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Dream Cities: The Uncanny Powers of Electric Light

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> Electricity is the pervading element that accompanies all material existence, even the atmospheric. It is to be thought of unabashedly as the soul of the world. [Goethe, 1825]

> If you build buildings with lights outside, you can make them indefinite, and then when you're through with using them you shut the lights off and they disappear. [Andy Warhol,1975]

In his famous 1919 essay, Freud (1955: 219-252) defines the uncanny to include experiences in which inanimate objects seem to come to life. In early modernity, this sense of the uncanny accompanied the spread of electric light, itself a manifestation of the near-miraculous powers of electricity. From the moment of its initial recognition as an independent phenomenon, electricity has been a source of profound wonder. Romantics rapidly identified it with a universal life force, dramatised in the archetypal modern creation scene of Mary Shelley?s 1818 novel and distilled by Goethe into ?the soul of the world?. A century later, the prospect of widespread electrification literally dazzled the world, inspiring entrepreneurs, artists and revolutionaries alike with visions of an irresistible electrical future.

At the same time, electricity has always led a double life. Beneath the Promethean narrative of limitless possibilities lies a more utilitarian tale of practical development. Counterpointing the arcane myth of electricity?s magical properties ? force without muscle or steam, light without flame ? is the profane physical reality of its often cumbersome technical infrastructure. Supporting the spark of the incandescent lamp which shines brighter than any jewel are unsightly poles and cris s-crossing wires, not to mention ferocious patent wars and internecine struggles to form some of industrial capitalism? s most powerful corporations.

This split identity is replicated in the literature about electricity. While there are a plethora of accounts of inventor-engineers such as Edison or Tesla, or of giant corporations such as General Electric and Westinghouse which grew from local and regional businesses to exploit the new technology, there is a relative dearth of social histories examining the difference electricity made to everyday life.[1] Even scarcer are accounts of the way in which electricity has contributed to the formation of a distinctively modern sense of space, most dramatically through the electrical illumination of the modern cityscape which has so decisively changed experience of the urban environment.

However, in the absence of systematic accounts, what can be found are frequent snippets scattered through the writings of artists, architects, journalists, filmmakers and other observers of the modern city. One thing most of these reports make clear is that, even from the first, electric illumination exceeded a purely functional role. This excess over and above any pure functionality was already apparent in the earlier generation of public experiments with electricity conducted by those such as Sturgeon and Saxon in London in the 1830s. Morus (1998) has emphasized the spectacular nature of their displays, concluding that the creation of special effects such as giant sparks was an indispensable element not only in attracting public attention but in winning the battle of public opinion.

In 1885, when Edison?s incandescent lamp was less than a decade old and the illumination of public space a rarity, a scheme was mooted for lighting the entire city of Paris with what was grandly dubbed an artificial sun. The plan comprised one hundred 200 000 candlepower lamps mounted on a single tower soaring 1100 ft in the Tuilleries Gardens. The fact that the scheme was both impossible, because lamps of such magnitude hadn?t yet been invented, and impractical because it would only light the cityscape from one side, merely underlines the extent to which the very idea of electrical illumination has long had a powerful symbolic role. By the 1880s, when electrical systems began to be widely adapted to practical uses, electricity was seen as the key to achieving a new level of control over the lived environment. The ability to convert night into day at the flick of a switch offered the most striking proof of the superiority of the modern present over the past, the most compelling evidence of the ability of technological progress to subdue nature.

Equally telling is the rapture with which many people greeted their first sight of electric light. Only four months after Edison?s famous demonstration at Menlo Park, the city fathers at Wabash hired the Brush Co. to set up four 3000 candlepower arc lights on the courthouse. The event attracted 10 000 visitors to the small town. The local paper reported:

> People stood overwhelmed with awe, as if in the presence of the supernatural. The strange weird light exceeded in power only by the sun, rendered the square as light as midday ... Men fell on their knees, groans were uttered at the sight, and many were dumb with amazement. (Quoted in Nye 1990: 3)

It?s probably wise to take such a tale with a grain of salt ? after all, boosterism is grist to the mills of small town papers, which also reported that local farmers could expect giant pumpkins and corn stalks as a result of the new light. Yet, the spectators? reaction shouldn?t be discounted too quickly. Even read as an apocryphal tale in the genre of credulous cinema audiences fleeing the image of an onrushing train, it registers the extent to which electricity departed all previous protocols of illumination. Prior to the 1880s, artificial light came only from fire. Candles, kerosene and even gas were smoky,

potentially dangerous flames whose ability to illuminate was clearly linked to their consumption of fuel. By contrast the enclosed, vacuum-sealed light bulb, was a paradox, producing a light which was intense, yet smokeless, fireless and seemingly inexhaustible. Electric light produced a categorical anomaly, one which was experienced by nineteenth century observers not so much as monstrous but miraculous.

The image of the Wabash public gazing at arc lights in silent awe indicates the extent to which electrical illumination belongs to what Leo Marx (1965) has aptly called the technological sublime. For Marx, the phrase describes the widespread transference of the romantic experience of nature onto technology at the end of the nineteenth century. One of the key sites for this transference was the appearance of massive industrial machinery such as the electrical turbine, an apparatus which generated not only electrical current but an irresistible series of concepts and metaphors. As electricity entered daily life in the 1880s, live wires, human dynamos and electrifying performances all became recognisable descriptors for a specific form of modern energy. To feel electricity in the air became synonymous with excitement, arousal and even love.

It was in this context that electricity spread through the modern cityscape in several waves. Initially confined to the mansions of the wealthy and a few department stores seeking a novel means of attracting shoppers, it expanded into public street lighting schemes along major transport routes, before finally extending into most private homes. Electrification of the home altered domestic space rapidly and significantly. Electric light was not only much brighter than candles, kerosene and even gas; it was cooler, and, importantly, less fire prone. Because people didn?t have to huddle together around a dim flame, electric lamps enabled a heightened level of independent activity, contributing to a significant increase in the practice of reading. The extension of grid lighting to domestic consumers was also the conduit along which a new range of electrical appliances manufactured by the big power companies such as GE and Westinghouse were launched into the home: irons, toasters, heaters, cookers, refrigerators and radios were the first in what has become a seemingly inexhaustible list.

In the street outside, the changes were even more dramatic. The possibilities for using electric light to alter the appearances and ambiance of urban space were first systematically explored in the series of World?s Fairs stretching from the 1880s to the First World War, as governments and corporations combined to put coherent visions of a fully electrified society on public display. The 1876 Philadelphia Exhibition is notable in being the last major exhibition based on steam power; it was also one of the last which was closed at night. After the 1879 London Exposition featured Edison?s new invention as a chief attraction, subsequent fairs became key sites for lighting innovation, as each city sought to outdo its rivals in the number of lights and the power of their illumination.

The Chicago World?s Fair of 1894 had more lights on its Electrical Building alone than were used by the entire Paris Exhibition of 1889 for which the Eiffel Tower was built; the Chicago fairgrounds also contained more light than any contemporary city in the USA. As Nye (1990: 37) points out, millions of visitors to these fairs saw more artificial light than they had ever seen in their lives. While World?s Fairs and similar exhibitions were not profitable in themselves, the National Electric Light Association in the US noted their value as ?load builders? instrumental in increasing demand for street lighting and other uses of power. So profoundly depressing was the unilluminated cityscape that the imposition of blackouts in US cities during WWI led to immediate calls for their withdrawal. Visitors to the fairs saw artificial light used in dramatic new ways; to delineate the outlines of buildings and pathways, to illuminate fountains and water jets, to probe the depths of the night sky. *Cosmopolitan*?s reporter described the scene at Chicago in what can only be called glowing terms:

> Look from a distance at night, upon the broad space it fills, and the majestic sweep of the searching lights, and it as if the earth and sky were transformed by the immeasurable wands of colossal magicians and the superb dome of the structure that is the central jewel of the display is glowing as if bound with wreaths of stars. It is electricity! When the whole casket is illuminated, the cornices of the palaces of the White City are defined with celestial fire. (Quoted in Nye 1990: 38)

Soon the emphasis began to move away from the sheer quantity of lights to the use of hidden lighting which enabled buildings to be displayed as striking forms in integrated artificial landscapes. These techniques migrated rapidly from the idealised urban spaces of the world?s fairs, into more prosaic but no less fantastic environments such as the amusement parks on Coney Island. Maxim Gorky?s visit to Luna Park in 1907 found him entering a fabulous terrain composed of 1.3 million lights:

> With the advent of night a fantastic city all of fire suddenly rises from the ocean into the sky. Thousands of ruddy sparks glimmer in the darkness, limning in fine, sensitive outline on the black background of the sky shapely towers of miraculous castles, palaces and temples. ... Fabulous beyond conceiving, ineffably beautiful, is this fiery scintillation. (Quoted in Koolhass 1994: 29)

Other spectacular forms of illumination rapidly appeared at this time including the electrical advertising sign. The first blinking sign, spelling E-D-I-S-O-N, had been shown at the London Exhibition of 1882. By 1900, the use of commutators made it possible to organize visual sequences which could produce the illusion of motion, exploiting the same trick of persistence of vision which was used by cinema. By 1910, more than 20 blocks on Manhattan?s Broadway were covered in electrical advertising. The intensity of illumination lent the thoroughfare its famous sobriquet, and the ?Great White

Way? would soon be imitated by countless cities and towns laying their own claim to being ?modern?. If such an environment offended the beaux-arts aesthetic, it was ready-made for the *avant-garde*. On his arrival in New York in 1917, Marcel Duchamp famously declared the entire city a work of art. When the great revolutionary poet and modernist proselytiser Vladimir Mayakovsky visited New York in 1925, he was impressed above all by the lights of Broadway:

> The street lamps, the dazzling lights of advertisements, the glow of shop windows and windows of never-closing stores, the lights illuminating huge posters, lights from the open doors of cinemas and theatres, the speeding lights of automobiles and trolley cars, the lights of the subway trains glittering under one's feet through the glass pavements, the lights of inscriptions in the sky. Brightness, brightness, brightness...'. (Quoted in Woroszylski 1971)

One of the most elaborate advertising signs, standing 72ft high and 90 ft wide, sat atop the Hotel Normandie creating the illusion of a 30 second Roman chariot race. The *Strand Magazine* reported:

> It is more perfect and natural in its movement than the finest coloured cinematograph. (Quoted in Nye 1990: 52)

This comparison alerts us to the extent to which the electrification of the modern city created a new perceptual matrix which strikingly paralleled the experience of cinema. The coincidence is still worth remarking. At the same moment that electric light charged the cityscape with spectacular effects previously reserved for specialized showplaces, the spread of new modes of rapid transit and the proliferation of glass architecture functioned to set every urban traveller?s eye on a collision course with this shimmering, phantom city.

This fusion of light and movement rapidly became a hallmark of the modern city, establishing a spatiality which is both exhilarating and potentially disorienting to its inhabitants. What emerges for the first time is an *other* city, an oneiric city which exists only at night and whose dream forms have only tenuous connections to the prosaic spaces of the waking day. In the United States, large corporations began to promote themselves by floodlighting their skyscrapers. Icons of the age, beginning with the Singer Building in 1907, were baptised in light, the expense justified by their conversion into blazing symbols visible to millions. The Woolworth Building, which took over the mantle of world?s tallest in 1913, was designed with its electric illumination in mind.

In France, Le Corbusier?s characteristic enthusiasm for new technology emphasized the possibilities for the electrical transformation of architecture:

> One Armistice Day in the evening, M. Citroën offered us that undreamed of revelation: a floodlit Place de la Concorde. Not just lit up by its street lamps, or the Republic's standardized little gas flames, but illuminated with all the floods of light made possible by electricity. The idea had come from America, the projectors from the war. It was (and continued to be every evening) one of the most astounding lectures on architecture that it would be possible to attend "in this wide world". Sublime straight lines, and oh, sublime French rigor! On that Armistice night a dumbfounded crowd standing in the square, held in the grip of a grace unshadowed by a single jest, – on the contrary, of a grace imperious in its command – that crowd was able to listen *to architecture itself*. (Corbusier 1964: 178)

Corbusier?s vision of electric light converting mute architecture into a living, *speaking* entity situates the uncanny nature of the new technological landscape. It also indicates an ambivalence which dogs the electrified city, undermining every attempt to split Corbusier?s radiant city from its supposedly irrational double, the nightmare city at the dark heart of expressionism and film *noir*. In fact, the city of light and the city of night are recto and verso of the same developmental forces, but the dream of their bifurcation structured both the key theoretical treatises of modern architecture, as well as a host of popular narratives. Exemplary of the latter is Thea von Harbou?s novel *Metropolis* (which formed the basis for husband Fritz Lang?s epic film in 1926):

The workman No. 11811, the man who lived in a prison-like house, under the underground railway of Metropolis, who knew no other way than that from the hole in which he slept to the machine and from the machine back to the hole – this man saw, for the first time in his life, the wonder of the world, which was Metropolis: the city, by night shining under millions and millions of lights.

> He saw the ocean of light which filled the endless trails of streets with a silver, flashing luster. He saw the will-o'-the-wisp sparkle of the electric advertisements, lavishing themselves inexhaustibly in an ecstasy of brightness. He saw towers projecting, built up of blocks of light, feeling himself seized, over-powered to a state of complete impotence by this intoxication of light, feeling this sparkling ocean with its hundreds and thousands of spraying waves, to reach out for him, to take the breath from his mouth, to pierce him, suffocate him ... (von Harbou, n.d: 50-51)

More noteworthy than von Harbou?s rather florid prose is her recognition that, as much as the absence of light in the worker?s underworld is at issue, so is the *excess* of light in the pleasure zone above. Unlike God?s light which once served to clarify truth for Descartes in his moment of radical doubt, electric light not only illuminates but intoxicates, doubling and redoubling the city, recreating its streetscapes and squares as floating, dematerialized zones. In their ?

Technical Manifesto? of 1910, the Italian Futurist painters proclaimed:

> Space no longer exists: the street pavement soaked by rain beneath the glare of electric lamps, becomes immensely deep and gapes to the very centre of the earth... (Reprinted in Appollonio 1973: 28)

According to Fritz Lang, his film *Metropolis* was itself originally inspired by a visit to New York: ?I first came to America briefly in 1924 and it made a great impression on me. The first evening, when we arrived, we were still enemy aliens so we couldn?t leave the ship. It was docked somewhere on the West Side of New York. I looked into the streets ? the glaring lights and the tall buildings ? and there I conceived *Metropolis?*.

Russian filmmaker Sergei Eisenstein?s first impressions of New York, already famed as the brightest city in the world, register its vertiginous impact:

> All sense of perspective and of realistic depth is washed away by a nocturnal sea of electric advertising. Far and near, small (in the *foreground*) and large (in the *background*), soaring aloft and dying away, racing and circling, bursting and vanishing — these lights tend to abolish all sense of real space, finally melting into a single plane of coloured light points and neon lines moving over a surface of black velvet sky. It was thus that people used to picture stars — as glittering nails hammered into the sky. (Eisenstein 1963: 83)

Spectacular illumination of the urban landscape altered the accustomed mental image of the city, offering a new spatiality for modern experience. If by day poor sections of the city called out for reform, by night they could be redeemed by the power of light. Not only did lighting illuminate key urban landmarks, it effectively deleted others, casting unattractive areas into impenetrable darkness.

This capacity for architectural erasure was clearly appreciated by Andy Warhol, who shot his most notorious film, the 8 hour *Empire*, following the floodlighting of the Empire State Building in 1964. ?The Empire State Building is a star?, Warhol declared in his characteristic deadpan fashion, and for most of the film it literally is a star, continuously visible for over 7hrs in an unmoving frame. Around 2.00am the floodlights are switched off, and the last 45 minutes of the film are almost totally black. In an interview in 1975, Warhol commented:

> The best, most temporal way of making a building that I ever heard of is by making it with light. The Fascists did a lot of this ‘light architecture’. If you build buildings with lights outside, you can make them indefinite, and then when you’re through with using them you shut the lights off and they disappear. (Quoted in Angel 1994: 15)

Lights enable modern skyscrapers, skinned with glass curtain walls, to assume dazzling, indefinite forms, and then, finally, to disappear, as if their monumental forms are no more than a conjuror?s trick. The immense possibilities for wholesale architectural substitution had been prefigured at the New York?s World?s Fair of 1939, where the organizers decided that each building would have ?a night appearance quite different from its daytime appearance?, and so mandated that exterior lighting be built into all pavilions as an integral part of their architectural design. (Quoted in Nye 1997: 125) Such a requirement dovetailed with GE?s marketing of a new line of products called ?luminous architectural elements? consisting of coves, grooves, recesses and coffers of the sort used in the Chrysler building. The illumination of banners, sculptures, paintings and plaques at the expense of walls and roofs created dramatic contrasts, liberating details from their supporting context and structures from their physical surrounds. These examples enable us to appreciate the extent to which the generalisation of exterior lighting helped to engineer a new rhetoric of urban space. It provided the means through which the complexity of the modern city could be edited down to a few essential sites illuminated by floodlights, or grasped from above as a simplified pattern interspersed with unimportant blanks.

The ability to illuminate the cityscape in new ways introduced an important new dimension into urban design, one which belonged to neither architecture nor sculpture as traditionally understood. What emerges is a new urban environment increasingly characterised by the overlap of material and immaterial spatial regimes. In conjunction with the proliferation of transparent and highly reflective surfaces, electric lighting creates a new perceptual matrix which overlays and even displaces the material spatiality of physical structures.

It is instructive to relate this new matrix of perception to the trajectories created by other contemporary technological developments. It has frequently been noted that the invention of the train literally changed the way that people saw the landscape (Schivelbusch 1986). Increased speed, combined with the elevation of the traveller and their immobilisation behind glass, altered the balance between foreground and distant elements, creating a convergence between voyager and voyeur. This tearing of the accustomed envelope of spatial continuity, resulting from the speed of the journey and the closeting of the traveller from physical interaction with the landscape, led Marcel Proust to compare rail travel to metaphor, inasmuch as it ?united two distant individualities of the world, took us from one name to another?. (Quoted in Kern 1983: 216)

If rapid vehicles heightened a sense of the journey as a staccato movement between what were increasingly conceptualised as discrete sites, this spatial awareness was re-enforced by the appearance of modern communication and media technologies. The live transmissions of telephony and radio interlinked physically separate spaces in novel ways, calling

into question traditional spatial measures such as the solidity of walls and the security of distance. A 1912 editorial in the New York Times observed:

> All through the roar of the big city there are constantly speeding messages between people separated by vast distances and ... over housetops and even through the walls and buildings are words written by electricity. (Quoted in Kern 1983: 64)

The electric city no longer provided a stable grid against which time and space could be measured in traditional terms. If electric light helped to turn the city into a promise capable of drawing the masses out of the countryside and across the oceans in their millions, the spatial organisation of the radiant city profoundly challenged customary understandings of place, boundary, dimension and locatedness. In doing so it crystallised one of the defining dilemmas of modernity: enhanced possibilities for individual freedom and self-invention are counterpointed by a growing sense of displacement and loss of orientation. The historic function of city design as a map of social and political order, as well as a repository of collective memory, started to give way to a new spatial organization in which the co-ordinates of self, home and community would have to be plotted in new ways. In particular, any and every physical location now had to be reckoned in relation to its potential displacement by the activation of a circuit or the overlay of an image flow.

Long ago Gaston Bachelard reminded us that: ?Everything which casts a light sees?. (Quoted in Schivelbusch 1988: 96) This situates the fundamental spatial ambivalence of electrification. With its unprecedented intensity, precision and control, it sets in motion a complex psycho-geography of seeing and being seen which is integral to the dynamic modern cityscape of promiscuous display and everyday voyeurism. Electric light not only illuminates the city, but changes the nature of urban spatial experience, creating oneiric ?night cities? in which architecture seems to come alive. This uncanny dimension of the "technological sublime" prepared the ground for many contemporary developments in urbanism, including "smart buildings" in which spatial ambiance responds to the moods and movements of the inhabitants.

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Notes

1 There are a number of exceptions, most notably the work of David Nye (1990). Also worth mentioning is Schivelsbusch (1988), although its main focus is gas lighting.