case with other commodities. But that does not mean that they do not have an exchange value; their exchange value is embodied in the exchange value of the commodities they deliver. The fetishization of networks dwells exactly in the twin-condition that connection to the network implies acquiring the use value of the utility *and* realizes the promise of participating in the phantasmagoric new world of technological advancement and 'progress'; a world in which human freedom and emancipation resides in connecting to the technological networks. This belief lies at the heart of the fetishization of networks during early modernity and of their magnification to the point where they 'subsume and mystify the underlying relations of production' (Best, 1994: 44). They become abstractions, 'cease to be a product controlled by human beings', take a 'phantom like objectivity and lead their own lives' (Buck-Morss, 1995: 181). Indeed, during early modernity, networks of technology fitted perfectly to Marx's definition of the fetish as a 'bewildering thing full of metaphysical subtleties and theological capers' (Marx, 1976). As we shall explore in the next section, they became autonomous embodiments of progress and material supporters of the ideology that a better society was under construction.

## Early modernity (mid-nineteenth century–1914): myths of modernization and progress

Work continues. The grunt into hard clay. The wet slap. Men burning rock and shattering it wherever they come across it. . . In the east end of the city a tunnel is being built out under a lake in order to lay intake pipes for the new waterworks. . . During the eight-hour shift no one speaks. . . All morning they slip in the wet clay unable to stand properly, pissing where they work, eating where someone else shit. . .

Above ground. . . the excavations and constructions were also being orchestrated. The giant centrifugal pumps, more valuable than life, were trolleyed into place with their shell-shaped impellers that in Commissioner Harris' dream would fan the water up towards the settling basins. . . "The form of the city changes faster than the heart of a mortal", Harris liked to remind his critics, quoting Baudelaire. . . Harris imagined a palace for it. He wanted the best ornamental iron. He wanted a brass elevator to lead from the service building to the filter building where you could step out across rose-coloured marble. . . He was a man who

understood the continuity of the city... This was choreography in 1930 (Ondaatje, 1988: 108–11).

The industrial revolution was accompanied by the secularization of society and a growing belief in reason as the means of solving social problems. The work of, for example, Henri Saint Simon and Auguste Comte tried to reconcile progress with order by developing a 'science of society' (Waites, 1989). Rousseau's idea of 'Man being good by nature but ruined by civilisation' became linked to the belief that human reason was the means for achieving 'the good' in human nature. During early modernity, the amelioration of city and society became part and parcel of a quest for equality and freedom through reason and progress. The Promethean promise of science and technological innovation would pave the way for breaking the chains of slavery to nature and to other human beings. Technology in itself would improve living standards and social environments, and held the promise of automatically leading to a better world. As long as there was 'progress', there was no fear of going 'backwards', no question or doubt about the positive trajectory of fulfilment of history's destiny, if not mission. The disempowered were bound to finally enter the paradise of technological freedom if only they would be patient and hardworking enough to serve the god of technology for an undefined and indefinable length of time. Freedom was promised at each turn of the corner, to be relentlessly frustrated again by the next promise.

With the rise of the 'age of reason' and the secularization of society, the built environment underwent important change. The canonical example of the emergence of a new urban form was the design for the surveyor's house on the river Loue by the architect Claude Nicolas Ledoux in the 1780s. The design was based on the idea of mastering nature through taming a stream into a desired course with the aid of technology (Gympel, 1996). The future was open and everything seemed to be possible. However, this revolutionary architectural movement coexisted with a deeply entrenched and conservative classicism, which insisted on the enduring aesthetic appeal of historical forms. From the very beginning, modernity revelled in the complexity and coexistence of progressive and reactionary forces in the shaping of the urban form (Harvey, 1989) and of an intermingling of fear and fascination that accompanied the introduction of technological innovations (Marx, 1964).

The expansion and consolidation of free trade, the establishment of a global monetary system and mass movements of goods and people from the mid-nineteenth century onwards went hand in glove with the need to connect the world via the proliferation of all kinds of networks. Technology, in the form of railways, steamships and the telegraph were becoming part of daily life (Burchell, 1970). Being 'connected' became an icon and expression of progress. Technological networks and constructions, apparently mastering and taming nature, were among the most prominent material expressions of this practice and ideology in the urban sphere. Because of their significant role in the functioning of the modern capitalist city, networks of technology became *the* embodiment of progress during early modernity. The more the urban environment was filled with networks, the closer humankind would appear to approach the final goal of emancipation and freedom from the 'tyranny of nature'. Being connected to technology meant in itself emancipation, was in itself a way of participating in the new society. Being excluded from the technological networks, on the contrary, symbolized exclusion from the spheres of the powerful. Hence, the connection to the electricity or water networks of the city, or, similarly, the connection of one's home to a network of highways became a symbol of prestige and authority on the one hand and a terrain of controversies and power struggles on the other.

Of course, as many would soon discover, this process did not necessarily lead to emancipation. It also harboured practices of exclusion and segregation. Hence, despite the inevitable fascination with the new and the unknown, 'people were torn between a sense

of euphoria at the progress and a romantic blurring of the past' (Gympel, 1996: 72). The wonders of technology entering every day urban life created both awe and fear. This combination of anxiety and admiration was also related to the rapidly deteriorating living and working conditions of the working class, despite the promises enshrined in technological progress. Social unrest intensified, culminating in, among others, the Paris Commune in 1871 and the Dock Strike of 1880 in the UK. Along with other urban 'miasma', the living conditions in slums in combination with lack of sanitary conditions resulted in the growth of epidemic diseases such as cholera, typhus etc. Two epidemics of cholera hit London in 1831 and 1848–49 (Coley, 1989). During the 1840s, the sanitation movement emerged and Chadwick embarked on his mission to link cleanliness with water supply.

The urban conquest of water brought it squarely into the sphere of money and cultural capital and its associated power relations, and redrew socio-natural power relations in important new ways. For example, the commodified domestication of water announced the withdrawal of the urban elite body and bodily hygiene from the public or semi-public sphere and its retreat into the privacy and intimacy of the bathroom and the toilet. This, in turn, redefined the body and bodily relations. The new sanitized and deodorized (washed) urban bodies in a sanitized and cleansed urban public civic space redefined both class and gender relations. Images of sexuality (predominantly female) began to revolve around the secrets, intimacy and eroticism associated with the bathroom, the toilet and the sprinkling of domesticated water over the naked body. Of course, the new deodorized urban body, embodying quite literally a new civic, modern-urban ideal, carried by an urban bourgeoisie that was becoming quickly self-confident of its new role, became reodorized in new ways, expressing cultural distinction and power differentiation (Bourdieu, 1986). Men began to smell after tobacco and leather, women after roses and violets. But this new urban civic body also separated the sanitized bodies of the new urban elites from the smelly peasant and sweaty proletariat. Class and gender relations became impregnated with smell and odour and the body aura became an element in cultural and social differentiation and power relations (Suskind, 1987; Rindisbacher, 1992; Corbin, 1994).

A set of urban water supply and sewerage networks began to penetrate the city, along with rail and telegraph. They became the revered technologies introduced to serve the 'public good' (Goubert, 1989). Together with the network of water mains and pipes, their 'urban dowry' of water towers, purification plants, dams and reservoirs became a key element part of the urban landscape. A series of world exhibitions were staged to praise and familiarize the public with these new technological masterpieces and their promises. The new technological temples were disguised with old and familiar forms and morphologies, and draped in imperial grandeur (see Figure 1). They tempered the fear of the new, created an image of continuity, while their spectacular adornment suggested a triumphant future. Ondaatje's account of the construction of water station in *In the skin of a lion* summarizes this as follows:

From across the province the subcontractors brought in their products and talents to build a palace for water. Harris has dreamed the marble walls, the copper-banded roofs. He pulled down Victoria Park Forest and the essential temple swept up in its place. The architect Pomphrey modelled its entrance on a Byzantine city gate, and the inside of the building would be an image of an ideal city (Ondaatje, 1988: 109).

By the late nineteenth century, 'social reformers' worked hand in hand with engineers to construct a better and sanitized world (Goubert, 1989). The early threat imposed by the introduction of technology gradually begins to give way to a 'new deal' between man and technology, a deal based on an assumed mutual benefit between technology and the conditions of life. The process of familiarization with the expressions of technology in everyday life bears fruit and technological achievements begin to be marvelled at for what they really are: crude expressions of the power of progress. Technology and new



**Figure 1** *Water cathedrals: Abbey Mills Pumping Station, London. A classic example of Gothic industrial architecture, built by Joseph Bazalgette between 1865 and 1868 (source: Trench and Hillman, 1993: 74. Reproduction by permission of the Guildhall Library, London)*





**Figure 2** *The aesthetics of technology: a water tower in Bochum/Langendreer, Germany (source: Becher and Becher, 1988. Reproduction by permission of Schirmer/Mosel Verlag publishing house, with special thanks to the Bodleian Library, University of Oxford, Shelfmark Bod.M89.2959)*

materials are not only accepted but start being aestheticized in a new way. The Eiffel Tower, for example, ‘assembled out of steel girders, illuminated with electric lights, powered with dynamos and petrol engines, linked by copper wires’ (Burchell, 1970: 39), became the classic statement of this trend. For Eiffel, the tower expressed ‘its own unique beauty’ (Gympel, 1996: 76) and, despite the original decision to tear it down after the

exhibition, it remained dominating the Parisian landscape as a reminder of the continuing fascination with technology and its own special aesthetics.

The late nineteenth-century fascination with technological myths and urban utopias was paralleled by an increasing importance of the state's role as a facilitator of growth and promoter of technological change and innovation (Chant, 1989). Large-scale water engineering projects followed the introduction of germ theory. The Medical Officer of the Public Health Authorities in London, for example, recognized that the importance of engineers was on a par with that of the medical profession (Coley, 1989). Water and sewerage networks were being laid everywhere and dam and water tower constructions were accompanying that development. While the 'back to nature' movement with its garden city utopias was providing an anti-urban 'run-away solution', the urban environment was saturating with networks and the machine developed its own aesthetic form and language. It was no longer imitating historical forms, but was instead making a statement about the power of technology and reason itself. The factory Peter Behrens designed and built in 1908 for AEG marked the beginning of a period when the urban technological dowry acquired its own aesthetics and asserted itself in the urban (Gympel, 1996) (see Figure 2).

In sum, during early modernity, the technological dream of a universal justice under the equalizing and totalizing powers of technology was widely held. The urban networks and connections had to keep expanding in order to both sustain and, moreover, visualize the ideology of progress in everyday urban experience. The urban became saturated with pipelines, cables, tubes and ducts of various sizes and colours; things that celebrated the mythic images of early modernity, encapsulating and literally carrying the idea of progress into the urban domain. Their material existence provided the confirmation and lived experience that the road to a better society was under construction and paved with networks. They soon became the personification of progress and were marvelled at in themselves as objects of admiration, fascination and desire. In short, they became fetishized, making Louis Aragon exclaim in 1926 in his *Paris peasant*:

Painted brightly with English or invented names, possessing just one long, supple arm, a luminous faceless head, a single foot and a numbered wheel in the belly, the petrol pumps sometimes take on the appearance of the divinities of Egypt [...] O Texaco, Motor Oil, Esso, Shell, great inscriptions of human potentiality, soon shall we cross ourselves before your fountains and the youngest among us will perish for having contemplated their nymphs in naphtha (Aragon, 1994: 117).

It is not only networks of technology that were fetishized as the material expressions of the ideology of progress. Along with the networks, the elements of the built environment that supported the functional role of the networks (i.e. water towers, power stations, reservoirs, pumping stations etc.) — what we have called the 'urban dowry of networks' — were also fetishized. As Portalio (1998: 287) argues: 'The proliferation of phantasmagorical forms in public spaces encloses the aura of art and the content of fantasy and senses within the commodity's pitiless power, hidden behind the phantasmagoria'. Commissioner Harris's dream of an adorned and aestheticized 'palace of purification' in Michael Ondaatje's novel *In the Skin of a Lion* captures this delightful and desiring shrine to progress in all its fetishist beauty (Ondaatje, 1988). The 'urban dowry' became prominently visible in the urban during early modernity. These concrete shrines embodying the networks were sticking out of the city landscape; they provided the best form of 'landmarks' in the image of the city (Lynch, 1960) and became the 'stuff' of artistic renditions of the cityscape (Becher and Becher, 1988). Their beauty and fascinating character was no longer achieved through ornamental display. Their beauty lay in the promise they were carrying for a better future and a more equal society. For those marvels of technological innovation and urban progress that were part of the networks but situated outside the urban area (e.g. dams, hydroelectric stations etc.), guided tours and

spectacles were organized to visit and admire them, to pay homage to the constructions that would transform people's lives. Visiting dams was a very popular activity in the early twentieth century and remained popular until the late 1960s. It was indeed a deeply quasi-religious experience, travelling hundreds of kilometres away to bow in front of dams in the middle of nowhere. Equally, boat trips through the sewerage system of Paris used to be a prestigious middle-class activity during the late nineteenth and early twentieth centuries (Reid, 1991; Gandy, 1999). As Plaskovitis notes, the urban dowry of technology networks gained a life of its own, became a thing in itself and for itself:

Oh yes! Ultimately, the dam had a deep consciousness of its purpose! It must have been so well aware of the fact that it was a dam, a fatal existence, dividing existence, in order to be able to show itself off the way it did that night — for the first time, that night — in front of the engineer's eyes (Plaskovitis, 1961: 21).

The phantasmagoria of and fascination with technological networks and cathedrals in the urban experience, and their combined role as ideology supporters and objects of admiration and worship, suggests that they became fetishized products in a double sense. First, in a Marxist sense, these networks enshrined an instrumentality in terms of reifying social relations. For the late Marx, the commodity automatically supplies its own ideology. As Eagleton asserts: 'it is routine material logic of everyday life, not some body or doctrine which keep the system ticking over' (Eagleton, 1991: 37). The fascination with technology and technological constructions in themselves made progress appear to be merely a matter of construction, of technological innovation and of connection. The fetish role of networks and the emphasis put on the new and the innovative masked the underlying relations of production and social power relations, which remained symptomatically the same. Second, in the way Walter Benjamin would define the fetish, they became objects of delight and desire in themselves, as signs and wish images of a better society that was yet to arrive (Buck-Morss, 1995). Where Marx was using 'phantasmagoria' to describe the fetish character of commodities in the market, Benjamin was interested in the commodity on display, where the representational value of the commodity was emphasized. 'Everything desirable from sex to social status could be transformed into commodities as fetishes-on-display that held the crowd enthralled even when personal possession was far beyond reach. Indeed, an unattainably high price tag only enhanced a commodity's symbolic value' (Buck-Morss, 1995: 82). In their fetish role, networks and their nodal infrastructures were not just carrying water, electricity etc. into the city, but also embodied the promise and the dream of a good society. The cathedrals of progress represented, displayed and celebrated the aestheticized dreams of tomorrow's utopia.

The desire to connect to them was more than the desire to acquire the utility; it meant connecting to progress, 'betterment' and emancipation. Their display kept the dream alive, kept their phantasmagoric character vibrant; the city itself was the shop window for their display. It is the materiality of the fetish objects, infused with a utopian dream that permits the visualization of the dream itself. In this way, technology and networks, although failing to deliver the promise of a better society, became wish images for a better society that could be anticipated and desired. The imagined capacity of technology to 'create the not-yet-known' (Buck-Morss, 1995: 115) turned them into objects of desire. Technology as the means to achieve a better society was mistaken for the actualization of that better society. Urban technologies and technology networks were among the most prominent material expressions of the process whereby '[c]ommodity fetishes and dream fetishes become indistinguishable' (Buck-Morss, 1995: 118). The symbol of a possibility for a better world is turned into a fetish of a fragmented material realization of that better world and, as such, an object of desire *per se*.

But it is precisely this second element of fetishized desire that would eventually turn against itself, and erode or subvert the fetish character associated with their commodified reification. This subversion was expressed in material and visual terms within cities and

transformed the very experience of urbanity in profound manners. The fetishized objects of desire, embodied in networks and enshrined in their 'urban dowry' became 'eidola', idols adored in themselves. Marvelling at networks, dams or water towers as embodiments of urban emancipation obscured seeing the exploitation of living labour and the socioecological transformation involved in the process of their production. Stripping those objects of their social meaning left them as just fetishes and idols, phantom-like material expressions of a myth of progress and an ideology of automatic emancipation. Of course, as Walter Benjamin argued, 'once the initial hollowing out of meaning has occurred this meaning can at any time be removed in favour of any other' (cited in Buck-Morss, 1995: 181). This subversion of meaning and the re-inscription of others plays itself out historically in the tumultuous reordering of modernity this century. The dialectic of subversion and the changes wrought from this is what we shall turn to next.

### **Modernity recast (1918–60): the subversion of the fetish and the reinvention of the urban**

The Paris World Exhibition of 1900 familiarized European engineers with the 'wonders' of Taylor's experimentations in 'scientific management' in the US. After the first world war, the 'traditional industries' of coal and cotton gave way to science-based industries. The economies of European countries, badly affected by the war, turned to the principles of scientific management (Waites, 1989). The 'Americanization' of European industries continued until the dawn of the second world war (Gramsci, 1971). For a short period of time during the interwar period, hope temporarily revived as the focus shifted from the sphere of the public to the promise of a privately planned happiness. The technological promises were translated from the sphere of public works and city networks to the factory system and to the home, introducing new relationships between man and machine (Franklin, 1990). Technology is put into the hands of the employer and determines the movements and timing of the worker. An industrial worker reports in 1937: 'I suddenly realise in one sensation that there is no escape. It is all unavoidably real and painful. How much energy I must expend today has been predetermined by my employer' (Richard, 1937: 140). The introduction of assembly line production techniques was followed by strikes and the demand for the 8-hour working day (Waites, 1989). It marked the beginning of the realization that the technological 'fix' might not actually realize the dream of 'freedom' and 'progress'. Both Fritz Lang's *Metropolis* and Chaplin's *Modern Times* became cultural expressions of this creeping doubt about the promises of technological progress. The materiality of technology might not necessarily correspond to the mythic images and imagineered utopias that surrounded it. The familiarization with technology and technological forms started revealing its fetish character: '[t]he shop is beautiful. Machines, blue steel, huge piles of stock. Interesting patterns of windows are darkened by the early hour. This is the impression one gets before he becomes a part of the thing. The beauty is perceivable then. The unbiased observer cannot relate it to the subjective outlook he later acquires' (Richard, 1937: 140–1).

Indeed, as modernity asserted itself with greater vengeance and shattered the experiences and practices of space and time (Kern, 1983), the assumed emancipatory powers scripted into the urban began to fade away (Burchell, 1970; Buck-Morss, 1995). The contradictions and tensions of capitalist modernization increasingly revealed that technological innovation and progress were profiting at the end of the day the ones who had control over the means of production. At the same time, labour was turned into the appendage to the idea and practice of progress. It became abundantly clear that, although the networks did deliver the promised material in the form of commodified goods, they somehow failed to deliver in their wake a better society (Franklin, 1990). The fetish

character of the networks and technological artefacts collapsed under the weight of unfulfilled promises. Even the visual statements of the technological power could no longer feed the urban dream and function as an urban fetish, either in terms of reifying social relations or in terms of echoing desire and fascination. Of course, networks remained inevitably etched into the city. Whilst the ideology of the power of technology faded, the networks and constructions were left behind in the cityscape, still prominently visible, sad material reminders of a promise that was never to be fulfilled (see Figure 3). The ruins of a now outlived urban dream revealed, more clearly than ever before, the phantasmagoric nature of the artefact and the hidden scripting of their making. While their initial social meaning and the subversion of their symbolic representations was hollowed out, they became re-inscribed with a different 'meaning', i.e. that of material embodiments of the failure of the emancipating project of modernity.

The second world war was, of course, one of the pivotal moments that accentuated the ambiguity and multiplicity of technological systems. The link between technological progress and fascism took the material expressions of Speer's buildings and autobahns and the Fordist logic of Hitler's extermination camps. The nuclear quagmire revealed that technology harboured a decidedly destructive underbelly. It was the time when the automobile became the 'mechanical bride', a term coined by McLuhan (1967: 98) to describe the eroticized and deeply gendered relationship between man and technology. The futurist movement represented the machine as erotic and, at the same time, as violent and domineering. These images corresponded with the daily experience of workers in factories. But technology and progress remained inscribed in people's lives after the second world war as a necessity rather than a desire or wish.

By the middle of the twentieth century, the cities of the industrialized world were left with the uncomfortable situation of being filled with material statements of an unfulfilled (and unfulfillable) promise, accentuated by two world wars and a period of depression. How was this crisis to be overcome? How could the urban regain its glitter, its appeal, and reinvent itself as material supporter of a new dream, a new way of vesting old power relations with new scriptings? The answer was as simple as it was cunning! Nourish monotony by the new! Urban technology networks and constructions, those witnesses of disillusionment with the patina of time added over them, rusting like the modern urban dream of emancipation and equality, had to be cleared away, literally swept underneath the carpet. They went underground, while a new form, ideology, and aesthetics, a new process of fetishization, became created and etched into the urbanization process. The perpetuation of commodity production and exchange had to be vested in yet a new and innovative way; a new promise had to be made. High modernity emerged from the 1930s onwards, with its obsession with clarity of form, purity, functionalism and cleanliness, translating the myth of the machine from the distant future into everyday experience.

The 'key characteristics of the machine' (i.e. functionality and efficiency) were gradually translated into the cultural and the domestic sphere, into design and architecture, into a new way of living (Forty, 1995; Lupton and Miller, 1996). Le Corbusier's Citrohan house (1922), named and designed after the similarly named car, became the iconic example of the house as 'a machine for living in'. Schutte-Lihotzky's Frankfurt Kitchen translated the factory's functionality into the domestic space. The city itself is designed and planned after the machine. The factory assembly line — as practice and metaphor — permeates every aspect of people's lives: from their place of work, via the spaces for shopping and recreation, to their 'mechanized homes' (McLuhan, 1967).

The phantasmagorical role of technical networks survives, of course, in new and revamped ways. While urban water networks become normalized and pushed to the status of the immanent and the invisible, a new form of networked spatiality emerges that links together the privatized spaces of high modernity by means of colonizing and erasing public space. Urban and regional highways become the new phantasmagoric networked constructions. Le Corbusier's planning vision, for example, brings forth a new world of



**Figure 3** *Past glory and banalized presence: a vegetation-covered water tower in Braine-Le-Comte, Belgium* (source: Becher and Becher, 1988. Reproduction by permission of Schirmer/Mosel Verlag publishing house, with special thanks to the Bodleian Library, University of Oxford, Shelfmark Bod.M89.2959)

sanitized urban mobility, while Robert Moses's emblematic reconstruction of New York City as a city of movement equally attempts to provide direct links between the modern, networked and private home to the places of consumption, leisure and work, often literally bypassing or overriding spaces of marginality and anomy (Stern *et al.*, 1995).

The process of sanitizing and cleansing the city equally moves from the sphere of the public to the private and domestic. The rapid spread of private bathrooms by the 1920s, 'medicated' (chlorinated) domestic water supply, and the requirement for a water closet in Britain in 1936 (Coley, 1989) signals this process of domestication. As Lahiji notes, '[m]odernity emerges from the belief that man is fundamentally a clean body' (Lahiji and Friedman, 1997a). This coincided with efforts to strip away any visible connections between the urban and the domestic, further eroding any clue to the production process behind them. Networks started gradually disappearing underground and increasing efforts were made to render them invisible, to give way to a pure, clean and transparent new urban form (Lahiji and Friedman, 1997b). In New York City's skyline or in North European cities, for example, one can no longer see any connection cables, antennas, pipes etc. Dams are no longer destinations for family trips and mass meetings. Urban technological cathedrals, now often scrap heaps, are turned into shopping centres or theme parks. The 'urban dowry' (pumping stations, purification plants, reservoirs) cannot even be located anymore in the city. The nature/city connection that was still present in the old forms and flows, demonstrating 'man's' control over nature, became totally severed, and, with it, the link between product and production process. The supply of water, electricity, information etc. now appeared to be 'miraculously' entering the domestic sphere, coming from nowhere in particular and from everywhere. The end of the flow became omnipresent, naturalized, inevitable, yet severed from any apparent connection to anywhere else. Garbage disposal became a matter of throwing things in a hole in the wall, which miraculously makes trash and smell disappear. The underbelly of the city, the locus of the 'uncanny' (Gandy, 1999), remained as latent memory but relayed to the unconscious presence of a dark underworld. The backyards with the garbage bins, and the underground sewerage pipes were not revisited. The eye turned away; the gaze muted. The networks disappeared in the underground, materially and symbolically. Buildings, like people, are individualized, atomized, sanitized and seemingly disconnected. The u-topia of the home was finally achieved; the island of internal connections where everything arrived and from where everything left. It was no longer in the urban (public) sphere where emancipation potentially resided and could be enacted, but rather in the domestic sphere, at the individual rather than at the collective level. The domestic sphere took over the ideologies of the urban and reinterpreted them, creating a new ideology evolving around the belief that the myth, the desire and the wonder should be searched for in the domestic, the individual, the disconnected, the isolated, the suburban (see Figure 4). The promise of emancipation and freedom resided in the intimacy of the disconnected house. The house became the 'machine for living in'. The perfect house became individual, clear, pure, functional and safe for the inhabitant, protected from the anomie and the antinomies of the outside and the underneath, the urban. It became, as Davis (1992) called it, the 'prison house'. The separation between production and reproduction, between thing and social relations, and between commodity and nature was perfecting its cultural and aesthetic shape. The realm of reproduction was where fulfilment resided and happiness was constructed. The sanitized, piped, wired, plumbed house — the classic icon of 1950s and 1960s advertisements for home durables and home style — promised again the final delirious satisfaction of our dreams and desires.

## Stairway to Heaven and highway to Hell

High modernity crusaded towards clarity, towards veiling what lay underneath the city. The rhizomorphic underground networks, which ceaselessly transform nature into city, became an underground city that veiled the failure of modernization to create a better society. The ideal city, the new utopia, was clean and sanitized, both in visual and literary terms. As Latour and Le Bourhis (1995) note, water has become truly invisible despite,



**Figure 4** *Indoor plumbing and the domestication of water: the ‘disconnected’ house (Richard Neutra’s 1937 Kaufman House in Los Angeles) (source: Lupton and Miller, 1996: 38)*

but probably also greatly facilitated by, its great poetic and imaginary powers (Bachelard, 1963; Vigarello, 1988). Water has been systematically turned into something self-evident, an apparent triviality, located simply at the mouth of the tap. This ‘silencing’ of water and other networked relations rendered water mute, turned it into what it is not, i.e. H<sub>2</sub>O. The new urban fetish, then, lay in the apparent aesthetic disconnection from all the old, dirty unsafe and ‘ugly’ networks. Of course, this disconnection between the private and the socioecological was taken to its extreme form in the disconnection of ‘dwelling’ from the city itself through suburbanization. The production of a clean, ‘harmonious’, ‘natural’ environment that would have no reference (aesthetic or functional) whatsoever to the production relations underneath this clarity, completed the severing of the ties between ‘surface-appearance’ and the underground flows and networks. All this mess that is always necessarily employed in order to produce any kind of clarity and garden-city-like utopias was literally swept underneath the carpet, relegated to the underworld. As Christine Boyer notes, ‘[t]he real city, never actually displayed, gradually disappears from view: its chaos, its class distinctions, its snares and vices, all of these lay outside the circular frame beyond the spectator’s gaze’ (Boyer, 1994). The mess, the dirt, the underbelly of the city, both socially and environmentally, became invisible and banned from everyday consciousness. The myth of progress that had produced mesmerizing urban technological cathedrals whose aesthetics belied the social realities of the industrial city was no longer required. The city had by now turned into a space of consumption and spectacle; a place where there is nothing else but the spectacle of the market (Debord, 1970). The city as a flow and a process became invisible (Latour and Hermant, 1998).



However, no matter how sanitized and clean, both in symbolic and literary terms, our cities have become, the 'urban trash' in the form of networks, dirt, sewerage, pipes, homeless people etc. (Davis, 1992) keeps lurking underneath the city, in the corners, at the outskirts, bursting out on occasion in the form of rats, disease, homelessness, garbage piles, polluted waters, floods, bursting pipes etc. They remain stubborn reminders of the materiality of the networked city, while threatening the city's existence. Despite the quest for clarity, purity and 'sanity' that was prominent throughout high modernity (or, rather, precisely because of this quest), the underlying contradictions of urban life, the ones that actually make it possible for clarity to exist, i.e. the urban 'trash' and underlying invisible networks, both inorganic (sewerage, water pipes) and organic (homeless people), become gradually more prominent (Davis, 1992). The dystopian underbelly of the city that at times springs up in the form of accumulated waste, dirty water, pollution or social disintegration, produces a sharp contrast when set against the increasingly managed clarity of the urban environment. The contradictions are becoming difficult to be contained or displaced.

This is particularly acutely expressed by the emergence of environmental problems and issues, many of which are directly related to urbanization and the city (Swyngedouw and Kaika, 1999). Whether we consider water, energy, food or clean air, cities are central to growing socioenvironmental issues and their unpredictability exemplifies the fallacy behind the myth of the perfectly managed city. As Raymond Williams (1973) already pointed out in *The country and the city*, the transformation of nature and the social relations inscribed therein are inextricably connected to the process of urbanization. The dialectic of the environment and urbanization consolidates a particular set of social relations through 'an ecological transformation which requires the reproduction of those relations in order to sustain it' (Harvey, 1996: 94). As argued above, under capitalism, the commodity relation veils and hides the multiple socioecological processes of domination/subordination and exploitation/repression that feed the capitalist urbanization process and turn the city into a kaleidoscopic metabolic socioenvironmental process that stretches from the immediate environment to the remotest corners of the globe. Indeed, the apparently self-evident commodification of nature that fundamentally underpins a market-based society not only obscures the social relations of power inscribed therein, but also permits disconnecting the perpetual flows of transformed and commodified nature from its inevitable foundation, i.e. the transformation of nature (Katz, 1998). If we take London, for example, there is a great story to be told about the unmapped and untraceable water supply and sewerage networks that dwell underneath the city, hidden most of the time, but revealing their existence in unpredictable ways and moments (recently in the form of problematic water quality in some areas, high leakage rates, bursting pipes, internationalization of water companies, fat cat water company directors etc.).

Walter Benjamin (Buck-Morss, 1995: 93) identified the urban underworld with the urban Hell that exists underneath the urban splendour, underneath a supposedly heavenly urban environment. For him, everything about urban life was Hell disguised in Heaven. However, we should perhaps search instead for a dialectics whereby Heaven requires its Hell in order to exist (Merrifield, 1998). Despite efforts to manage and control the city, it remains a realm carved out of the dialectics between clean and dirty, justice and injustice, underworld and high society, basements and lofts, Hell and Heaven. In fact, Heaven can establish itself as such only by contradistinction to a certain Hell. The urban paradise needs to exploit organic and inorganic, human and non-human urban trash in order to sustain itself, and urban trash permits the existence of the urban, dwelling at its margins or underneath its soil. It is this dialectic that does not only make the city disaster-prone (Davis, 1998), but also produces these dazzling spaces that are always up for grabs, open to continuous struggles and renegotiations, permitting change and new lifestyles; a space where Heaven and Hell coexist, and where it is up to human beings to struggle for emancipation and freedom, instead of being hypnotically nourished time after time again by myths of the new or by threats of disaster.

**Maria Kaika** (maria.kaika@geog.ox.ac.uk) and **Erik Swyngedouw** (erik.swyngedouw@geog.ox.ac.uk), School of Geography, Oxford University, Mansfield Road, Oxford OX1 3TB, UK.

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