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Rewriting the City: Reading Harry Beck's Tube Map as a Form of Writing

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'Here I stand,' said Jinny, 'in the Tube station where everything that is desirable meets—Piccadilly South Side, Piccadilly North Side, Regent Street and the Haymarket. I stand for a moment under the pavement in the heart of London. Innumerable wheels rush and feet press just over my head. The great avenues of civilization meet here and strike this way and that. I am in the heart of life.' (Woolf 109)

In this passage from Virginia Woolf's *The Waves*, Jinny sees in the tube a materialization of the countless possibilities that city life offers to its dwellers. The streets above ground are parallel to the lines intersecting underground, each leading to a different destination, new connections, new choices and eventualities. In 1931, when the first edition of *The Waves* was making its way to London bookshops, Harry C. Beck, a former Underground engineering draughtsman, designed a sketch for a new tube map. During the years when Frank Pick was revolutionizing the tube as a chief executive officer of the London Passenger Transport Board, Beck submitted the final draft to the Publicity Department of the London Underground and—after an initial rejection—the map was eventually accepted in 1932 and published one year later (Garland 15, 18). For his contribution, Beck was paid a meagre ten guineas but the London Underground hired him back and granted him a higher position (Smart 115). There is a fascinating correspondence between Woolf's passage and Beck's map (fig. 1)—an entrancing emphasis on possibilities, connections and intersections, as if the two cultural artifacts were linked by something more than their year of creation.

An enduring symbol of London and a milestone of graphic design, the tube map cannot simply be called an emblem of the city, or even just a very useful source of information for tube travellers. This essay investigates how Beck's map functions as a form of

writing, drawing on Jacques Derrida's conception of the word in his science of *grammatology*. The peculiar grammar of the tube map mirrored and sometimes foreshadowed the shifting approaches to the modern city that would take place throughout the twentieth century. Thanks to its flexible quality—its capacity to adapt to the evolution of the urban landscape—the map proved as popular among ordinary Underground users as among designers. For instance, at the time of its invention it simplified the geography of London through a use of discrete information that we would now call *digital*, well before the technology came into general use. The term *digital* was originally "used to refer to data in the form of discrete elements" (Gere 15), which is exactly how Beck's creation transformed the representation of transport in London. Only later did the word acquire its broader meaning by means of association with modern technologies. As Gere argues, "to speak of the digital is to call up, metonymically, the whole panoply of virtual simulacra, instantaneous communication, ubiquitous media and global connectivity that constitutes much of our contemporary experience" (15). All of these elements were in some form present in the Underground and were translated by Beck's map into a visual grammar that altered our understanding of urban space and provided a gateway into our era of worldwide interconnection.

The tube, like every other rapid transport in a city, works as a hypertext in providing links between nodes, and Beck's ingenuity lay in understanding that the best way to depict the network was through an emphasis on connections over topographical accuracy. Prior to Beck's design, the Underground Railway maps relied on London geography in their visual depictions. Until 1921 the tube lines were superimposed on a street map of the city and their shape was a faithful reproduction of the actual paths followed by

the underground tracks (fig. 3). In 1920, a new map signed by MacDonald Gill (fig. 2) tried to abstract the tube lines from geography for the first time by removing streets and surface features and merely showing the colour-coded lines, whose shape still mirrored their meandering course underground. Only in 1931 did Beck realize that what really mattered was connections rather than geography, nodes and links rather than accurate geographical distances, actual locations and curvilinear lines. About the moment when he began working on his experimental new design, Beck recalled: “looking at the old map of the Underground railways, it occurred to me that it might be possible to tidy it up by straightening the lines, experimenting with diagonals and evening out the distance between stations” (qtd. in Garland 17). His design maintained the colour-coding in use since the early years of the century but revolutionized the idea of the map by disregarding topography and truthfulness in distances and ratio, enlarging the central area of London, shrinking the suburbs, and taking the imaginarily straightened Central Line as the basis for the whole system.¹ As Ken Garland has suggested, Beck’s first and foremost preoccupation was with the idea that “if you were going underground, why did you need to bother about geography? It was not so important. Connections are the thing”.

The Semiotics of the Tube Map

The evolution of the tube map from the early representations to Beck’s design, which is still in use today, seems to mark a progressive departure from an iconic mapping of the city. The term “iconic” is to be understood as in the definition given by American philosopher Charles Sanders Peirce who differentiated between three kinds of signs: icons, indices and symbols (5). Starting from Peirce’s theory helps us to analyze Beck’s map on a semiotic level; as

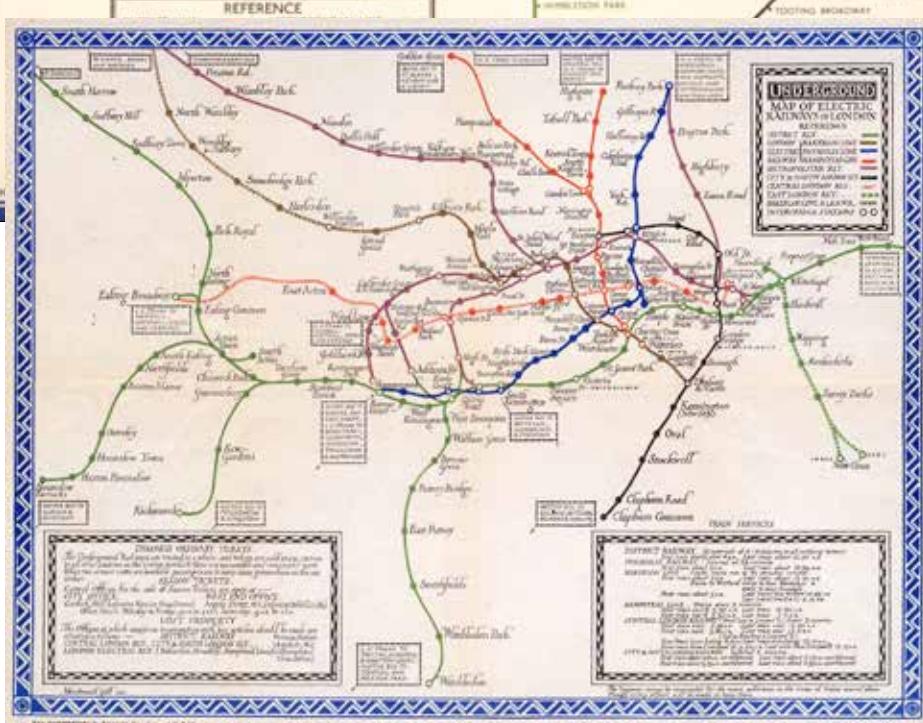
MacEachren contends, “a semiotic approach to map representation provides a framework for exploring how maps structure knowledge” (213), which is in our case the episteme of the modern city. The first maps of the Underground Railway can be considered closer to icons, likenesses of the city in that they portrayed surface details and the actual course of the tracks. Gill’s erasure of any aboveground reference (including the Thames) was a shift toward a more indexical map, showing which direction to go rather than where a place actually stood. Starting from Gill’s design, stations were located using only other stations as a system of reference with no landmarks, though the Thames was re-introduced in 1932 as the sole surface feature (Garland 13).

Beck’s map wiped out any iconic reference and possessed fewer indexical qualities. According to Peirce’s definition, indices “show something about things, on account of their physically being connected with them” (5); examples might include signposts or exclamations calling on someone’s attention by physical means rather than language. Beck’s map, on the other hand, does not share any substantial link to the actual railway system but provides a language which is universally understandable thanks to the simplicity of its grammar and its latent indexicality, a property common to most signs according to Peirce (MacEachren 223). Beck’s map grew out of a likeness to turn into a sign carrying its own meaning, a language that could be applied to any other city, as any other symbol can (Peirce 10). This explains why in Peirce’s interpretation of signs Beck’s map is to be considered a symbol, or even better a set of symbols merging into a new form of writing regulated by consistent rules that have little to do with traditional mapping.

As a matter of fact, Beck’s representation of the London tube can hardly be called a map in a strictly topographical sense: it is a diagram, with

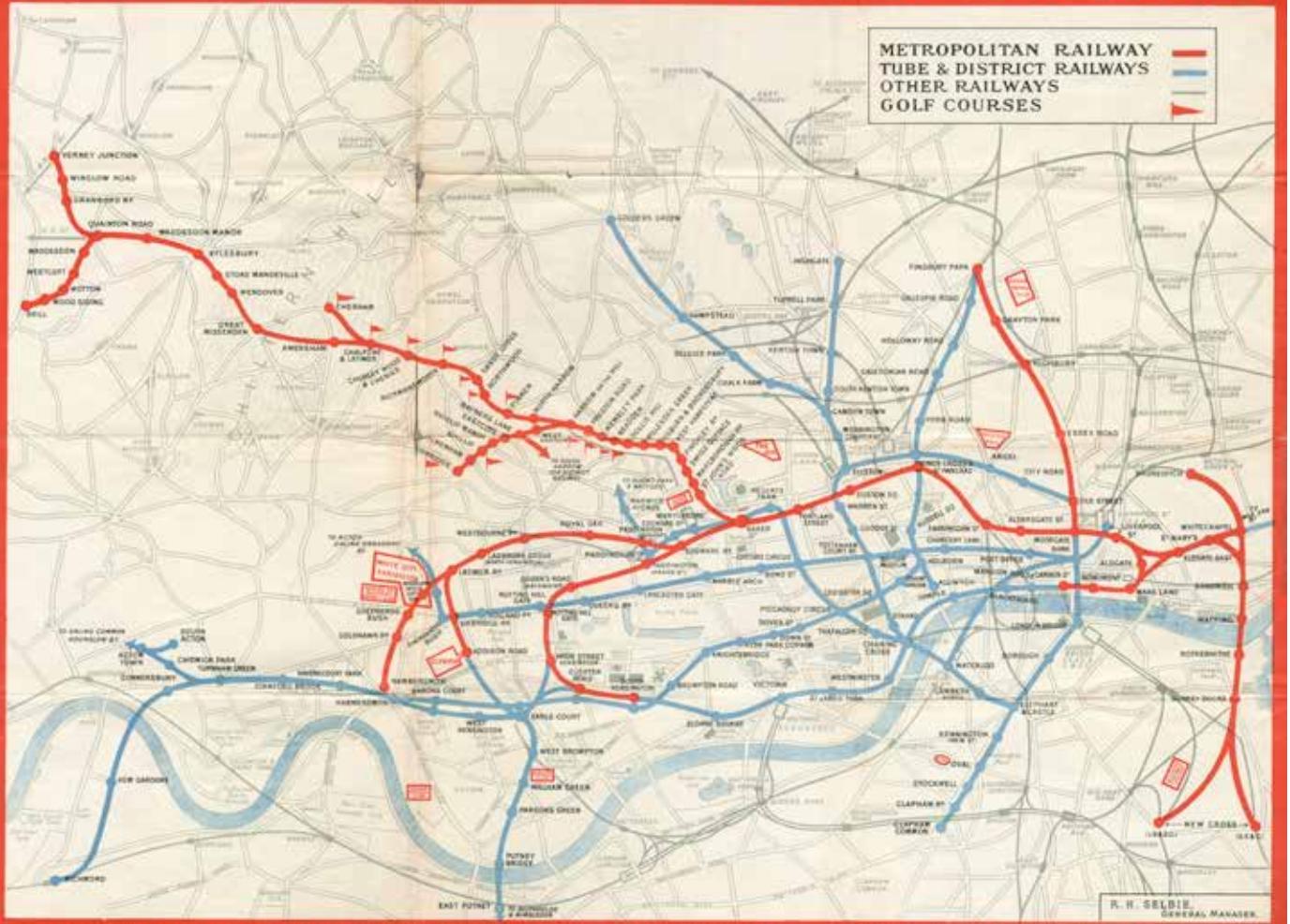


1. Harry C. Beck. *Map of London's Underground Railways*. 1933. © TfL from the London Transport Museum collection.



2. MacDonald Gill. *Underground Map of Electric Railways of London*. 1920. © TfL from the London Transport Museum collection.

METROPOLITAN RAILWAY AND CONNECTIONS



ALSO SEE KEY MAPS OF THEATRES, RAILWAY TERMINI, PLACES OF INTEREST &c. ON REVERSE SIDE.

3. Unknown artist. *Metropolitan Railway and Connections*. 1924. © TfL from the London Transport Museum collection.

very few references to the actual layout of the city aboveground. As a young engineering draughtsman, Beck certainly had electrical circuit diagrams in mind when he conceived his modern design. The spoof of his original map that he drew for the March 1933 issue of *Train, Omnibus and Tram Staff Magazine*, mockingly replacing station names with electrical jargon (fig. 4), seems to confirm such influence. Besides creating “a new design for an old map”, as the map cover announced when it was first published in 1933 (Garland 19), Beck created a new way of reading the city. Comments on the significance of the tube map usually go as far as acknowledging that the map “ironed out the physical complexities of the metropolis” (Welsh 214): that was indeed a great revolution for cartography and information design, but how did it influence Londoners’ perception of their city? And, as a consequence, did it affect our understanding of urban space in general, since the tube map was used as the prototype for many other maps of rapid transport systems?

Monmonier defines all transport maps whose design was inspired by Beck’s prototype as “linear cartograms” for which “function dictates forms”: “by sacrificing geometric accuracy, these schematic maps are particularly efficient in addressing the subway rider’s basic questions” (34-35). Beck’s cartogram presents London as a city with no physical geography, but plenty of connections and links: in a way, it brings the city together, London being one of the most geographically fragmented metropolises in Europe. In her anthropological study on how Londoners understand their city through the map, Vertesi notes that “unlike Paris or New York, London above-ground presents few organizing principles: there is no Rive Gauche or Central Park, no grid or *arrondissement* system that provides the critical landmarks for wayfinding and making sense of the urban geography”

(9). In Pick’s plans, the tube had to become “a model of aesthetic integration and communal service” whose aim was that of having a “unifying function for society” (Saler 27, 92), and Beck’s map was the perfect visual translation of Pick’s philosophy. Explaining what made Londoners so affectionate and protective of the tube map, Chris Beanland recently wrote in *The Independent*:

Beck’s map is a sacred cow. It’s more than a map or a diagram, more than a way to find yourself or your friends or your colleagues or your lover, more than a way to understand London’s shape. In some ways it actually is London. In a city of such diversity and with so many incongruous forms and so many disparate neighbourhoods, Beck’s map is a picture of the single city. (10)

The diagram works as a new grammar ordering the disjoined nature of London. It provided a grammar that could be adapted to any other city, thus offering a new way of understanding the city, rather than just a city. But in order to find an answer to the map’s success elsewhere in the world, one has to think of it in terms of text.²

The Digital Rewriting of the City as Hypertext

Can one define the mapping of an underground railway network as writing? In advancing the new science of grammatology, Jacques Derrida classified as writing “all that gives rise to an inscription in general, whether it is literal or not and even if what it distributes in space is alien to the order of the voice” (9). Urbanism over wilderness is in itself a form of writing, and in the case of London the tube map contributed in making sense of a city that industrial and unplanned growth had turned into the wilds of modernity. Derrida

advances the relationship between the science of grammatology and mapping thus:

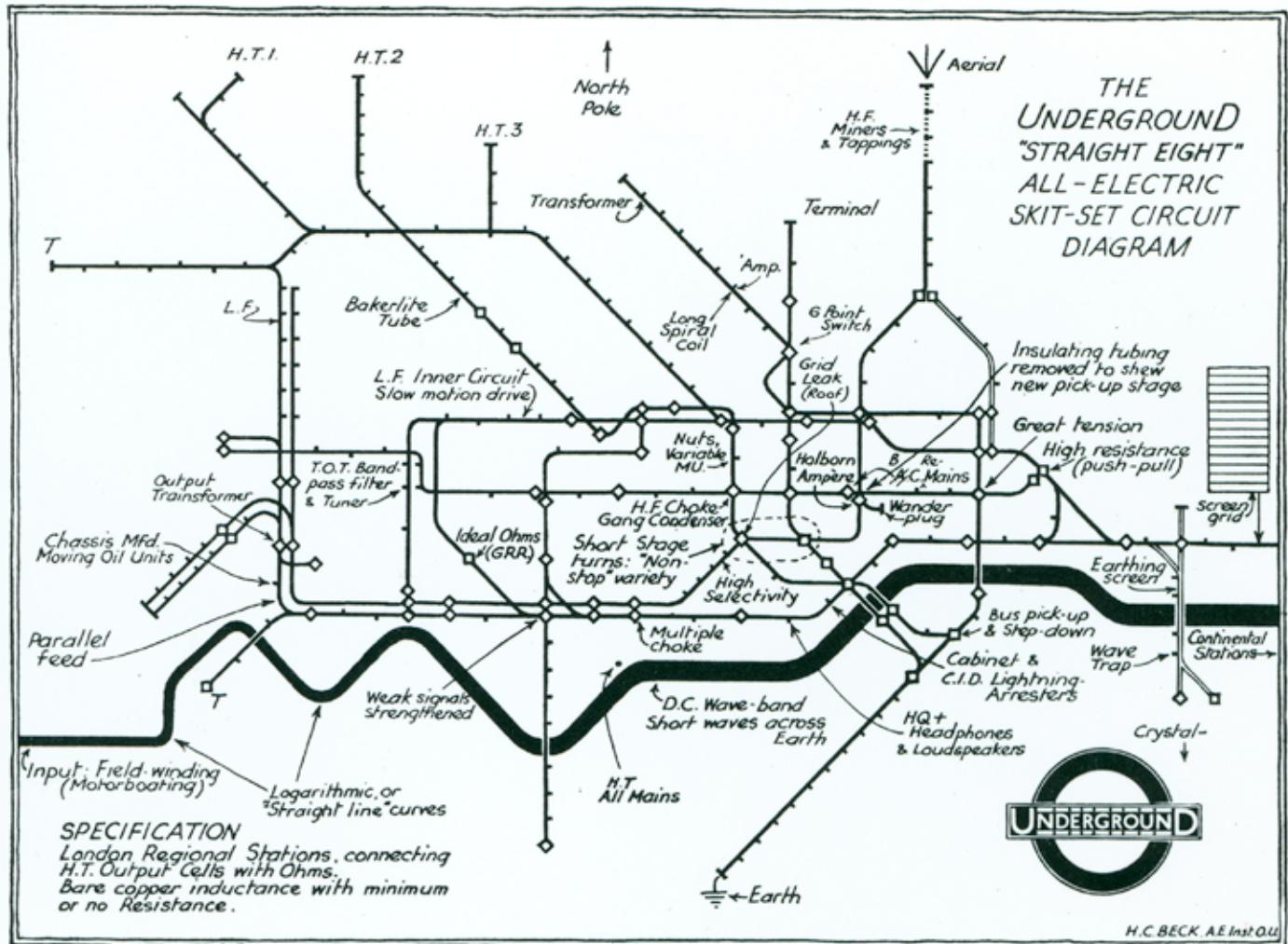
The *silva* is savage, the *via rupta* is written, discerned, and inscribed violently as difference, as form imposed on the *hylē*, in the forest, in wood as matter; it is difficult to imagine that access to the possibility of a road-map is not at the same time access to writing. (108)

When we read Beck's map as a text, it certainly speaks of unity and harmony, but it does so through a grammar of nodes and links, connections and junctions. It provides a new syntax to regulate the urban changes affecting London as well as other cities, thus promoting "the optimistic vision [...] of a city that was not chaotic, in spite of appearances to the contrary" (Garland 7). Because of such grammar, Beck's map presents a high degree of hypertextuality: it is a form of proto-hypertext. It also reminds us of modern information technology because the map's disregard of urban geography is in fact a digital rewriting of the city, simplifying it in a discrete series of lines, ticks and junctions. Although Beck himself could not be acquainted with either of these concepts, which were only introduced decades later, his design anticipated their representation of space and information by applying very similar visual strategies. Let us consider the two aspects one at a time.

A mark of digital representation is the presence of space between the chunks of essential information. That is to say, the trip from station A to station B is represented as a mere line, leaving out all of the irrelevant information and focusing on the sequence of connected places. As Derrida notes, spacings in writing consist of "the unperceived, the nonpresent, and the nonconscious"—that is, the omitted topography between two stations. Any form of digital writing

entails a certain degree of corruption, a distortion of reality which Derrida also finds in music and painting and is "linked to spacing, to the calculable and analogical regularity of intervals" (213). The spaces between two stations stand as everything the traveller does not see during the journey between stops, straightening out the physical uncertainties and bumps of the landscape in the shape of a line. This digitalization of London—if by that we mean only the original concept of discretized representation—is to be read as the consequence of a changed perception of time and space. Modern transport gave way to a new understanding of the two concepts as unrelated, since distances grew smaller thanks to the railway and cars: space ceased to equal travel time (Hadlaw 32–33; Schivelbusch 33–44). The distance between stations could therefore be signified by a simple straight line between ticks and dots disregarding anything that lay between the connections and whose length did not correspond to the actual distance. Considering that Beck's model still functions as the blueprint for mapping a vast array of rapid transit systems all over the world, his solution proved to be the most efficient way to portray underground train travel—what Beanland calls "the frictionless slip through tunnels identical in darkness", paralleling a "fantastically ignorant traverse of the city above".

On the other hand, hypertextuality is found once a decision has to be made in a junction, or when choosing a direction. Every line can be taken in two opposite directions, every station is a link to the geography aboveground, every interchange station offers the option of hopping on a different route. Long before the word came into existence,³ Beck wrote the city as a "hypertext". The term, usually found in information technology, simply signifies a text that can be read discontinuously, skipping and travelling around it, thanks to the interconnectedness of its parts.



4. Harry C. Beck. The Underground "Straight Eight" All-Electric Skit-Set Circuit Diagram. 1933.
© TfL from the London Transport Museum collection.

Contrary to a novel written in a traditional form, for instance, a hypertext would let the reader decide which way to go, how to proceed, opening up the several possibilities of a story without imposing a one-way course on the narration. The internet is probably the largest existing hypertext: the links are nothing but possibilities enabling an erratic surfing through the text. In computer science, the pieces of information are called *nodes* (or chunks) and the connections between them are *links* (McKnight 2). Terms such as nodes and links may call to mind urban planning and transport, but let us for a moment stick to storytelling. *Sliding Doors*, a popular 1998 film, represents such hypertextuality: after a few minutes, the story splits into two different narrative lines, each determined by whether the main character does or does not manage to catch the tube at Embankment station. The structure of the film underlines some of the hypertextuality of the tube—how it is now perceived as a place of possibility, of potential encounters and different directions that can change the course of the storyline as well as our lives. Indeed, the passage from *The Waves* speaks the same language, the tube being the perfect counterpart of the streets aboveground departing from and yet coming together in Piccadilly Circus; these are the nodes and links of a city whose great transformations in the 1930s altered how it was perceived and, since the 1990s, has come to be understood as a hypertext.

The Map Becomes the City

As well as aiding navigation at its most basic level, the tube map's groundbreaking language of novel signifiers was influential in forming the vision of the modern city as a crucible of new contents. In the 1950s, Guy Debord, the situationist and initiator of the discipline of psychogeography, described modern industrial cities as "rich centers of possibilities and meaning" (63)—not

just *signifiers*, signs of the nature of our modern life, but also *signified*, sources of new meaning. In short, the city that Beck had represented through the hypertext could also work as an originator of meaning in Debord's eyes. The French writer theorized the practice of the *dérive*, an unplanned trip around a city in which the urban landscape drives the performer toward the final destination, rather than them being driven by a desire to arrive at a particular or predetermined place. In the *dérive*, the urban space actively participates in the traveller's choices as a text in itself, which men and women read to extrapolate novel meanings. This notion of the city is another step in the evolution toward the hypertextual envisioning of the urban world—a process that began with the great changes of the 1930s, when Woolf wrote the lines quoted at the start of this essay and Beck drew his celebrated map.⁴ Yet, in spite of these commonalities, Situationism and Beck's map arrived at two very different conclusions. Still referring to psychogeographic practices, Ivan Chtcheglov predicted that in the modern city "the main activity of the inhabitants will be CONTINUOUS DRIFTING" and that "the changing of landscapes from one hour to the next will result in total disorientation" (7). The situationist city is read as a text originating meaning through disorientation, whereas the understanding of the city in Beck's writing stems from a highly hierarchical and defined sense of space.⁵ Nevertheless, despite the different nature of Beck's experiment, the tube map is a good companion of a *dérive* since what guides the experience are the range of possibilities offered by the city, made visible and even more accessible by the map. The countless *flânuers* that populate London as tourists, newcomers or short-term visitors from out of town are encouraged to hop on and off the trains to discover the hidden gems of the metropolis. Could, then, the excitement that Jinny feels at Piccadilly Circus be something of a precursory Debordian thrill stemming from the

innumerable meanings that the city as text might engender through drifting?

This dichotomy in the perception of modern urban space is also found in how the tube is perceived—as an image of postmodern life with its intersections, ever-changing relationships, and urban character but also as “a place where everything is fragmented, evanescent and contingent” (Welsh 268). Beck’s design clearly works against such fragmentation: his unifying grammar depicts the tube as the opposite of individual car transport and as an antagonist of the disintegrating power of suburbanization, both of which in Mumford’s view deny “the possibility of easy meetings and encounters by scattering the fragments of a city at random over a whole region” (507).⁶ Although the London Underground is indeed a product of suburbanization, Beck’s writing tries to turn the sprawling metropolis back into a city. His design blows up the area inside the Circle Line and identifies it as the heart of the city, creating the illusion that London grew out from a single centre rather than many—whereas, in fact, the two separate cores from which the capital evolved are actually Westminster and the City, both found on the right side of the map. All the lines tend toward this centre where most of the intersections occur, once again revealing the centripetal nature of the project. The retention of the Thames as the only surface detail also creates the illusion that what is, in fact, a diagram is a sort of map that mirrors topography, which is far from true. Such ambiguity led users to identify the aboveground layout with the location of the stations on the tube map, thus transfiguring the geography of the city. That is to say, returning to Beanland’s formulation quoted above, the map *became* London. As design historian Adrian Forty has pointed out,

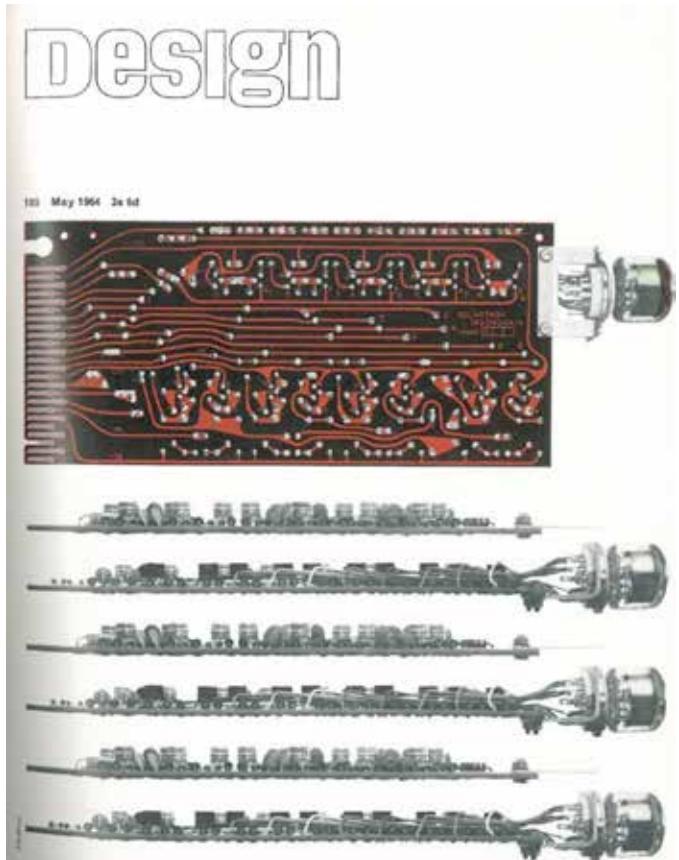
people perceive London through the Underground map, and actually have

little idea as to where Cockfosters or South Morden actually stand in their true geographical positions. They know London through the Underground map rather than anything else.

Ken Garland points out that Beck’s map succeeded in providing “an orderly simulacrum for a disorderly, disjoined accumulation of urban villages” (7). In his interesting choice of words to describe Beck’s creation, Garland evokes the postmodern image as simulacrum, no longer a bridge between the real and the unreal but the source of a new hyperreality that alters our perception of the world. Beck’s map thus becomes the hyperreal London. Jean Baudrillard theorizes this emergence of the postmodern simulacra through the concept of mapping:

The territory no longer precedes the map, nor does it survive it. It is nevertheless the map that precedes the territory—precession of simulacra—that engenders the territory, and if one must return to the fable, today it is the territory whose shreds slowly rot across the extent of the map. (1)

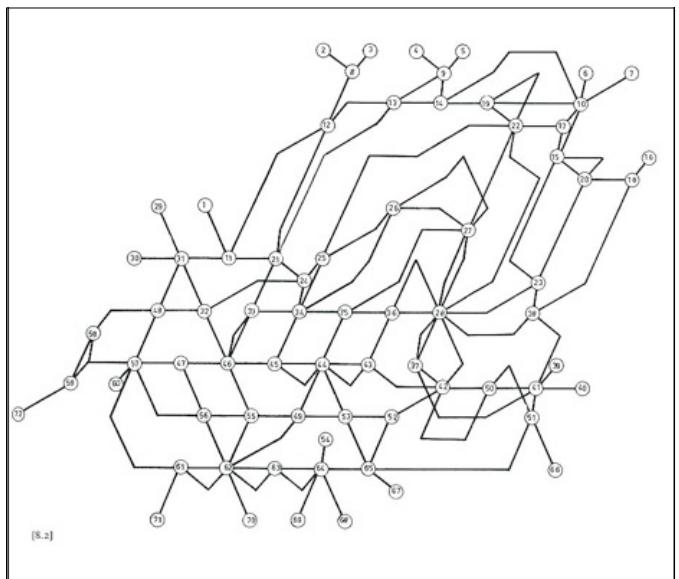
Beck’s writing of London transformed how we perceive the geography of the city. As Derrida might put it, it is a case of “writing before the letter” (1), of a form of writing that does not derive from experience (what is usually speech for language writing) but rather originates experience, shapes our way of seeing and relating to the world, a grammar helping us in the understanding of the modern city. One only has to look at the visual works inspired by Beck’s map to understand its grammatical qualities more completely. A poster released by London Transport in 1945 instructed neophytes in the linguistics of the map; “Be map conscious”, it advised after a brief overview of the major grammatical rules of Beck’s



5. Jan Le Witt. *Be Map Conscious*. 1945. © TfL from the London Transport Museum collection.

6. Anthony Froshaug. *Cover for Design*, May 1964. Courtesy of the Design Council / University of Brighton Design Archives.

7. Unknown artist. Otrivine advertisement. 2011. Courtesy of Novartis.



diagram, explaining, for instance, how intersections and different lines were marked (fig. 5).

But the birth of this new grammar was only the beginning of a whole new syntax to represent and interact with the modern city.⁷ As Peirce concludes in his theory of signs:

Symbols grow. They come into being by development out of other signs, particularly from likenesses or from mixed signs partaking of the nature of likenesses and symbols. We think only in signs. [...] So it is only out of symbols that a new symbol can grow. *Omne symbolum de symbolo*. A symbol, once in being, spreads among the peoples. In use and in experience, its meaning grows. (10)

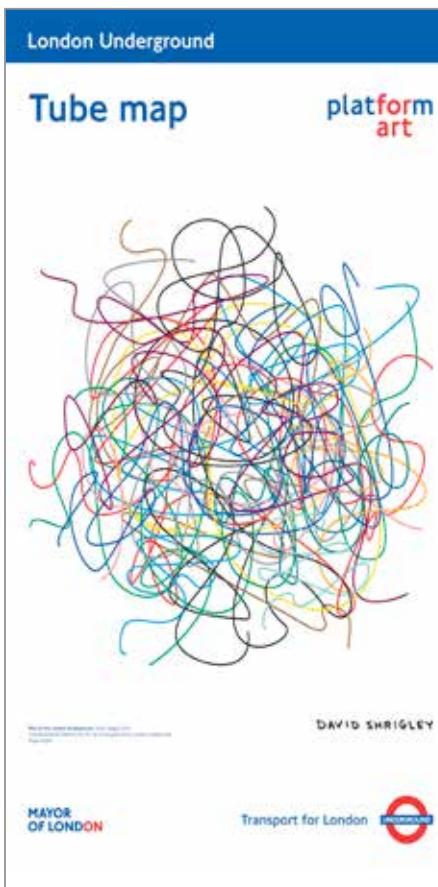
Thus, it is only natural that a set of new symbols developed out of the peculiar writing of the tube map, either strengthening or questioning its semiotics—a process that became visible once Beck's model was taken up internationally. While teaching at the Ulm School of Design, English typographer Anthony Froshaug used it in 1958 for an exercise with his students, where the tube map grammar, adapted to the Paris Metro, was used in graphic information. Later, he paid tribute to the London tube map on the cover of the April 1964 issue of *Design* magazine, where he linked a Beck-like circuit diagram to the image of a city skyline (fig. 6). Once again, the diagram was seen as the best way to portray the modern city, even though in this case Beck's creation was referenced more as a visual icon than as a form of writing.

The Language of the Map in Arts and Advertising

However, the grammaticality of Beck's creation becomes clear when one takes into account the

countless cases in which the map has been used as a language in itself to convey messages that have very little to do with the Underground. Several artists have revisited it not only as a symbol for parody or reinterpretation but as a grammar of signs to be conjugated according to the message at stake. The most famous example is Simon Patterson's *The Great Bear*, a large painting where station names are replaced by those of famous historical and artistic figures, associating each line with a specific category; for instance, the stops on the Jubilee Line are renamed after football players. Patterson's rendition does not disrupt the grammar of Beck's language but merely changes the content, as in the use of language where speakers continually change the message but communicate through a fixed set of grammatical rules.

Similarly, on underground trains one can encounter many adverts that apply the language of the map to entirely different subjects. A recent advertisement marketed the Otrivine nasal spray with a map showing us the way out of a seasonal cold: from the stations "Blocked Nose" to "Breathe Freely", a passenger can choose the non-stop pathway of the spray or the longer route, travelling through "Sniffingham" and "Royal Snoring" (fig. 7). The grammar of the tube map adapts very well to the purpose of advertising: it can easily convey starting points, individual or collective goals, ways to reach those goals, and obstacles one might find along the way. Through its hypertextuality, it perfectly signifies that there are possibilities and choices to be made in order to achieve an outcome, or reach a destination, as quickly as possible. Like other hypertexts, the map works as the perfect representation of how the modern man relates to the world, its grammar paralleling the preoccupation with connectivity that has become a distinctive mark of our time.



8. Barbara Kruger. *Untitled (Tube Map)*. 2010. Commissioned by Art on the Underground. © TfL from the London Transport Museum collection.
9. David Shrigley. *Untitled (Tube Map)*. 2005. Commissioned by Art on the Underground. © TfL from the London Transport Museum collection.
10. Liam Gillick. *The Day Before (You Know What They'll Call It? They'll Call it the Tube)*. 2007. Commissioned by Art on the Underground. © TfL from the London Transport Museum collection.

In 2010, Barbara Kruger used the same approach as Patterson's in her contribution to the cover art series for the pocket tube map,⁸ naming the stations after emotions that she associates with each particular area of the city, and common feelings that everyone experiences in the modern, publicity-driven world (fig. 8). The syntax of connections and lines conveys a message in itself, suggesting that all of these conditions are temporary but necessary states that everyone has to go through. Some of them present possible disruptions (devotion, compassion, but also power and envy) whilst others might take one further than expected ("Pride" is linked to the National Rail).

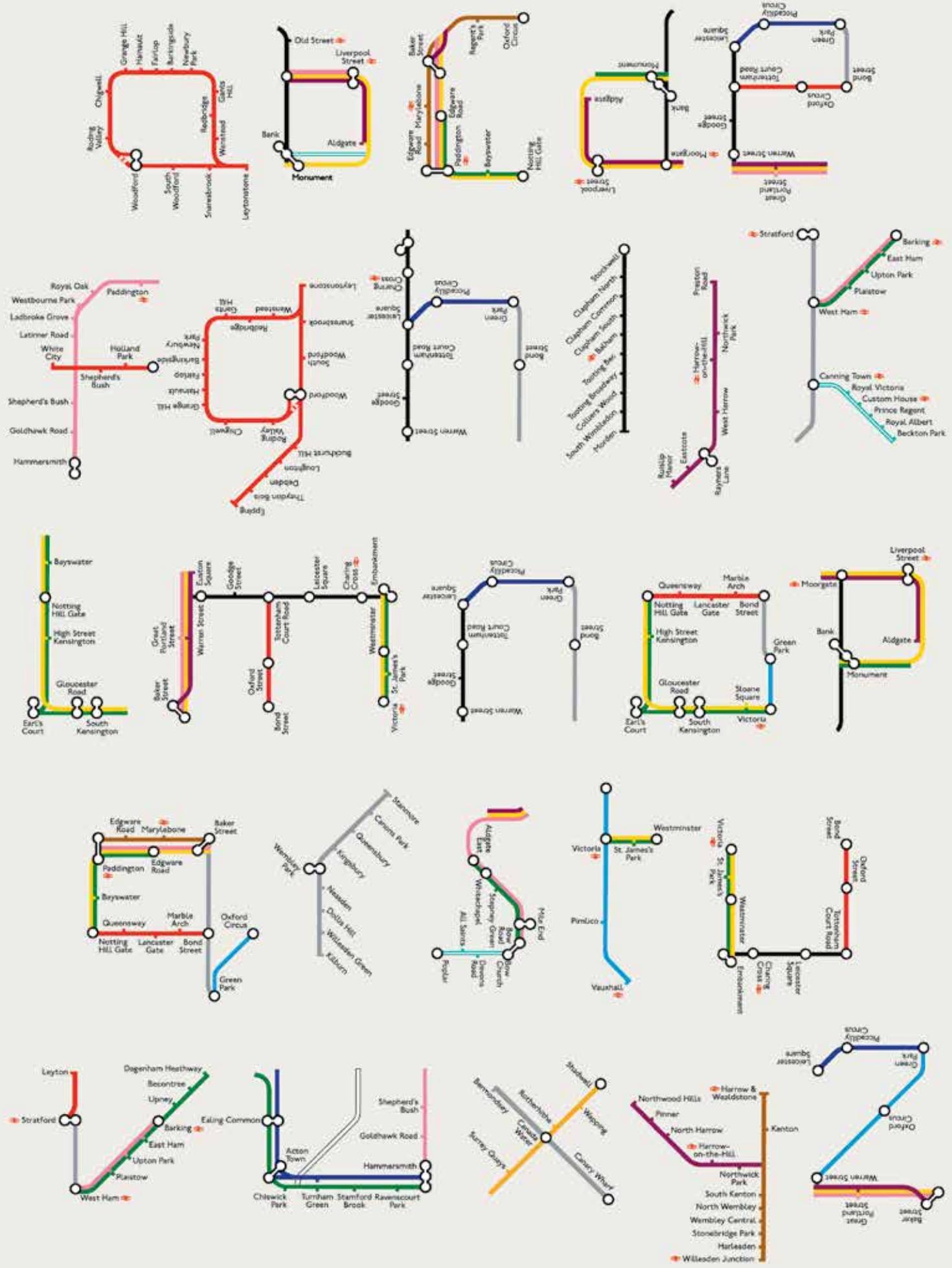
Other works in the series push the notion of the tube map as writing even further. David Shrigley's 2005 cover artwork shows a tangle of spaghetti-like lines (featuring the same colours as the tube lines) jammed together in a chaotic heap, ironically suggesting that Beck's smooth grammar might not adapt so well to the social complexity of the modern city (fig. 9). In Liam Gillick's *The Day Before (You Know What They'll Call It? They'll Call it the Tube)*, the map is referenced only by the colours of the eleven lines of the system, which have fully become part of Beck's grammar in spite of their earlier birth (fig. 10). The multi-coloured date constituting the whole of the artwork, "fridayjanuarythenintheeightiesixtythree", pays tribute to the last day prior to the commencement of service of the Underground Railway. Beck's map is absent as was the tube itself on "the day before", but its grammar is still evoked in the use of the line colours portending the upcoming revolution, as though the tube was already written in the fate of the city. Thanks to the chromatic reference, Beck's grammar and written language merge into one: the tube map is to become the new language.

These examples show that artworks about the tube make use of Beck's map as a form of writing, taking

some or all of the sets of symbols composing its language and subverting their visual layout without compromising the viewer's acknowledgment that the signs still belong to Beck's map. Among the several fonts presented in a recent book on art typography, there is one by Tim Fishlock that is moulded after the tube map (fig. 11). Fishlock has simply extrapolated unaltered sections of Beck's map that look like letters of the Latin alphabet in order to create his original font. His work literally uses the map as a form of writing, bringing the process of its grammaticalization to completion.

Beck's map functioned as a way of writing the practice of urban living that was reaching maturity during the interwar years, and then provided a highly malleable syntax that rewrote such practices and meanings as they shifted through history. The global scale of the world wide web has now led to the understanding of the whole planet as a single city by means of its hypertextual nature. Katharine Harmon voices the widespread view of the internet as "a network of networks" that "connects us to a global village" and is "itself a vast cultural map" (15). We make sense of the modern world through the web in the same way Londoners made sense of their changing city through Beck's design at the beginning of the 1930s to the extent that Londoners can now refer to it as yet another hypertext through which they can relate to the mediated city. As Baldwin explains, the tube map proved to be a very useful form of writing modernity because "in the absence of other proposals for unraveling the complexity of urban life, the abstracted representation of a transportation system has shaped the collective understanding of the city" (n. pag.).

When in 1933 the brochure cover announced that travellers could finally make use of "a new design for the old map", little did the readers know that what



11. Tim Fishlock. A to Z. © Tim Fishlock and Transport for London 2012. Courtesy of Tim Fishlock.

they were holding was much more than that. What lay in their hands was so powerful that it would change the geography of the city without the use of excavators, even more so than the bombs that were to fall on London within the next decade. Beck's map offered a way of constantly rewriting the city according to the shifting understandings of the urban landscapes throughout several eras and movements. The grammar that grew out of the modernism of Beck's times traversed profoundly different historical eras, but instead of forcing onto them a perception of the city produced in a specific historical period, it evolved and adapted effortlessly to the different and sometimes diverging conceptions of urban space, from Pick's unifying policies to our contemporary hypertextual approach to city life, passing through the fragmenting phenomena of suburbanization, psychogeography, and postmodern re-readings in the arts and the digital age. The connecting power of its design allowed for such contrasting attitudes to merge almost naturally in the straightforward semiotics of lines, colours and dots that still accompany Londoners in their everyday travels across the vast metropolis, as well as urban dwellers who turn to similar cartograms all over the globe. One can only wonder how many more revolutions the language of the tube map will live through in the years to come, with no wrinkles or other signs of ageing to disrupt its crisp profile.

NOTES

¹ The *tabula peutingeriana*, the only surviving map of the complex road network built by the Roman Empire across the Mediterranean basin, provides one of the earliest examples of distorted topography to highlight the connections of the *cursus publicus*. The original copy is believed to date back to the fifth century and the only surviving replica of the lost original, drawn in the 13th century, is held at the Österreichische Nationalbibliothek in Vienna. Like Beck's tube map, the *tabula* puts a greater emphasis on connections over accuracy, although it still retains physical surface features and deforms them to fit them into the rational image of the network. A thorough history and analysis of the map can be found in Richard J.A. Talbert, *Rome's World: The Peutinger Map Reconsidered*.

² In his sharp analysis of Beck's map, design historian Ian Baldwin also makes the mistake of looking at the map only as "a fascinating and beautiful graphic object", viewing it as a static symbol rather than a set of symbols, a language that could be conjugated and adapted to all urban realms (n.pag.).

³ According to the Oxford English Dictionary, the first recorded use of the term occurred in a conference paper given by Theodor Holm Nelson at Vassar College in 1965.

⁴ In her analysis of the map, Janine Hadlaw also highlights that Beck's design and its success responded to a shared perception of urban life and space that made and still makes the map easily readable to its users (26).

⁵ Hadlaw defines every map as "a device by which particular meanings can be imposed on the world: it orders priorities and naturalizes hierarchies of place" (26). This is confirmed by Beck's design.

⁶ In spite of the unifying force of Beck's map, Mumford was very critical toward rail transport, which he also blamed for the centrifugal sprawl and fragmentation of the modern city. In Mumford's analysis, the railroad tracks work as walls shattering the urban space into a discontinuous and chaotic ensemble (471). However, Mumford refers to overground transport rather than the underground railway, the former being the most common form of urban rapid transport in the United States still in 1961, the year when the book was published.

⁷ For how images organize meaning through grammar, see Gunther R. Kress, Theo Van Leeuwen, *Reading Images: the Grammar of Visual Design* (Abingdon, New York: Routledge, 2006).

⁸ Starting in 2004, Art on the Underground commissioned international artists to create the cover art for the pocket tube map, and since then the map has featured a new cover every six months. An overview of the cover art up to 2007 can be found in Coles (45-49).

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