Diagramming the Social: Exploring the legacy of Torsten Hägerstrand's diagrammatic landscapes

Abstract

Torsten Hägerstrand's work was influential to the emergence of human geography as a theoretically sophisticated social science. Focusing on the materiality of everyday life, and complex ecological webs through which human society is made, his writings offered an original set of tools to think about the how and where of communal life. Nonetheless, in much of the in the North American and British academy Hägerstrand's work has been relegated to a disciplinary footnote; a writer whose work has been overtaken by more recent developments in social theory. This article reevaluates the contemporary relevance of Hägerstrand's thought. Drawing on examples, it will explore the ways that the social time-space diagramming developed by Hägerstrand might be productively reinterpreted and reconfigured. Rather than thinking of Hägerstrand's work as being made redundant by subsequent theoretical advances, this paper demonstrates how his work still offers social scientists useful tools to describe the worlds they study.

1. Introduction

What is a landscape? This is hardly a straightforward question. For landscape architects and designers it is a complex amalgam of vegetation, soil, topography, weather, and human activity. Each landscape is, as Ian McHarg (1969: i) wrote, part of the world's "glorious bounty" to be worked with, shaped, nurtured. For geomorphologists, as it is for landscape ecologists, landscape is the geological and natural environments that they seek to understand. It is a set of bio-physical and geological processes that unfold over centuries, millennia, epochs. Contemporary cultural geographers, in contrast, frame landscape as kind of social and political construction. For them landscape is the web of representations and narratives with which societies, and groups within societies, interpret and give human meaning to the locales they inhabit. And of course popular culture should not be forgotten. Here landscape is a barstard vibrant mix of vista, habitat, cliche.

For the Swedish geographer Torsten Hägerstrand landscape was—in different ways—all of these things. His thinking provided an evolving, often surprising, exploration of the ways societies were entangled in landscapes, and landscapes with societies. His focus on the materiality of everyday life, and on the complex ecological webs through which human society is made, offered an original set of tools to think about the how and where of communal life. His work also bridged the evolution of the discipline of human geography—and with it a certain style of landscape research—from a largely descriptive, exclusively idiographic, enterprise, to one concerned deeply with questions of theory and generalisability.

Given the importance of his work to the development of contemporary human geography and to a great deal of contemporary work on landscape planning, it is surprising that in much of the English speaking world his writing is increasingly forgotten. This is partly a product of time–Hägerstrand's key texts were produced in 1950s through to the 1980s. But there is also something else in play. Whilst Hägerstrand's work was important in bringing geography into dialogue with the wider currents of contemporary social science and social theory his work is now largely characterised as unnecessarily abstract: distanced, disembodied, lifeless. Not so much entangled with the world, as riding above it, reducing it to little more than points and lines. It is something, as Edensor and Holloway (2008: 498) have it, to be "transcended." Researchers interested in exploring the world's thick materiality are rarely encouraged to explore his work. Why is this? What has been lost in this reading of his legacy? And might contemporary researchers gain from reengaging with his work? Before addressing these questions directly it is helpful to take a short detour through the world of geography Hägerstrand helped up-end.

2. Regional geography, theoretical geography, and Hägerstrand's diagrammatic imagination

From the perspective of a contemporary human geography–at least that dominant in much of Anglo-American scholarship—it is hard to understand what geographers were up to in the period before the 1950s. Writers like Alfred Hettner, Carl Sauer, Richard Hartshorne, Vidal de la Blache—all who were important in different ways to early the education of Hägerstrand—seemed to be driven by an impulse for endless description (Schaeffer 1953). For sure this impulse had its theoretical justifications (Hettner 1927; Sauer 1925; Hartshorne 1939). But these were largely hidden within the hard work of empirical enunciation. More, these theoretical justifications located geography largely within the local and ideographic—both in terms of its empirical focus and in terms of its disciplinary definition. Empirically geography was concerned with regional landscapes, describing and defining the distinctive characteristics of a locality, however extensive that 'locality' might be. For this regional geography landscape was central. As Sauer (1925: 25) put it, "the task of geography is … the establishment of a critical system which embraces the phenomenology of landscape."

This approach to geography and to landscape was in its own terms extraordinarily productive. Sauer and his students produced an impressive body of writing (Price and Lewis 1993; Denevan and Mathewson 2009). In the post-World War II period J B Jackson's (1970; 1984) inventive studies of the American vernacular landscape showed that landscape studies did not need be in thrall to the pastoral. Meinig's multi-volume *The Shaping of America* (1986; 1992; 1995; 2004) gave a sense of the grander possibilities of this tradition. And, there are the multiple legacies of this writing to existing scholarship– from landscape ecology, to heritage preservation and indeed humanistic geography. And this is only to mention North-American examples.

However, even taking these legacies into account, for much of the past half century this way of working with landscape has been pushed to the edges of human geography. This story has been told any number of times elsewhere (Johnson 1979; Livingstone 1992; Cresswell 2013). Paying more attention to the production of generalisable knowledge and theoretical propositions, the emergence of quantitative geography from the 1950s onwards opened up all kinds of new possibilities for cross-pollination with other more scientifically oriented disciplines. This quantitative revolution, so-called, created radically different renderings of landscape to that of the regional geographers (Chorley and Haggett 1967; Haggett 1972). In place of the rich textual landscapes offered by the likes of Sauer and Hartshorne were intricate graphical tracings of spatial relations; a landscape of lines and points underpinned by mathematical formula, and tightly defined formal reasoning. It has become a commonplace to point to the sterility of these renderings (Rose 1993; Gregory 1994; Doel 1999). We will examine parts of this critique more fully in a following section. But early quantitative geography did–and does–possess a certain lyrical quality. There was in the best of this work a sense of discovering and developing a novel language for describing and explaining the complicated busy-ness of the world. There is something

almost baroque in the crystalline diagrams of Lösch's market fields, the elegant peaks of a land value mapping, the angularity of a carefully constructed equation. Just as there is elegance in the simplicity of logarithmic curve or a well constructed cartogram (see figure 1).[1]

Hägerstrand's work, of course, falls very much within the quantitative tradition. *Innovation as a Spatial Process*, published in 1953 (in English translation 1967), was an extraordinarily rigorous—and inventive—piece of formal reasoning that looked and felt profoundly different to earlier geographic work. Drawing on ideas from economics, physics, mathematics, statistical theory, stitching them together with older ideas from regional geography, through the 300 pages of this monograph Hägerstrand created a strikingly original template for what a more theoretically oriented, model based, human geography might look like (Cliff and Pred 1992; Lenntrop 2008). Two other characteristics define *Innovations*. First, were the range of diagrams and mappings through which the book's argument is developed. Towards the end of his career Hägerstrand (1983: 239) reflected that, "[a]s every geographer I love maps. But the great adventure of my scholarly life has been trying to transcend the map." *Innovations* was bursting with all kinds of experimental diagrams that sought to reanimate and go beyond cartography as it was then understood. Read together the book's many diagrams and maps provide a sense of the dynamism of the landscape of the Kinda-Ydre area in southern Sweden. Second, Hägerstrand, starts at the micro level. His models are built out and up from the individual farmsteads whose innovation he wishes to track. For all the formality of the final diffusion models they were grounded in a concrete landscape—a formalised way of tracking how gossip and conversation move through and animate landscapes.

This twin focus on inventing new ways of describing and representing landscape and the need to attend to the micro level scale of social interaction carried into his work on time-geography. Thinking beyond the idea of spatial diffusion Hägerstrand and colleagues at Lund University sought to develop a basic graphic language for describing how individuals and communities occupy landscapes (Hägerstrand 1970; 1973; 1975; 1976; 1982; Thrift 1977; Carlstein et al. 1978). This language was built on a series of simple principles: 1) the indivisibility of the human body; 2) the finitude of life, which implies that time is in some fundamental sense a limited resource; 3) the limited ability of people to participate in more than one task at once; 4) movement in space is also movement in time; 5) the 'packing capacities' of space are limited, so social life is defined in part by competition over the use and allocation of space and time. It was out from these basic principles that time-geography built its many diagrammatic renderings of social life.

Time-geography's diagrammatic devices looked quite like those of the wider quantitative revolution. They were all about lines, points, geometric grids (see figure 2). But in other ways they were quite different. Rather than focusing on aggregating up, much of time-geography was explicitly focused on

the individual and the small scale. It was interested in accounting for and understanding the ways individual lives were woven together—given structure—within landscapes of human activity. It was also explicitly focused on the heavy materiality of the landscapes within which these individual lives unfolded. As Nigel Thrift (2004: 337) wrote, "all those intricate diagrams [in time-geography] were, in part, an attempt to explain the pragmatics of events." In this Hägerstrand was moving on a different intellectual terrain than most spatial scientists and quantitative geographers. This is a terrain that had similarities to earlier forms of regional geography; the more wholistic landscape visions of Hettner, Sauer and Vidal de la Blache. But it was also terrain that overlapped debates within social theory about how to think about the relationships between time and space when thinking about societies. Indeed, Hägerstrand's time-geography with its focus on thinking landscape as process rather than as form or morphology, and its attention to developing rigorous conceptual tools—both textual and diagrammatic—for thinking about such processes, was central to human geography's attempts to build a bridge between the discipline and wider debates within social theory (Pred 1981; Pred and Thrift 1981; Thrift 1996). This was a bridge that much of human geography was to traverse with alacrity, leaving time-geography and Hägerstrand behind.

3. Enough time-geography! Enough diagrams!

Time-geography was initially taken up with enthusiasm within Anglo-American geography. Pred (1990) and Miller (1982; 1983) put it to use examining the everyday geographies of industrial workers in Stockholm and 19th and early 20th century American suburban households respectively. Adams (1995) drew on time-geography to rethink the ways new communication media altered everyday geographies. Feminist scholars such as Tivers (1985), Dyke (1990) and England (1993) found in time-geography a useful heuristic for examining how women's mobility within cities were constrained by domestic commitments in ways men's were not. Transport geographers found a fecund resource for thinking about the ways people's activity patterns are defined by all sorts of temporal, spatial and institutional constraints (Kwan 2004). Indeed Hägerstrand's concepts resonated more widely. The insight that everyday routines are organised through locally specific temporal and spatial orderings, in combination with an emphasis of how individual biographies were enmeshed within these orderings, spoke directly to a range of emerging debates within social theory. Writers such as Giddens (1984), Urry (1985) and Gell (1992) saw in time-geography a way of both spatializing social theory and deepening its conceptualisation of time.

This sense of the time-geography's intellectual novelty quickly wore off. Time-geography may have helped open a series of distinctive conceptual vistas but as Anglo-American human geography's engagement with theory deepened so too did its discontent with the apparent physicalism of Hägerstrand and colleagues' mappings of society's time space orderings. Humanistic geographers had

already pointed to the live-less, bloodless, feel of much time-geography. For Buttimer (Hägerstrand 1983: 254) it reminded her of a kind of *danse macabre*. Although they were willing to give it the benefit of the doubt; if flawed it was intellectually suggestive (Buttimer and Seamon 1980). A more head-on critique was presented by writers like Gregory (1985; 1994) and Rose (1993). Here too were arguments animated in part by the apparent lack of liveliness in Hägerstrand's work. Much more than that, however, Gregory (1985) was unconvinced by the lack of attention to power—and the way power was manifested and shaped through institutions—both in Hägerstrand's early diffusion work and his time-geographies. A parallel, critique was developed by Rose (1993) in *Feminism and Geography*. For Hägerstrand (1970; 1973; 1982) principles such as people being 'indivisible', individuals tracing out a unique time-space 'path' as they navigated their lives, this movement being constrained in all sorts of ways by the society individuals inhabited, was more or less self evident—they were uncontroversial starting points for analysing the fundamental human-ness of the landscapes geographers were seeking to understand. For Rose the diagrammatic renderings of social life produced the opposite effect. Failing to reflect on the specificity of the timings and spaces it purports to describe, "time-geography insists on a singular space." A space that is associated with "the disembodied, the universal, the individualistic, the masculine, the public" (p. 29). What for Hägerstrand was an attempt to describe the dense sociality of everyday life, is for Rose a description of a cold, highly individualistic, world. As she puts it, "the agency of time-geography is clearly delimited and bounded—its paths mesh but never merge, always individual. There is no bodily passion or desire" (p. 31). This was no landscape for a progressive human geography.

For many contemporary Anglo-American human geographers it is self-evident that Hägerstrand is no longer relevant. It is not that the focus on spatial-temporal sequencing, on the rhythms and textures of everyday life has waned exactly. It is that the critiques of Gregory and Rose carried the day. Time-geography—to say nothing of diffusion theory!—have been overtaken, superseded. By and large forgotten. If this work is considered at all, it tends to be mentioned only in passing on the way to discussing more theoretically acute accounts (Edensor 2010). But the forgetting of Hägerstrand—and his experiments in time-geography—can also be seen as part of a wider turn away from thinking diagrammatically in much of Anglo-American geography. In part this reflects a nervousness towards diagrams— seen as landscapes of lines and points—as engines of reification that take us away from the deeper texture of the world. But it also is part of a growing sense that the fixation on the metrics of time-space stood in the way of human geographers thinking more dynamically about landscape; or indeed any kind of socio-spatial arrangement. Why not, as Merriman (2012: 24), argued, for example, forget about time-space and start with 'movement space'—a space 'constituted through affective forces, atmospheres and rhythms'? Crucially, the kinds of intellectual inspiration driving this work is overwhelming textual. It is much more likely to be philosophical and social theoretical than to come from anyone interested in drawing diagrams or maps—Heidegger not Hägerstrand.

4. A different kind of critique, reframing Hägerstrand's diagrammatic impulse

The suggestion that it is possible to practice a human geography without time-space, without the kind of impulses that drove time-geography and animated Hägerstrand's thinking is not outlandish. Earlier geographers like Sauer, JB Jackson and others managed well enough without after all! And it is possible to point to all sorts of contemporary cultural and social geography that is not animated by these concerns (Wylie 2007; Oakes and Price 2008). For many the suggestion that landscape is not centrally about time-space, or time-space orderings, makes perfect sense (Cresswell 2013; Wylie 2016; Vicenzotti et al. 2016). Writing about the texture and patina of individual and communal experience of landscapes—natural or otherwise—does not necessarily demand paying direct or sustained attention to the lattices and networks of time-space[2]. And, if one is a theoretical geographer, doing social theory, the work of philosophers, even those long deceased, is in all sorts of ways a much more vital—more daring—landscape to traverse than that offered by a now defunct school of (mostly) Swedish geography. From these perspectives human geography can forget Hägerstrand and his odd diagrams.

And yet there are all sorts of questions—important questions—that cannot be addressed without more concretely framing the spatial-temporal landscapes within which societies are embedded. For large chunks of human geography developing precise conceptual tools, tools that can be mobilised in methodologically rigorous ways, to examine the multiplicity of activities for which metrics of space and time (or spatiality and temporality) operate are central; to put things slightly differently there is a lot of human geography that is not ready to abandon its interest in time-space. This is to recognise the flourishing work that enrols geographic information systems (GIS) to understand how particular places and activities knit together. This is perhaps Hägerstrand's most obvious legacy. Take, for example, Kwan (1998; 1999; 2004; 2013) and colleagues (Ren and Kwan 2007; Lee and Kwan 2011; Schwanen et al. 2007; Yang et al. 2017) efforts to expand and scale-up many of concepts and graphical techniques from Hägerstrand and his colleagues at Lund (figure 3i). Using large geographically coded data sets and high powered computing they have developed a series of sophisticated arguments about the relationship between intra-urban mobility and access to both resources and environmental risks. More, drawing in feminist scholarship, Kwan (2002; 2007) has argued that is possible to use geospatial technologies in ways that acknowledge and work with the emotions and embodied experience of those whose lives are being represented.

In such work it is possible to see the ways that the kind of diagrammatic, inductively oriented, thinking central to Hägerstrand's *modus operandi* can animate contemporary geographical work. But a broader case can be made for the legacy of the Hägerstrand's approach within human geography. In the

arguments of his critics Hägerstrand's thinking—and more specifically time-geography—fails because it is too literal, too fixated on what is physically there, too inattentive to the hidden dynamics of the 'social', to be much use to a social theoretically engaged human geography. And, yet, this is in a quite fundamental way to miss the originality—the distinctiveness—of Hägerstrand as a geographical and *social* thinker. Thrift (2004) perhaps summarises this mis-reading best:

> "Hägerstrand has often been described as a physicalist … I prefer to see him as am early critique of social constructivism, producing a critique of the kind most often associated with the work of a rediscovered Tade and, latterly, Latour. In particular… time-geography makes it possible to go beyond social constructivism by emphasising the physical constrains on human action and the wider networks of competing opportunities that they set up which act to steer situations. … [T]hose time-geographic diagrams did something else too. They radically lessened the distinction between humans and other objects. They provided a kind of neutrality of representation, even a democracy of description, of the world." (p. 338).

Diagrams do not just alienate, or draw us away from 'lived' reality. They do not have to be 'just' abstraction. They can also draw us into and through worlds, places, experiences. They can move us, convince us. As McCormack (2009: 98) argues: 'the inventive dimensions of techniques like time-geography remind us that the diagram does not designate a solely representational technique. The diagram may be presentational: it is also, however, aesthetic, affective and kinaesthetic, produced by and generative of particular movements of thought, hand or pen'. We can acknowledge the force the many critiques of time-geography, whilst also seeing in Hägerstrand the potential for moving our own thought in novel and original ways.

5. Contemporary experiments in diagramming social life

What happens if we read Hägerstrand in the key suggested by Thrift or McCormack? Well for one thing his work is reframed as more a beginning than an end. Thinking out from the inventive ethos that animated Hägerstrand's use of diagrams we can gain a sense of how the basic grammar of time-geography can be used to help us think along with social theory. Schwanen (2007), for example, provides a neat illustration of the continuing descriptive and analytical usefulness of notation developed in time-geographic diagrams. Examining the ways specific objects organise and constrain people's everyday routines, a time-space diagram is used to describe the material rhythms of a sample of Dutch families' work and child-care commitments (Figure 3ii). Simple though the diagram may appear, in combination with Schwanen's textual commentary, it nonetheless gives a feel of the forces tied up with the act of leaving a child in daycare whilst their parents work; and how these forces are both gendered (as daycare is more often understood as the domain of mothers) but also enmeshed in intricate webs of

caring (where objects such as mobile phones, notebooks, and bike seats play a crucial role). As Schwanen writes, reflecting on the continuing usefulness of time-geography, "[p]aradoxically, turning more physical may enhance time-geography's abilities to deal with the social realm" (Schwanen 2007: 19). That is to say, its apparent physicalism helps animate and extend the ideas of actor network theorists like Latour and Mol, into the kinds of questions that human—or more specifically in this case transport—geographers might want to ask about the world. It helps make social theoretical calls for recognising the concreteness of the material world analytically relevant.

If Schwanen sticks closely to the representational repertoire of 1970s and 1980s time-geography, it is also possible to imagine all sorts of ways these representational elements might be reconfigured and reworked. Intended or not, the critiques of time-geography outlined in the previous section were part of a wider turn away from the idea of thinking with diagrams in much avant-garde Anglo-American geography.[3] They—oddly enough given that many of their critiques focused on getting closer to the sensuality of lived experience—reimagined human geography as a largely textual exercise. It is not that all sorts of visual or diagrammatic material is irrelevant to human geographers working on landscape. It is that such material—and the techniques and technologies used to produce them—was reframed as the empirical stuff that geographers should be interpreting and critiquing (Wylie 2007; Rose 2007; Cresswell 2013). Yet, following Schwanen, engaging more fully with social theory does not have to mean a wholesale repudiation of existing human geographical traditions. Drawing inspiration from Denis Wood (1992; 2010) and others' (Dodge et al. 2009) reinvention of cartography and map making in the light of post-structural critiques of representation, it is possible to rethink how we produce and use diagrams in ways that respond to contemporary skepticism about how earlier geographical work used them. Indeed, there is no reason why time-geography 'cannot be made to dance a little' (Latham 2003, 2000).

Take Latham's (2003; 2004; 2006) work on urban cultural change in Auckland, New Zealand. Here ethnographically oriented time-space diagrams are used to give a sense of the spatial-temporal matrices within which people's lives unfold, and to convey a feel of the event-ness of certain key interactions and social occasions (figure 3iii). Constructed through a bricolage of quotes from respondent diaries and interviews—the typed texts in quotation marks in the figure—along with photographs taken by diarists and explanatory commentary, these time-space diagrams aim to lead the reader into the research respondent's world. They provide a sense of the texture and rhythms both of respondents' inhabitation of a range of urban sites, and of the wider social landscape within which this inhabitation takes place. Retaining a sense of a basic spatial-temporal grid, these diagrams are also designed to be playful and engaging. Suggestive of their own partiality—they make extensive use of handwritten text, freehand sketching, and so forth, alongside more polished computer-processed text and graphics. These

diagrams are not meant to stand in for more established ethnographic accounts. They provide an additional set of narrative resources through which the reader may gain a sense of the relationships the researcher is seeking to describe.

This style of time-space diagraming has hardly taken on. However, it does point us towards a small but emergent field of diagrammatically oriented work that—whether it owns up to it or not—connects to that of time-geography. Concerned with the spatial-temporal coordination of activities as diverse as car sharing, video editing, cycling, and building maintenance, researchers like Laurier (Laurier 2014; Laurier and Lorimer 2012), McIlvenny (2015), and Jacobs and colleagues (2012) have produced diagrams of social interaction that draw both on existing social science representational conventions as well as others borrowed from sources as diverse as cartoons and graphic novels. Presenting a rich mix of spatial-temporal information, their attention to the emplaced sequentiality of social life, has obvious resonances with the work of Hägerstrand. Both share a strong sense that diagrams provides a distinctive way of thinking that goes beyond words, and indeed in a sense are more than just representational (Lorimer 2005). Diagrams are treated as heuristic devices; helping to order and orient accounts of social interaction or coordination but do not seek to be comprehensive or definitive. They are also experiments in developing novel ways of thinking about how people's actions are entangled with others and with all sorts of socio-technological landscapes (cf. Dittmer 2010; Dittmer and Latham 2015). McIlvenny (2015), for example, studying the experience of cycling with others uses a mix of conversational transcripts, photo-montage, and what he calls 'chronotopic transcripts' (figure 3iv). Latham and Wood (2015) do something similar with their graphic-diagrammatic-mappings cyclists navigating road junctions in London (figure 3v). These are busy and sociable landscapes—but also landscapes in which people do not necessary get the final word.

A key question here is how formalised the representational techniques developed by researchers like McIlvenny, Laurier, and Jacobs et al. should be. Working out from critiques of so-called positivistic social science much of this work is sceptical of being too prescriptive, too governed by rigid and restrictive rules. This feels rather different to the compactness of much of Hägerstrand's writing; he was driven by a compulsion to push towards more-or-less formalised statements that others might build on. Still all the above cited examples are clear that their diagrams are not aesthetic but analytic. But their analytic ethos is one keen to borrow from popular narrative forms, happy to plug into respondent's own narratival resources, aware that rules of representational propriety are as much about convention and taste as carefully grounded argument. Indeed, approaching diagrams in this way makes it easier to attend to the ways ordinary people draw on diagrammatic forms to tell us about their own lives. A possibility explored by Bissell (2014) in a study of long distance commuting in Sydney. Here daily time

use diagram (figure vi) provided by Alice, an interviewee, provides an affecting starting point for a mediation on bow commuting bodies are transformed by life 'on the move.'

6. Conclusion

For Hägerstrand social research and the generation of theoretical concepts was ultimately all about developing effective tools to address concrete matters of societal concern. His work imagines a landscape full of all sorts of human activity, activity that is by its nature entangled with materials of a whole range of kinds. This is a landscape—one that is both human and very much more-than-human—that calls into view a distinctive geographical ethics, "centred" as Thrift (2004: 338) writes "on the wise use of space." The diagrams discussed in the previous section suggest the on-going vitality of this ethics in contemporary social research. More-than-that, it suggests that far from being 'transcended' or overtaken by more theoretically accounts, read from the right angle Hägerstrand's work has all sorts of on-going resonances. Rather than placing his work in opposition to contemporary geographical theory it might be timely to bring to back into our disciplinary conversations. Thinking about these resonances it also worth asking ourselves how we should best respond to critiques of the work of earlier researchers. Should we view critique as a ground clearing exercise that allows us to get on with our work unencumbered with past ways of working? Or, in certain cases, might to be more useful to consider the ways that, as Pred (Pred and Cliff 1992: 543) wrote in defense of Hägerstrand's work, "[w]ithout it, we wouldn't be where we are today"?

Of course, the contemporary intellectual landscape of human geographic research—that of the Anglo-American world at least—is one that Hägerstrand would likely find perplexing. The style of thinking and theorising that defines the more theoretically engaged edges of the discipline is more deeply embedded in social theory than any intellectual tradition animating his thinking. In many ways this turn to social theory is a good thing. It has opened up all sorts of interesting vistas; to go back to the start of this paper, it is hard to imagine the likes of Sauer, Hettner, or Hartshorne being curious about many of the topics that engage contemporary cultural, social, economic and environmental geographers. And, there were all sorts of elements missing from time-geography's social imagination. There was little space for affect, the fleshy differences of specific human bodies, nor the strange and perplexing agencies of all sorts of non-humans with which our social landscapes are entangled. Nonetheless. Reconsidering the legacy of a writer like Hägerstrand—and his time-geography project—it is worth asking what is lost when human geography throws its lot wholeheartedly in with social theory. Hägerstrand, of course, was skeptical of both social theory and philosophy. His sense was that social scientists lost focus on much of what actually matters when they focused too much the theory and the theoretical for its own sake (Hägerstrand, 1988; Schwanen 2007). His inquiries reached to addressing concrete societal concerns, and thinking digramatically reminds us that we should too.

Footnotes

[1] It is worth remembering that this tradition of spatial science remains a vigorous and intellectually vibrant strand of human geography, see Batty (2013).

 [2]. Although there is an obvious irony that the 'movement spaces' that Merriman and others are interested in are obviously built and made possible through all sorts of time-space metrics from the situated infrastructural coordination of a roadway, to the precision engineering that allows the experience of many contemporary 'movement spaces' to coalesce (Thrift 1996; Thrift 2004).

[3] Which is not to say that theoretical human geography hasn't been interested in diagrams and the diagrammatic in a conceptual sense. There has, of course, been much attention paid to critiques of technologies of representation. And, post-structural theorists such as Foucault (1976) and Deleuze (1988) conceptualised power as diagrammatic (see McCormack, 2009).

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Figure 1 - Spatial Science's Lines and Points (Source from left to right: i. Berry 1972; ii-v. Berry and Marble 1968, 84, 123, 272)
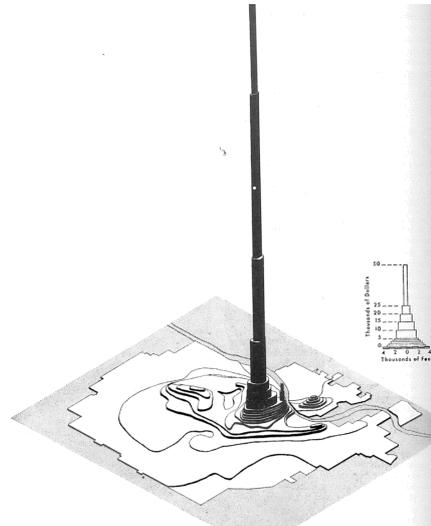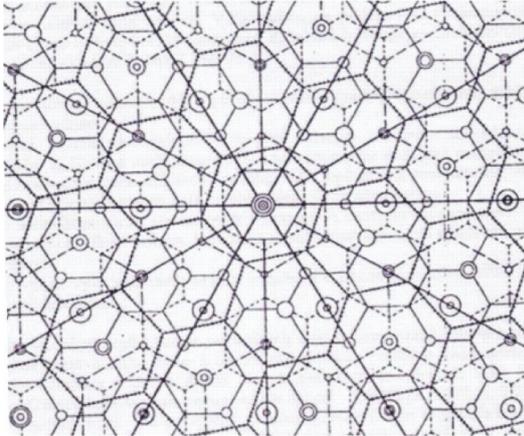
$$I = \frac{KTP_A P_B A_A A_B}{D}$$
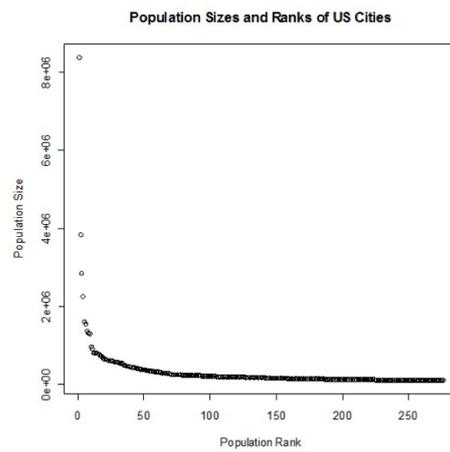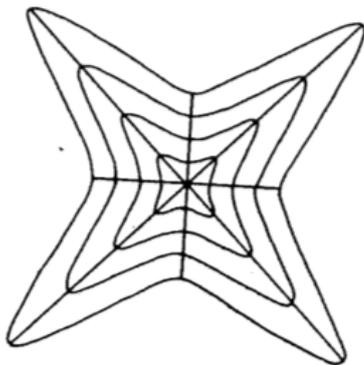
Figure 2: Time-geography diagrams (source: from left to right, i. and ii. Ellegård et al. 1977, 130 and 143; iii. Thrift 1977, 9)
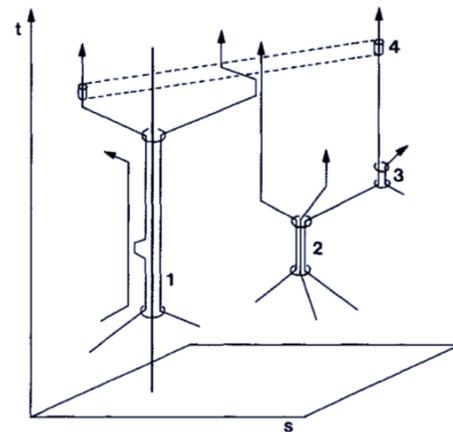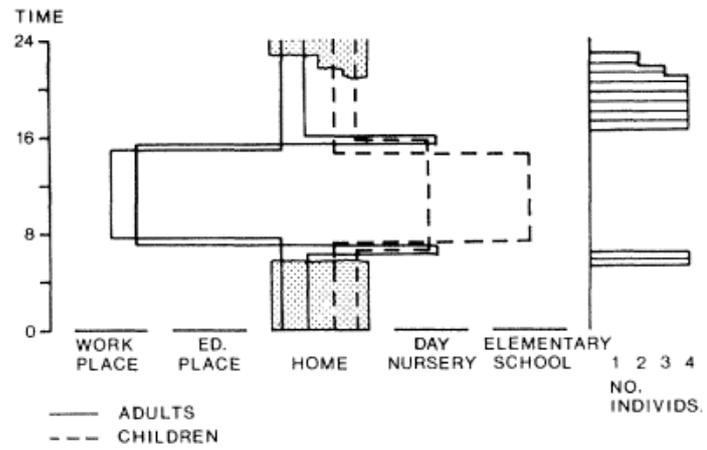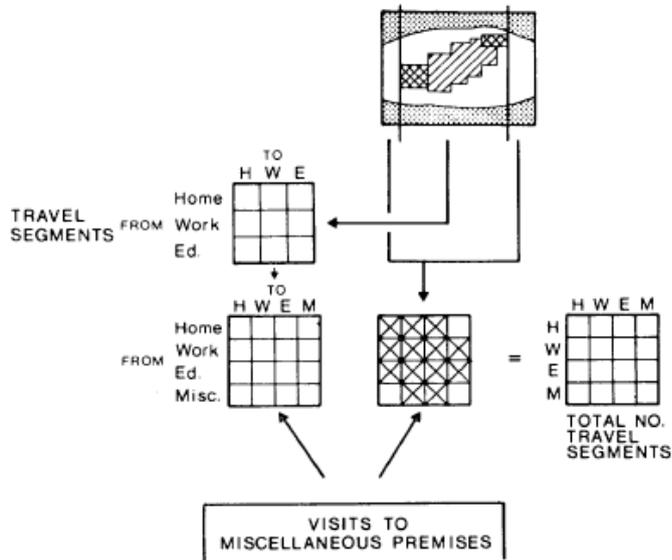
Figure 3: New ways of diagramming the time-spaces of social life (Sources from left to right: i. Kwan 2004, 276; ii. Schwanen 2007, 18; iii. Latham 2006, 108; iv. McIlvenny 2015, 66; v. Latham and Woods 2015, 310; vi. Bissell 2014; 195)