

Human Geography and the hinterland: The case of Torsten Hägerstrand's 'belated' recognition

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Abstract

Seeing Human Geography as a nexus of temporally oscillating concepts, this paper investigates the dissemination of scientific ideas with a focus on extra-scientific factors. While scientific progress is usually evaluated in terms of intellectual achievement of the individual researcher, geographers tend to forget about the external factors that tacitly yet critically contribute to knowledge production. While these externalities are well-documented in the natural sciences, social sciences have not yet seen comparable scrutiny. Using Torsten Hägerstrand's rise to prominence as a concrete example, we explore this perspective in a social-science case – Human Geography. Applying an STS (Science and Technology Studies) approach, we depart from a model of science as socially-materially contingent, with special focus on three extra-scientific factors: community norms, materiality and the political climate. These factors are all important in order for knowledge to be disseminated into the hinterland of Human Geography. We conclude it is these types of conditions that in practice escape the relativism of representation.

Keywords: knowledge production, hinterland, social science, Human Geography, Torsten Hägerstrand, STS

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1. Introduction

Human Geography is replete with concepts. Seen as constituents of thoughts – either as mental representations (cf. Locke, [1690] 1975; Hume, [1739] 1978), abilities (cf. Wittgenstein, 1953) or so-called Fregean senses (cf. Peacocke, 1992) – concepts are crucial for most psychological processes, including categorisation, inference and decision making. While psychological processes both affect and reflect the multiple ways we engage with the world (Pinker, 2007; Dymitrow and Brauer, 2016; Dymitrow et al., 2017), it is often forsaken that science – seen as a construct of the human mind – is an inseparable part of this reciprocity (cf. Fleck, [1936] 1986). Since concepts, as Margolis and Lawrence (1999, p. 1) put it “often reflect deeply opposing approaches to the study of the mind, to language, and even to philosophy itself”, scientific conceptual advancement, then, is unlikely to be obtained merely by means of intellectual consensus (Dymitrow and Brauer, forthcoming). Let us consider the circumstances.

New concepts and ideas are introduced into science constantly. Some ideas become popular while others fall out of favour; this is part of the natural progression of any growing academic field. It is not only the academic merit of

competing concepts, however, or their internal validity that decides if these will be incorporated or abandoned (Johnston and Claval, 1984; Latour, 1993; Shapin, 2010). Classical philosophy of science and the idea of a disinterested academia may suggest this, but from 50 years of critical sociological studies of ‘science in action’ we know that this is not the case (Sismondo, 2011; 2012). Sociologically identified factors influencing the progression of science are: community norms (e.g. Merton, 1973; Mitroff, 1974; Shapin, 1982), material factors (e.g. Collins, 1981; Latour, 2005; Bennett and Joyce, 2013), and the wider political climate (e.g. Haraway, 1991; Edwards, 1997; Livingstone, 2010), to mention but a few. The overwhelming majority of classical sociological studies, however, have focused on the traditional scientific disciplines, such as physics, mathematics or biology (e.g. Shapin et al., 1985; Bloor, 1991; Collins and Pinch, 1993; Chalmers, 2013). Conversely, the social sciences have not yet seen a similar level of scrutiny, although this is slowly changing (e.g. MacKenzie, 2009; Lamont, 2009; Camic et al., 2012). Understanding scientific process as a human pursuit for knowledge, it is fair to assume that the social sciences – including Human Geography – operate in a similar fashion (e.g. Barnes, 2001; Law, 2004; Cloke and

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Johnston, 2005; Johnston and Sidaway, 2015). This paper sets out to investigate these particularities of knowledge production within a social science context, to further investigate the validity of this assumption.

To achieve that, we depart from Law's (2004) model of how research/science operates on a sociological level. We apply this model to a specific social science case: the case of Torsten Hägerstrand and his concept of time geography. Time geography and Hägerstrand's life lend themselves well to this type of analysis, because Hägerstrand's rise to fame was not a smooth, straight-forward progression as the majority of accounts that discuss the life path of Hägerstrand might suggest (cf. Duncan, 1974; Hägerstrand, 1983; Sollbe, 1991; Morrill, 2005; Pred, 2005; Öberg, 2005; Buttner and Mels, 2006; Buttner, 2007; Lenntorp, 2008; Persson and Ellegård, 2012; Ellegård and Svedin, 2012). It hence represents a good starting point for a Science and Technology Studies (STS) type of analysis, which commonly departs from controversy or failed projects (e.g. Law, 1992; Latour and Porter, 1996; Venturini, 2010).

STS is an offspring of science studies, which investigates how social, political and cultural values affect scientific research and technological innovation, and how these, in turn, affect the interconnected network of society, politics and culture (Latour, 1987). STS departs from a socio-constructivist view of knowledge production, which epistemologically shifts the definition of how science works from philosophy to sociology (Latour et al., 2011). An STS approach views science as a process that "teach[es] fallibility, not absolute truth [...], recognising the provisional character of all [scientific] knowledge" (Edwards, 2010, p. 438). This 'provisional character' applies to 'knowledge about knowledge' as well, limiting in this sense its predictive capabilities (Collins and Evans, 2008, p. 140). Since most STS knowledge was produced within a natural science setting, the question remains how applicable is this understanding within a social science context – or, here, in Human Geography?

2. How to study social science sociologically

In order to address this question, we depart from our interpretation of Law's (2004) sociological model of how (social) science research is created and validated within a specific discipline. We are interested in investigating community norms, material factors and the wider political climate surrounding the inception of Hägerstrand's ideas, as these all have been identified as important factors behind knowledge production within the natural sciences. Hägerstrand is known for his 'seminal' and 'highly innovative' work on migration, cultural diffusion and time geography, while also being a major figure within Human Geography (cf. Lenntorp, 2008). Hägerstrand's academic profile offers a research-friendly context for examining social science in the making – from obscurity to worldwide

recognition. At this point, a word on scope is in place. Although we do engage with Hägerstrand's life and time on a minute level, neither Torsten Hägerstrand nor the development of time geography are the focal point of our analysis. Rather, by using different socio-material dimensions of his recognition and rise to fame as the analytical foci for our study, we dare to extrapolate his case to any conceptual advancement in Human Geography (and in social sciences at large) where recognition and popularity can be historically attributed to extra-scientific factors (which – we argue – almost always is the case). Furthermore, accounts of the life path of Hägerstrand often take a romanticising view of Hägerstrand on the circumstances of his recognition. Such accounts usually focus on his contributions and not on the circumstances of his recognition (e.g. Helmfrid, 2005). In other words, the aim of this paper is to determine the specifics of the knowledge dissemination process within a social science context, using an STS perspective (cf. Latour, 1999, pp. 25–79), and add to the literature of how Hägerstrand was recognised for his ideas.

The principal method in our analysis is an historical deconstruction of Hägerstrand's path towards recognition in the style of seminal STS, used to study the natural sciences in action (cf. Latour, 1987; Shapin et al., 1985; Bloor, 1991). This approach stems from the postmodernist critique of historic representation and is often used as an alternative method to explore the conventional history of science (cf. Schuster, 1995; Jardine, 2003; Phillips, 2012). Munslow (2006) distinguishes between the reconstruction, construction and deconstruction of historic accounts. A historical reconstruction and construction epistemologically treat the past as static, implying that their form of representation is an accurate account of the transpired events¹. Deconstruction, on the other hand, differs epistemologically in that the past is conceptualised as continuous event or as "the process of making history" (Munslow, 2006, p. 75). The historical deconstruction implied here aims to outline the external conditions for an historic event to take place in the first place, because "[...] it is only by doing this that we challenge the belief that there is a discoverable and accurate representable truthfulness in the reality of the past" (Munslow, 2006, p. 4).

Having employed a detailed content analysis of relevant accounts relating to the life and times of Hägerstrand², in line with the principles of historical deconstruction, we have followed the central methodological provocation of STS research, namely that "it could be otherwise" (Woolgar and Lezaun, 2013, p. 43). Such an approach re-introduces the 'messiness' of creation back into the analysis, as opposed to a 'smooth' historical reconstruction (Collins, 1981; Latour, 1999; Law, 2004; Brauer et al., 2016). Primarily, this establishes an undetermined timeline³, without inherent directionality, undetermined in the sense that many different potential timelines could have arisen at any particular point in time. Methodologically, such an approach is very liberal in terms of guidelines; it is the data material that 'decides'

¹ The difference between reconstruction and construction lies primarily in the methodological choices regarding how historical facts are used (cf. Phillips, 2012, p. 27).

² The data material for this study represents autobiographical and biographical accounts, eulogies, Festschriften, Hägerstrand's original works and historical documents – to mention only a few. See the references for a full list.

³ Hägerstrand himself sees time in a similar fashion. He makes a distinction between the actual manifestation of time (the life path) as opposed to all potential possibilities (the space-time prism) (Hägerstrand et al., 2009, pp. 218–224). Here, we are primarily interested in the potential aspect of 'how it could have gone otherwise', as this is what we refer to when invoking an underdetermined timeline.

where the investigation will proceed, not the researcher. Venturini (2010, p. 260) summarises this approach in three methodological ‘commandments’:

1. “you shall not restrain your observation to any single theory or methodology;
2. you shall observe from as many viewpoints as possible;
3. you shall listen to actors’ voices more than to your own presumptions”.

We interpret these methodological commandments as follows. First, although we introduce a theoretical model of science (see the following section), this model is merely used as an analytical starting point, as we are “aware of the need to avoid any methodological strait-jacketing and remain open and creative in our thinking” (Tribe and Liburd, 2016, p. 45). Second, we ‘follow’ (cf. Latour and Porter, 1996, p. 204) Hägerstrand’s trail wherever it may lead us, which means that the employed historical deconstruction accounts for as many viewpoints on Hägerstrand’s life as possible. Lastly, we place the encountered actors’ voices above our ‘own presumptions’ in line with a ‘hierarchy of credibility’ among the different individuals and accounts involved. In other words, the closer a source to Hägerstrand and the time in question, the more credibility it attains (cf. Shapin et al., 1985). This also means that our own preconceived notions place last, while Hägerstrand’s own biographical account supersedes secondary accounts of his life. We begin our investigation by introducing the aforementioned model of science used as the basis for our analysis.

3. A sociological model of science

If science is not an abstract, disinterested pursuit of knowledge, then how does it work? The implication from the sociological scrutiny of science is that it essentially represents a human endeavour. In this sense it may be instructive to think of research using an economic metaphor of the classical science canon ‘*nanos gigantum humeris insidentes*’, as so eloquently expressed by Isaac Newton (translation: we are dwarfs standing on the shoulders of giants). The giants, however, are not passive: they represent powerful allies (cf. Shapin et al., 1985; Latour, 1987; Latour, 1988). The cost involved in the unmaking of a newly-created theory (proposition + alliances) conditions if a proposition is accepted as true or false, criticised or praised (Fleck, [1936] 1986; Latour and Woolgar, 1979; Law, 2004). The more alliances can be mobilised, the harder it becomes to defeat the newly-created proposition. Once enough allies are mobilised, a proposition becomes accepted as true (Latour et al., 2011).

Figure 1 is a visualisation of the process of transformation that every research project goes through, i.e. the making of science. Initially, a research focus needs to be established. This is achieved by drawing inspiration from previously established knowledge, the so-called hinterland (box 1 in Fig. 1). This allows for the identification of ontological categories, i.e. a system of ‘created truth’, agreed upon by way of methodological practices in line with the scientific standards of a particular hinterland (box 2 in

Fig. 1). Ontological transformation hence reduces an overwhelmingly complex reality into an understandable and manageable size by removing and filtering out redundant (‘unwanted’) data. Epistemological transformation is achieved by agreeing upon a process of how knowledge is accumulated and structured, i.e. how claims of truth can be distinguished from false ones according to the established standards. Methodological transformation, which generates data and offers hints to potential correlations, isolates relevant information in line with procedures established within the methodological hinterland. The outcome of these three types of transformation (box 3 in Fig. 1) renders a theoretical idealisation of the observed reality, which subsequently becomes a simplified representation of that reality in correspondence to the established hinterland. As these simplified representations ultimately influence new studies, the whole process is infinitely repeated.

This model, however, runs into problems of representation, because previous knowledge (upon which its construction was based) inherently influences how reality is to be interpreted for every new study. As a consequence, STS researchers have called this dilemma the multiple reality assumption (cf. Mol, 2002). This interpretation is at odds with the conventional assumption – for example within multi-method research – that the more different approaches are implemented to solve a problem, the better our understanding of it. Instead, the multiple reality assumption implies that depending on what research is chosen to serve as an alliance, a new interpretation of the same reality is created (see Fig. 2). On a theoretical level, this gives rise to the inescapable relativism of ideas that has laid the foundation for much criticism towards classical definitions of science, which cannot circumvent this impasse philosophically (Kuhn, 1970; Feyerabend, 1988; Sismondo, 2012). The practical consequence of this contingency is that scholars can be referring to the *same* object, which nonetheless is conceptualised differently depending upon what parts of the hinterland the chosen approach departs from (cf. Mol, 2002; Law, 2004). The particularities of sociological knowledge production as outlined by STS scholars emphasise the process of science, i.e. the praxis of doing science. The implication is that although, philosophically, consolidation of contradicting knowledge claims cannot be achieved, in actual praxis it is possible (cf. Collins and Evans, 2002). STS-scholars usually identify extra-scientific factors as being important to escape the relativism implied by the multiple reality assumption by materially reinforcing and fixing one particular interpretation (Law and Urry, 2004; Latour, 2005; Mol, 2010).

Here, we want to focus upon those aspects of science that shape this outcome within a social science context. For the sake of clarity of argument, we limit our analysis to three factors: community norms, material factors and the political climate, and how they correspond to the case of Torsten Hägerstrand. Before we begin our analysis, however, we need to briefly introduce our protagonist and the ‘controversy’⁴ surrounding his recognition – this section also reflects the common representations of his life, from which our historical deconstruction will depart.

⁴ We have used the term ‘controversy’ given that the cited literature regards the time lag of his recognition and incorporation into the geographic hinterland as an eventuality rather than a process. This is also the reason for choosing to put quotation marks around the word ‘belated’ in the title, given that the main line of our argument is to establish that there was nothing inevitable about this incorporation into the hinterland of Human Geography. Rather, it was a combination of Hägerstrand’s own effort and external forces, the latter being the primary focus of this article.

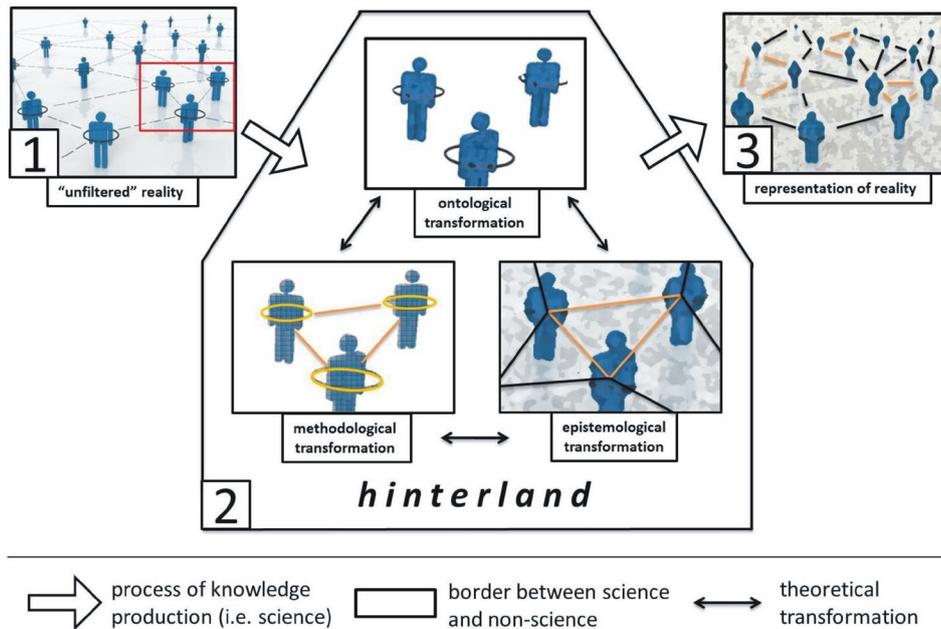


Fig. 1: A sociological model of research. Source: authors' re-interpretation of Law (2004)

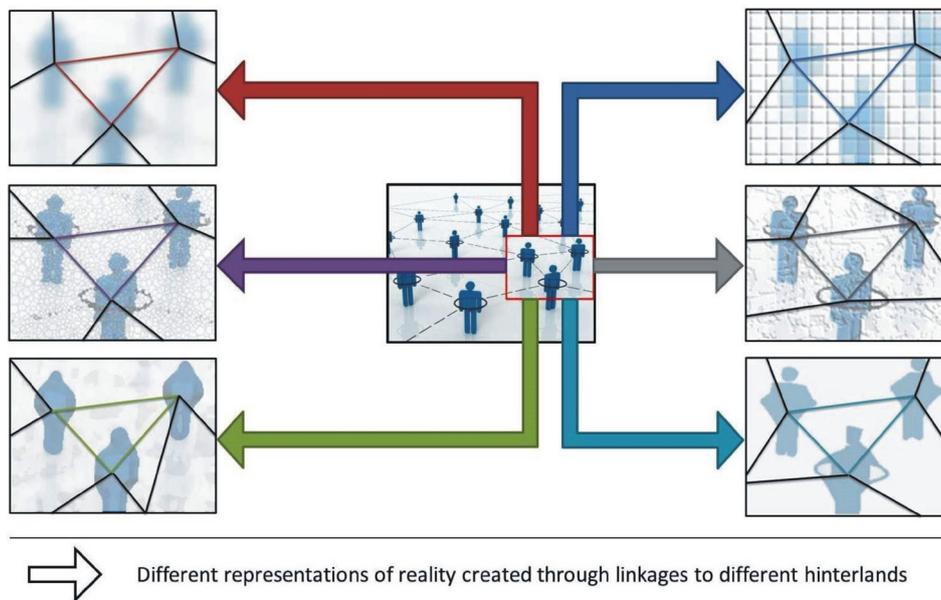


Fig. 2: An illustration of the consequences of a multiple-reality assumption for scientific representation. The same situation is being transformed into different representations of reality, depending upon a particular approach chosen. The different colours represent different ontological, methodological or epistemological approaches (see Fig. 1 for how this process unfolds). Source: authors' re-interpretation of Mol (2002)

4. Torsten Hågerstrand and his 'belated' recognition

Torsten Hågerstrand (1916–2004) is considered one of the most prominent figures in Human Geography of the last century (Johnston, 2007), having significant impact on the discipline itself and public planning, both in Sweden and internationally (Öberg, 2005). He received many decorations in recognition for his contributions and Pred (2005) called him a 'giant of the discipline'. In 2016, as geographical communities throughout the world commemorated the 100th anniversary of his birth, Hågerstrand continues to be referred to as "one of the most celebrated Nordic social scientists of the 20th century [who] has greatly influenced the development of a broad

range of research areas" (University of Stockholm, 2016). Hågerstrand is most famous for his work on the diffusion of ideas and as the founding father of time geography (Persson and Ellegård, 2012). Concepts of his time geography were formally introduced to the wider English-speaking audience in his 1970 article: 'What about people in regional science?' (Hågerstrand, 1970). Moreover, he kept developing and refining his theory of time geography his entire life (cf. Hågerstrand et al., 2009). Hågerstrand was also involved in public planning, partly because his early work was largely ignored within Human Geography. A great number of works have been written in appraisal of his intellectual legacy (Hågerstrand, 1983; Sollbe, 1991; Öberg, 2005; Morrill, 2005; Pred, 2005; Buttimer and

Mels, 2006; Buttimer, 2007; Lenntorp, 2008; Persson and Ellegård, 2012). What these works usually argue, however, is that the conceptual roots of time geography were to be found in his early writings, like his doctoral thesis, and that his recognition was primarily due to his own actions. Nevertheless, it took almost seven more years for his ideas to be recognised (Duncan, 1974). Why did it take so long? As will become clear in the elaboration below, we have identified several extra-scientific factors that were vital for his recognition and all of them were outside of Hägerstrand's zone of control. Before we turn to this, we need to define the concepts of 'recognition' and 'success' in a scientific context.

5. Deconstructing a success story

'Success' is not the unilateral achievement of a single person's actions; rather, it represents the product of a multi-factorial chain of events that must have come together in order to warrant broader recognition (Latour, 1987). In a science context, STS researchers define the words 'success' and 'recognition' as synonymous (cf. Porter, 1978; Latour, 1988; Gieryn, 1999). But if we define recognition as 'scientific success', we also have to define science in this regard. Law (2004) defines science as "an activity that involves the simultaneous orchestration of a wide range of appropriate literature *and* material arrangements. It is about the orchestration of suitable and sustainable hinterlands" (Law, 2004, p. 29, italics in the original). In this sense, the scientific success and recognition of Hägerstrand represents a successful installation within the scientific hinterland of Human Geography. A deconstruction of Torsten Hägerstrand's success can now be recounted, in particular focusing on community norms (and paradigms) as well as material and political factors that allowed its incorporation into Human Geography's hinterland. In order to understand the particularities of his recognition, however, we also need to establish a timeline for his recognition.

Hägerstrand published his doctoral thesis in 1953 (Hägerstrand, 1953), laying the conceptual roots that many of the biographical accounts of Hägerstrand's life mention, nevertheless it took almost seven more years for him to be recognised for them⁵, becoming part of the then-established quantitative revolution (Duncan, 1974). Some biographical accounts simply ignore this period. Hägerstrand himself treats this period only briefly in his auto-biographical reflections (Hägerstrand, 1983) and the majority of other accounts attribute it to some form of language barrier, by claiming that "many of his publications were in Swedish, which delayed the impact he made on research in other countries" (Öberg, 2005, p. 341). Thereby, the language barrier is treated as an explanation to his belated recognition of his contribution. In comparison, we argue that this is a simplified historical reconstruction which can be tested empirically by turning to works published by Hägerstrand and others mentioning him prior to 1960. How many of

Hägerstrand's works relating to ideas he eventually became recognised for were actually written in English? The proposition is that if Hägerstrand's ideas were available in English, the language barrier may not have been the only aspect 'hindering' his recognition.

It is a fact that his doctoral thesis was published in Swedish; however, Hägerstrand spoke fluent English and had several international contacts prior to his recognition. Furthermore, his thesis was not even ignored – as claimed by some biographical accounts (e.g. Öberg, 2005) – as it received its first positive English review in 1954 in the prestigious *Geographical Review* (Leighly, 1954, p. 441). Several other publications – on the same subject (e.g. Hägerstrand, 1951; Hägerstrand, 1952) – were also 'ignored' for seven more years by the wider geographic community, despite being published in English. Once his doctoral thesis was finally translated by Pred in 1967 (Hägerstrand, 1967a), Hägerstrand was a well-recognised figure and was awarded the Outstanding Achievement Award from the Association of American Geographers one year later (AAG, 2016)⁶. This raises the question, why was he ignored? The above interpretation of a language barrier is not reflected in Hägerstrand's publication or lecturing record. Instead, we suggest that placing this recognition in a wider context of the paradigmatic changes that happened within Human Geography at the time, offers a better explanation. This will be elaborated next.

5.1 Community norms and paradigms

In the case of Hägerstrand, prior to his recognition, he made attempts to promote his ideas abroad. He lectured in Oslo and Copenhagen in 1954, he visited Edinburgh as a guest lecturer in 1957, and he conducted an academic course at the University of Munich in the early 1960s. Despite all this, his efforts were unsuccessful, even his own senior students were "unsympathetic to his ideas" (Duncan, 1974, p. 128). Hägerstrand changed the angle in his work on diffusion by emphasising his empirical findings rather than his (time geographical) methodology. His methodological approach broke with convention in that it looked for regularities in migration patterns, and made use of computation and codification irrespective of locality. Such an approach did not fit well into the reigning regional paradigm of contemporary Human Geography, which focused primarily on descriptive accounts (Hägerstrand, 1983).

The first recognition of his work took place in the winter of 1959/60, when Hägerstrand attended a conference in Seattle, which by then was a stronghold for the new (quantitative) geography (Buttimer, 2007). In those years the paradigm changed, it was not Hägerstrand's ideas that changed substantially, but rather Human Geography itself. Between 1950 and 1960 Human Geography underwent a paradigm shift (Johnston, 1979), which also changed how the work of Hägerstrand was subsequently viewed (Duncan, 1974; Brauer and Dymitrow, 2017). In most countries Geography Departments underwent two

⁵ The date of Hägerstrand's "recognition" cannot be clearly defined: most of the cited accounts assume the publication of his doctoral thesis as the locus of his ideas. As such, this publication is treated as a point of "formal" establishment within the Human Geography hinterland. The exact point in time of Hägerstrand's "recognition" cannot be given a specific date either, as it was a cumulative process (see Duncan, 1974, pp. 114–120). This is one of the main points of the argument presented here, as the incorporation was a complex process requiring several factors to be in place before the "recognition" could occur. We use the seven year time span for narrative purposes, as the same biographical accounts regard the 1960 invitation to the Seattle conference as a keynote speaker as the 'official recognition'.

⁶ From the about-page of 'Honors of the Association of American Geographers' (AAG): "1968 – Outstanding Achievement: Torsten Hägerstrand and Joseph E. Spencer".

substantial changes during this period. Firstly, the discipline of Geography split into Human and Physical Geography and secondly, there was a shift from the regional paradigm to a more quantitative paradigm (Johnston and Claval, 1984). Every country underwent its own individual change and the dates differ significantly. In United States, in the early 1950s the newly formed discipline of Human Geography experienced specialisation towards different sub-disciplines, including political, economic, historical and urban geography, to mention but a few. This dispersal fragmented the previously unified regional paradigm, undermining its legitimacy. In the mid-1950s, a climate of strong emphasis on positivism and more ‘scientific’ methods slowly transformed Human Geography, turning it towards quantitative methods that have now found their place amidst previous specialisations (Johnston and Claval, 1984).

As such, we suggest that Hägerstrand’s recognition and ‘instalment’ within quantitative geography was only possible once this new hinterland had been established. Only after new quantitative ideas had disseminated and created their own hinterland within the wider body of Human Geography knowledge first, then was Hägerstrand’s wider recognition possible. As such, Hägerstrand was literally ahead of his time⁷.

5.2 Material factors

Just as the changes within Human Geography were outside the control of Hägerstrand, so were other changes taking place at Lund, his home university. This became a cornerstone for his recognition, i.e. his work with computation. In a 1955 article, Hägerstrand’s hints at these benefits reaped from being in physical proximity to the academic environment of the University of Lund can be identified (Hägerstrand, 1955)⁸. This becomes even more apparent with the establishment of Sweden’s second computer in 1956, Siffermaskinen i Lund (SMIL). Bo Lenntorp describes this historical contingency by claiming “[i]t is the fortunate combinations, constellations that facilitate development and change [in science]. SMIL, Hägerstrand and Human Geography was one of these” (Lenntorp, 2006)⁹. At that time, computers were gargantuan machines requiring significant expertise of the staff to run and maintain them (Edwards, 1997). Hägerstrand only mentions this pivotal role of computers in passing in one of his own biographical accounts:

“... my school-mate since secondary school, Carl-Erik Fröberg, who had just come back from a stay in the United States [...] introduced me to the concept of random numbers [...] and handed over to me a thin pamphlet on the Monte Carlo Method” (Hägerstrand, 1983, p. 248).

Not only did his ‘school-mate’ introduce him to mathematical concepts that would define his doctoral thesis, Fröberg would also go on to hold the Chair in Numerical Analysis at Lund University. The chair was especially established for him and SMIL through

governmental funds, due to the government’s vested interest in developing their own computer. Fröberg would teach courses in numerical analyses, which Hägerstrand attended and their influence can be seen in Hägerstrand’s work afterwards (cf. Hägerstrand, 1951; Hägerstrand, 1952; Hägerstrand, 1955).

The trip to the United States mentioned above was also financed by the Swedish government, in order to evaluate the possibilities to build its own computer (Fröberg and Sigurd, 1962). The contacts that were established during this trip with pioneers of computation like John von Neumann were essential in establishing the computer at Lund (Lund University, 2011). Hägerstrand is also mentioned as one of the applicants of SMIL, arguing for the continued use of the computer in a book published by Fröberg (Fröberg and Sigurd, 1962). Another positive impact cited in that book was the development of the programming language ALGOL 60 in order to improve the memory capacities of SMIL. This language became eventually a global standard, pushing computer development forward (Sperber et al., 2010). The government funding for the computer eventually ran its course, which led to its shutdown just before 1970. Nevertheless, the prestige of having had access to such a high-tech device over several years granted legitimacy to his words. Therefore, claims like “geographer[s] have to] accept the computer as an everyday aid” (Hägerstrand, 1967b, p. 3) came from a position of authority, undoubtedly aiding his recognition.

In that sense, Hägerstrand undoubtedly benefitted substantially from having a computer available to him at Lund, the most advanced computer at one point in time (cf. Lund University, 2011). His physical proximity to SMIL can also be regarded as a materially afforded competitive advantage for Hägerstrand’s intellectual development and subsequent recognition. Therefore, the material proximity afforded by the environment of the computer raised the status of Hägerstrand and conceptually influenced his work. This contingency made his work accessible and trustworthy for dissemination within the quantitative hinterland of Human Geography, which eventually led to his recognition.

5.3 Political factors

In terms of political factors, which profoundly came to shape the career path of Hägerstrand, the connection to World War II must be mentioned. One such factor is the influence of Edgar Kant, an Estonian professor of Economic Geography. Kant introduced Hägerstrand to many different points of view, and became his mentor forming Hägerstrand’s later views (Öberg, 2005). Kant only migrated to Sweden, however, because of the Red Army invasion of his native Estonia (Jauhiainen, 2005). Another political factor that is connected to World War II is why he was invited to the aforementioned conference in Seattle in the first place. This conference put him in contact with American

⁷ Although Hägerstrand was recognised for his quantitative ideas, his version of time geography always mixed quantitative understandings with qualitative reasons. As such, quantitative/qualitative time geography is more a result of institutional demarcation rather than Hägerstrand’s own views. For a full description of Hägerstrand’s view on his version of time geography, see Hägerstrand, et al., 2009.

⁸ In a footnote, Hägerstrand mentions that the arguments he put forward within this article were based on his experience with a punched card tabulator, which he was allowed to borrow courtesy of Carl-Erik Quensel, a professor of statistics at Lund University (Hägerstrand, 1955, p. 240). At that point in time he did not yet have access to a real computer.

⁹ Translation into English by the authors; original quote in Swedish: ”som vanligt är de lyckosamma kombinationer, konstellationerna som skapar utveckling och förändring. SMIL, Hägerstrand och kulturgeografi var en sådan”, as recorded in a lecture given by Bo Lenntorp in celebration of the 50th anniversary of SMIL at the University of Lund, 2006-10-16.

quantitative geographers, which came to be the beginning of Hägerstrand's wider recognition. They only invited him, however, because "USA visas were not granted on political grounds for their first two choices – Hans Bobek and Walter Christaller – [politically safer was] Torsten from 'neutral' Sweden" (Buttimer, 2007, p. 140).

Other political factors include Hägerstrand's involvement in planning. Although this was mostly Hägerstrand's secondary field of interest, it helped him in his career. He regarded this experience "valuable [to understanding] how the transformation of localities and region is bound up with events in society at large [... but in general it represented a] distraction" from his theoretical interests (Hägerstrand, 1983, p. 253). It also left a mark in his use of rhetoric as he used this involvement as an argumentative tool. For example, he claimed that the benefits of his quantitative approach represented a possibility to give insights into the time-efficiency of the policies, i.e. a quantitative measure to evaluate policies (Hägerstrand, 1967b, p. 18). Furthermore, Hägerstrand used examples from projects that he had worked on with government funding (e.g. the Öresund Strait project). He even used this connection to legitimise his critique of theoretical Human Geography in his most famous article "What about people in regional science?", where he asserts that geography should serve as an instrument to guide policy and planning (Hägerstrand, 1970, p. 1). Once again, we can observe that there were factors outside of Hägerstrand's zone of control. These political factors are important in changing the outcome of science as they reinforce or undermine a certain type of knowledge. In the case of Hägerstrand these political factors clearly gave him access to scientific networks and created a position of authority, aiding the incorporation of his ideas into the newly established quantitative hinterland of Human Geography knowledge.

6. "Genius is one percent inspiration, ninety-nine percent perspiration"

This famous quote is often attributed to the American inventor Thomas Edison. We can observe this tenacity in the case of Hägerstrand as well. The obstacles that were in place surely must have felt like insurmountable challenges for Hägerstrand. For one, Hägerstrand's quantitative ideas were initially unpopular with geographers, and his recognition was only possible once the scientific paradigm in geography had changed to a more quantitative one, leaving him 'out dry' for roughly ten years. But he was not without 'luck'. Hägerstrand had a material competitive advantage due to access to computers that the Lund environment provided. Also, his recognition was aided on account of Sweden's neutral status during WWII: Hägerstrand's Swedish nationality enabled him to acquire the crucial invitation to participate in the seminal conference in Seattle. In conclusion, all these extra-scientific factors came to influence the dissemination of his ideas and concepts into Human Geography's hinterland. This, however, can create the impression that his recognition was primarily due to 'chance' events, a perspective which sometimes can be perceived as blemishing for the contribution of an individual. Perhaps this is the reason why some biographical accounts omit these aspects. Nothing could be further from the truth, however, and Hägerstrand's involvement in planning best exemplifies his tenacity, and surely is worthy of admiration. We acknowledge that his tenacity also represents a vital

contributing factor to his wider recognition, a fact explored in the rest of this section, which focuses on Hägerstrand's involvement with spatial planning. Table 1 is an illustration of the key life-events that occurred in Hägerstrand's life, which cumulatively led to his recognition, only after these were in place, was his incorporation in the Human Geography hinterland possible.

Torsten Hägerstrand had a lifelong involvement with spatial planning, which fitted well with his quantitative ideas and his computational knowledge. In general, however, he regarded his involvement in planning merely as a "distraction" from his real passion, which was research (Hägerstrand, 1983, p. 253). Therefore, to understand this involvement it is important to acknowledge that the previously mentioned split between Human and Physical Geography occurred in Sweden as well. In Sweden, this had happened in 1948, changing the discourse of the newly established Swedish Human Geography as it adopted a more social science focus. Effectively this changed the legitimacy of Human Geography as a subject. Swedish human geographers were searching for societal relevance for their work¹⁰. In higher education it went so far that Human Geography was in jeopardy of getting its funding rescinded. Hägerstrand explains his initial interests in planning in following terms:

"Since geographers had an uncertain future on higher levels in the school system we were several university geographers who felt it is our obligation to try to open a new labour market for our advanced students" (Hägerstrand, 1983, p. 252).

1916	Born in Moheda (Sweden)
c. 1932	Start of friendship with Carl-Erik Fröberg
1937	Enrolled at Lund University
1953	Publication of his PhD thesis, Lund
1954	Lectured in Oslo and Copenhagen
1956	Establishment of SMIL at Lund University
1957	Guest lecturer at the University of Edinburgh
1959/60	Seattle conference
1966	Grant of 1.1 million SEK for regional studies
1968	Received an Outstanding Achievement Award from the Association of American Geographers
1970	Publication of 'What about people in Regional Science?'
1979	Received Victoria Medal from the Royal Geographical Society
1992	Awarded Lauréat Prix International de Géographie Vautrin Lud (Vautrin Lud Prize)
2004	Died in Lund

Tab. 1. Key events in the life of Torsten Hägerstrand
Note: Events that are spread out over time are not included within this illustration of key events (e.g. the establishment of the Lund School of Geography starting in the late 1950s and spanning to the end of the 1960s). Sources: Duncan, 1974; Hägerstrand, 1983; Sollbe, 1991; Buttimer, 2007; Persson and Ellegård, 2012

¹⁰ Other countries had their own versions of this existential conflict (see Johnston and Claval, 1984)

The labour market he refers to denotes the involvement of geographers in public planning. In this way, the new quantitative paradigm was very welcome in that it clearly separated the ‘scientific’ subject of Human Geography from ‘common knowledge’. Before the new labour market could be opened, however, Hägerstrand had to make geographical education relevant for the public planning context. This effort eventually led to geographers securing the labour market, whereupon geography was made relevant and enabled Hägerstrand’s involvement in the early planning stages of the Öresund Strait project. This tenacity helped to secure the position of Human Geography as an academic subject at Swedish universities.

Hägerstrand’s tenacity paid off doubly, as all these efforts allowed him to secure research grants from various government departments. One grant of 1.1 million SEK represented the biggest single research grant in Sweden up to that date, for any social science research (Sollbe, 1991). This money was also used to support Hägerstrand’s research, as it paid for seminars and publications, which later allowed him to establish a platform for his ideas. This and other research grants allowed the Department of Geography at Lund University to pay the researcher’s adequate wages and stop their “brain drain” (Öberg, 2005, p. 342). Furthermore, it aided with the funding of journals, financing seminars and travel expenditures, creating scholarships to send researchers abroad and monetary incentives for scholars to come to Lund – i.e. providing monetary resources to create and finance the so-called ‘Lund School of geographical thought’ (Buttimer and Mels, 2006). This, among other things, allowed Hägerstrand to enter the epistemic community of quantitative geography (Hägerstrand, 1983). In fact, this represents the particular network structure that became vital in Hägerstrand’s international recognition and subsequent success (Duncan, 1974).

As stated previously, Hägerstrand faced rejection in his early years. We argued that the concurrent paradigm shift within Human Geography offers a better explanation for his ‘belated’ recognition. Viewed in this light, it is somewhat ironic that his efforts devoted to the ‘distraction’ (his involvement in planning) eventually aided his main passion (research). As such, our analysis highlights another central ‘extra-scientific’ factor, i.e. the character of Torsten Hägerstrand. Much has been written about his character in the biographical accounts; nevertheless the tenacity he manifested is the last ‘factor’ we would like to stress as being vital for his recognition. This is exemplified through his involvement in planning. The research also points to other, more personal, aspects that were important for his success, such as his wife “being a lifelong unpaid research assistant” (Hägerstrand, as cited in Sollbe, 1991), the psychological effect of his son committing suicide, or his Swedish ethnicity. Although all of these factors represent potential fruitful avenues for future inquiries, for the sake of brevity and clarity of argument, they have been omitted in this paper.

7. Community norms, materiality and politics ... some concluding remarks

Each scientific discipline has its own set of tools – ontological, epistemological and methodological – which form a hinterland of concepts and ideas that define that very discipline’s ‘identity’. Human Geography is not an

exemption in this respect. Although new concepts and ideas are constantly introduced and fall out of favour, respectively, their success or demise depends not only on internal but also on external factors as well as the ‘qualities’ of the people involved. Hägerstrand claimed as much himself, when he stated that “[i]deas do not succeed one another in de-natured space; rather they grow out from roots in progressively changing life experiences” (Hägerstrand, 1983, p. 9). We have identified three extra-scientific factors that correspond to these ‘natured spaces’ within Human Geography – community norms, materiality and politics – which all starkly influenced the dissemination of Torsten Hägerstrand’s ideas.

At this point, a note on Human Geography within the context of our analysis is necessary. Being more diverse than any other of the traditional disciplines, Human Geography represents a specific case of knowledge production. Its diversity – in the sense that ‘old practices are not completely replaced by newer ones’ (cf. Sheppard, 1995) – creates ‘niches’ for diametrically opposing epistemologies under the banner of one discipline (cf. Barnes, 2001). Since these niches (i.e. hinterlands) have to be established in the first place, however, there is not just one Human Geographical hinterland, but several, and they are constantly changing and evolving (cf. Johnston, 2008). While this certainly makes Human Geography particularly susceptible to alterations on account of competing epistemic practices, the underlying hows and whys often become blurred or even completely omitted from analysis. Effectively, such accounts create a deceptive image of a linear knowledge production within Human Geography, whereas much of it is actually purely circumstantial, incidental or provisional. When assessing the quality of geographical knowledge and especially its state-of-the-art, these factors should unconditionally be taken into consideration.

Despite Human Geography’s diversity, the mechanisms behind its recognition function are similar to those of other scientific disciplines. While these types of external factors are well-documented within the natural sciences, the social sciences have not been scrutinised to a similar extent. As we can observe, research, scientific success and recognition have material and sociological contingencies within the particular contexts of their creation. Therefore, the assumption that all scientific disciplines function sociologically in a similar way despite some apparent differences (cf. Camic et al., 2012; Dymitrow and Brauer, 2017), seems justified. While academic success is usually considered the intellectual achievement of the individual researcher, we tend to forget about the externalities that contribute greatly to knowledge production. We agree with Annemarie Mol (2002) that it is these types of norms, materialities and socio-economic conditions that in practice escape the relativism of representation.

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