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# RETHINKING SCALE – RELATIONALITY, PLACE, AND CRITICAL ZONE

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## ABSTRACT

Scale is an important concept. It works in geography, architecture, urbanism and a number of other areas. It also works in the 'real world' of humans where it organizes societies and fuel politics. Scale gather people in collectives, as well as it works a political force for pitting them against one another. Hence scale is far from neutral. In this paper, we want to critically challenge an understanding of scale as something fixed, structural, obdurate, and ordered. Rather we encourage a thinking of scale as something related to fluidity, mobility, networks, and continuums. Rethinking scale along these lines is important for the academic understanding of the world, as well as it is key to many of the global and planetary challenges of the immediate future. This will be discussed with reference to the notion of 'Critical Zone' at the end of the paper.

## INTRODUCTION

A perception of scale as fixed, ordered, layered, human, and sedentary is problematic in a context global challenges and environmental multi-species crisis. Ideas about scale as either something 'out there' or simply an act of the imaginary are equally unhelpful. Some design practitioners and architectural theorists frame scale as fixed, bounded, and professionally identity-giving (from more than 20 years of co-teaching in an academic architecture and design program, this author has heard many statements from architectural lecturers seeing themselves as 'building architects' defined by the 'building scale'). Here scale is ontologized as an ordered, hierarchy fitting with a particular layer of reality. The notion that scales are existing as 'layers of reality' is problematic in the sense that such fundamentalization of scale tends to ignore the relational processes of becoming. Furthermore, the notion of scale a 'layers of reality' obscures the fact that entities in the world are related across domains such as subjects and objects, humans and non-humans. Ideas about holism and continuity blurs the parceling of reality into distinct (scalar) layers. Within architecture and urbanism some scales are furthermore vested with normative judgement. Such is the 'human scale' which often is pitched as the 'good' scale and perspective up and against top-down plans and 'inhumane' urbanist schemes. Seeing the world from the point of view of the 'human scale' is thus considered to be normatively on the side of humanism and progressive politics. In this paper we shall not dispute the relevance of taking the perspective of the human, neither of the citizen – on the contrary. However, what is problematic is an unquestioned and uncritical understanding of normativity and scale. Somewhere between the materialism of scales being 'out there' and the idealism of seeing such as purely mental constructs needs to be located a rethinking of scalar ontologies. The same goes for seeing a particular human scale as the best place to intervene (at times we might indeed need to move beyond the human to make sense of the world). Scales are often seen as ordering devices. As a framing bringing order and hierarchy to an unruly world. From nation building and politics of territoriality to business organization the order produced by scale is key in a stratifying taxonomy.

In this paper we want to offer a rethinking of the of scale in such a manner that we move beyond both sedentary and nomadic ontologies (Cresswell 2006), as well as we propose to break with modernist dichotomies such as subject and object. The looking beyond such dualisms also problematizes the separation of nature and culture as well as it rearticulate a focus on seeing the relatedness of entities in the world. The latter perspective might be termed 'holistic' in lack of a better term. The critical point of departure for such a

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rethinking may be located in many places. Hence, the thinking within 'new materialist' discourse may indeed be helpful here (e.g. Bennett 2010; Tønder 2020). Moreover, we may seek inspiration in the works of Bruno Latour (2005) and Tim Ingold (2011) as an attempt to 'blow up' the confinements of scalar fixities. In relation to spaces and human practices the work coming out of the so-called 'mobilites turn' may be equally fruitful. Thinkers such as John Urry (2000), Mimi Sheller (2018) and Tim Cresswell (2006) with their focus on relations and Mobilities are relevant. Working from within the area of the mobilities turn John Urry thought rather critically about the notion of scale. In particular what he termed the 'linear metaphor of scale' (Urry 2003:122). On par with Latour, Urry saw the social sciences being marked by a simplistic and un-critical scalar thinking. One that relied on the linear metaphor of scale as '*stretching from the micro level to the macro level, or from the life world to the system'* (ibid.). Rather, Urry argued, we should apply a metaphor of 'connections' as a substitute for the idea of scale. As Urry, Latour saw the metaphor of scale as something that has 'haunted' social science and which needed to be substituted by a notion of connections and networks (Latour 2006:212).

Scale suggest that there are levels or layers (their ontological status notwithstanding) which means that one way of thinking about scale is to perceive it as a device for subdivision or analytical dissection (Harvey 1996). Thinking about cities and their components may indeed be compared with an act of analytical dissection or subdivision if we for instance start 'breaking it down' into quarters, neighborhoods, streets, blocks, houses etc. Such scalar dissection furthermore lends itself to a political and organizational perspective since we do not only dissect by scalar levels to increase our analytical understanding, but we may also apply the scalar dissections and levels as organizational principles. Hence, spatial organizations related to neighborhood councils, city halls, regional assemblies, national parliaments and even supra-national entities such as the European Union or the United Nations. The two scalar logics of *spatial analysis* and *political organization* may also fuse into a perception of how to solve problems and transformational challenges. This is for example the case when a political challenge is recognized to be addressed at 'more levels' (i.e. scales). Environmental challenges may not adequately be dealt with at local levels only as well as for example the migration crisis needs to be addressed at levels beyond national regulatory frameworks.

## SIZING UP – SCALE AS SIZE

Within some quarters of social science the idea of society is synonymous with 'large scale'. However, already Georg Simmel was aware that society is not a 'big thing' but rather a complex of myriad associations and interactions. He renounced the classic analogy of society as being like a body with important organs such as brain, heart etc. Rather he spoke of the 'numerous unnamed tissues' that connects the multiple associations (2019:53). So from Simmel and onwards some sociologist has been able to mobilize a critique of society as 'big scale' as well as the distinction between 'micro and macro' sociology. In mainstream social science, scale has, however, become synonymous with size. In the word of Latour:

> 'Whenever we speak of society, we imagine a massive monument or sphere, something like a huge cenotaph … society, no matter how it is construed to be, has to be something large in scale … the problem is that social scientists use scale as one of the many variables they need to set up *before* doing the study, whereas scale is what actors achieve by *scaling*, *spacing*, and *contextualizing* each other through the transportation in specific vehicles of some specific traces' (Latour 2005: 183-4, Italics in original)

Latour's position is that 'scale is the actor's own achievement' (p. 184). However, rarely is this accepted since scale tends to be thought of as a 'well-ordered zoom' (ibid.). Scaling within the social sciences are, according to Latour, a way of 'putting things into frame'. Something that is considered disciplinary and scholarly needed in order to bring reality under either control or as an object of knowledge. Latour is not arguing against scalar framings as such, but he problematizes when the effects of scaling are left unacknowledged or un-reflected. The parallel is a 'zoom' attempting to order matters smoothly as a set of Russian dolls. He reminds us that: '*Events are not like tidy racks of clothes in a store. S, M, X, XL labels seam rather confusingly distributed; they wane and wax pretty fast; they shrink or enlarge at lightning speed'* (p. 186). For Latour, the notion of scales within the social science points towards totalizing and ordered representations forgetful of their own blind spots.

According to Herod, the notion of scale was prior to the 1980s pretty much taken for granted within social science (2011:5). However, a heated debate within human geography led to a positioning of scales as either something real and existing in the world, or as a mental framework imposed on the world. This distinction is the key between a 'materialist' and an 'idealist' notion of the ontological status of scale (p. 13). However, in line with the thinking of Latour some started to think about scales as 'topological' rather than as areal units (p. 23), seeing neither the global nor local as nearly as interesting as the intermediary arrangements of networks (Latour 2006). If one extends this interest in

the ‘continuum of links’ across geographies, scale should not only become something which is less fixed and sedentary. It will also need to be understood beyond a mere two-dimensional and plane area. In other words; scales are volumes and hence three-dimensional (this point will be discussed further below). Coming out of the dispute over the ontological status of scale as something either material or mental, Moore took a different standpoint. Rather than choosing one or the other, Moore argued that one had to make a distinction between scale as a ‘category of practice’ and scale as a ‘category of analysis’ (Herod 2011:35). Such a so-called ‘non-substantial’ approach to scale partly seems to acknowledge (in a very pragmatic sense) that scales might ‘work’ as humans oriented themselves according to these (in politics as in everyday life). Moreover, it lays emphasis on processes and relations as an attempt not to reify scale (p. 37). Bob Jessop and colleagues criticizes a scalar reductionism and essentialism within social science (ibid.). As an outcome of this critical discussion, they used the terms territory, place, scale and network to make a more nuanced placing of scale within the theoretical vocabulary of social science.

## METAPHOR OF SCALE / SCALE AS METAPHOR

Many theoretical concepts may be fruitfully analyzed from the point of view of metaphor. The literature on metaphors is rich and comprehensive so we cannot do this theme full justice. However, scale has been described by numerous metaphors. First of all, we should acknowledge that ‘metaphor’ means transportation (Herod 2011; Lakoff & Johnson 1980; Rigney 2001; Schön 1993). In essence, metaphor is about ‘understanding and experiencing one kind of thing in terms of another’ (Lakoff & Jonhson 1980:5). So a metaphor ‘transports’ meaning from one semantic domain or context to another. This we know from poetry and arts, but in our everyday life metaphors are prevalent (ibid.). The concept of scale drives its meaning from Latin and hence the notion of ‘scala’ has led ‘stairs’ to be one of the predominant metaphorical references (Herod 2011:15). Seen metaphorically ‘scale as stairs’ then refers both to taxonomy and order, as well as to hierarchy.

We find a number of different scalar metaphors; ladders, music scales, concentric circles, ‘Russian dolls’, tree roots, earthworm burrows, and spider webs to mention a few (Herod 2011:45-56). Herod and Wright argues that a central dispute related to scale within human geography is whether scale is a material feature that can be ‘seen’ in the landscape, or if they are an arbitrary mental device enabling making sense of the world (2002:5). The dispute over the ontological status of the notion of scale within geography has pitched a set of materialist against idealist assumptions.

According to Herod and Wright, the ontological dispute and the competing metaphors for scale has led to a third key feature related to the discussion of scale within human geography, namely that of the ‘politics of actually producing scale’ (ibid.). More metaphors are, however, within the interpretative horizon of the notion of scale. One such example is the notion of scale as within music where one will find a particular set of tonal intervals as being the defining characteristics of specific scales. Again we see a systematic device that orders particular elements within a structure (however, this time with a sense of dynamics and temporality as its root). However, as we shall see other metaphors have been entering the scalar discussion (networks, meshworks, rhizzomes etc.). Metaphors that signify less structure and fixity, and more openness and process-orientation.

## THE NORMATIVITY OF ‘THE HUMAN SCALE’

Within architecture and urbanism the notion of the ‘human scale’ has more than a descriptive ring to it. From writers as diverse as Steen Eiler Rasmussen (1959) over Jane Jacobs (1961) to Jan Gehl (1996) the notion of a ‘human scale’ has not only to do with size and proportion, but also with an idea of human values or of taking into consideration the experiences and life conditions of humans. The criticism of modern urban planning with large-scale infrastructures and city-wide systems let to the perspective of the ‘human-centered’ architecture and planning. Taking the position of the human has to do with seeing the designed and ‘made’ world from the point of view of the human body with its sensorial capacities, as well as it has to do with ideas about human flourishing and humanistic values. This is a complex history that we cannot do justice here. However, the position of Jan Gehl and since his studio ‘Gehl Architects’ have been one of the most predominant advocates for the ‘human scale’ so here we shall mainly reference their work and thoughts. In the book ‘*Soft City – Building Density for Everyday Life*’ published by the studio, the position of an urban design with point of departure in the ‘human scale’ is put forward:

> ‘Human Scale in general terms means dimensions rooted in the human senses and behavior, resulting in smaller built components and lower heights. In particular, it means designing with attention to the experience at eye level, including appealing to sensory stimuli, and using dimensions that relate to the human body’ (Sim 2019:220)

There is much reason to have sympathy for this approach. Recognizing the positionality of soft bodies and limited sensory capacities (which actually should be the way in which we perceive ourselves as species) do

require building and designing things with empathy (Fjalland & Samson 2019; Veselova 2019). Much design, architecture and urbanism seem to disregard these ideas and the critique of master plans, rational top-down schemes, and mega-structures are easily connected to a progressive bottom-up type of 'everyday urbanism' (Chase et al. 1999). Both Jacobs (1961) and Gehl (1996) have laid the foundation for a critique of architecture and urbanism beyond the human scale. It is, however, perhaps too easy to follow this advocacy for a normative conception of the human scale. Questions of wider societal goods, practicalities of thinking across larger scales, and the critical and reflective understanding of locality and smallness as something potentially also regressive, dismissive and exclusionary needs to be looked into as well. Balancing the understanding requires not taking the human scale as the only perspective. So even though the critical-normative attempt to think scale progressively is valued, we would argue for a more 'progressive sense of place' (Massey 1994). One that also acknowledge the planetary background to human practices, architecture and urban design (Latour & Weibel 2020).

The Dutch enfant terrible of architecture, Rem Koolhaas published the 1344-pages long book '*S, M, L, XL'* in 1995. Together with Bruce Mau he gave an account of some contributions from his studio 'Office for Metropolitan Architecture' (OMA). The book recognizes architecture as a 'chaotic adventure' seeing the scalar ordering as a viable way to organize the material (Koolhaas & Mau 1995:xix). The idea would be to present projects and ideas according to size as the only organizing principle, with 'no connective tissue'. Besides organizing architectural projects according to scale (here defined a size), the book in itself is claimed to have an 'epic scale' (ibid.). The 'big-ness' of the book clearly served as a PR stunt raising urbanists and architect's interest across the world. Here we are not engaging in the content, simply taking this as an interesting example of how scale (as size) may work as an attempt to impose some level of narrative hierarchy to the practices and thoughts of an architectural studio. On a meta level the scale of the book signified the multi-scalar dimension of architectural thinking and urbanism. In particular there is an essay in the book dedicated to '*Bigness or the problem of Large*' (ibid, p. 495). The essay is written in the upbeat tone as is well-known form Koolhaas' architectural writings, and in it he boldly state that:

> 'Bigness no longer needs the city: it competes with the city; it represents the city; it pre-empts the city; or better still, it *is* the city. If urbanism generates potential and architecture exploits it, Bigness enlists the generosity of urbanism against the meanness of architecture. Bigness = urbanism vs. architecture' (ibid., p. 515, italic in original)

It is hard to say what Koolhaas precisely means here and the polyvalent vagueness of his statements has grown to become a watermark of his writings. One interpretation of this book, and of the problem of bigness in particular, is that there is a blurring of the scales that used to be defining characteristics for a division line between architecture and urbanism. In a frenzy dynamic of technology and Capital Koolhaas witnessed a bold and cynical 'tabula rasa urbanism' sweeping over the globe. From Singapore and Asian leapfrogging urban agglomerations, to the questioning of new beginnings and abolitions of European 'heritage', Koolhaas' scalar provocations re-ordered the order of scale in architecture.

## PLACE – A CRITICAL 'WINDOW' INTO SCALE

The dispute between a sedentary and nomad perception (or ontology) of places that has been described in the literature (e.g. Cresswell 2006; Kolb 2008) may serve as a 'window' into scalar discussions. Thinking about places as either fixed and bounded, or open and relational draws lines into underpinning ideas about relations to place, definition of sites and identities of belonging. Sedentary conceptions of place such as the ones advocated by Sennett (1994) or Nordberg-Schulz (1971) draws on phenomenological and conservative ideas that point towards equally fixed and sedentary notions of scale. In opposition hereto, nomad ontologies of place draws on ideas of flows, movement and non-essential place attachment as in Deleuze & Guattari, (1987/ 2003) or Natter & Jones (1997).

However, somewhere between these two poles lies a perception of place that is relational, open, and process-oriented (Jensen 2009). Proponents for this middle ground are thinkers such as Massey with her notion of a 'progressive sense of place' (1994), but also Cresswell (2006) and David Kolb (2008) give voice to a place thinking connected to relations and mobilities. The ways in which the interconnectedness of places and increasing interdependence of mobility and immobility of humans, information, vehicles, data, information, goods etc. materializes suggest that a notion of scale might be helpful and relevant, but only if it has the capacity to embrace openness, fluids, relations, processes without installing foundational, sedentary principles of fixity and order. Places are interrelated and their qualities are a matter of their relational couplings. This means that scale needs to be understood as open, process-oriented, and relational.

The notion of a mobility-oriented and relational sense of place infers that scales are open and continuous rather than fixed and hierarchical. Such an understanding furthermore connects to a different way of thinking about centrality and networks. This has in the Mobilities literature been described as the 'proximity-connectivity nexus' (Jensen 2013). What this means is, that the ways

in which connectivity and proximity becomes meaningful for social action and interaction has transformed radically in the aftermath of global network technology and infrastructural development. Being co-present was a pre-condition for interaction and trade in a traditional barter economy and hence also a condition for the sedentary and hierarchical understanding of scale. Cities and city states was organized and ranked in scalar systems of centrality. Later with the advent of modern infrastructure centrality was still a matter of fixed locations in scalar systems ('Central Place Theory' was one such conceptualization, Herod 2011:102). Centrality still has to do with being close to particular resources and infrastructures, but with the advent of globalization and digital media technology the ways in which scalar ordering stand out looks very different. 'Being close to' (proximity) is still important for some activities, but increasingly 'being connected to' becomes more and more central. What is taking place is a reconfiguring of the nexus between proximity and connectivity, and this process renders a sedentary, hierarchical and fixed notion of place (and scale) rather imprecise as a description of the present condition. This development is not eradicating the notion of scale, but as with the notion of place it requires a different conceptualization and understanding. One that opens up towards relations, networks, Mobilities and processes. The openness of scales is a consequence of the reconfiguration of the proximity-connectivity nexus, and leads to a reconfiguration of notions such as centrality and de-centrality. We might want to think about a 'new centrality' in recognition of the importance of connecting scales to open processes, relations and Mobilities. Understanding such new centrality requires a rethinking of old scalar ontologies. In an analysis of mobile situations in the city, Jensen explains how the networked urbanism in the contemporary city is a testament to a rethinking of scale:

> 'It is a situation where the fixed hierarchy of global and local becomes blurred and the notion of 'scale' becomes more a question of mediation, networked selection and Mobilities … The key point being that in the heterogeneous model proximity is defined by selective and filtered mediation' (Jensen 2013:126)

The notion of a reconfiguration of place in the light of contemporary network technologies and infrastructures requires not only rethinking in terms of theories an concepts, but also an ethnographic approach to realize how scales cross and interfere. Castells was aware of this issue back in the mid-2000s:

> 'The analysis of networked spatial mobility is another frontier for the new theory of urbanism. To explore it in terms that would not be solely descriptive we need new concepts. The connection between networks and places has to be understood in a variable geometry of these connections … we can build on an ethnographic tradition … But here again speed, complexity, and planetary reach of the transportation system have changed the scale and meaning of these issues. Furthermore, the key reminder is that we move physically while staying put in our electronic connections. We carry flows and move across places' (Castells 2005:54)

And even earlier on, Henri Lefebvre noticed that social space has such a 'hypercomplexity' (p. 88) that ideas of a fixed 'local' scale has to be abolished in the quest for understanding how scales are more related to movements, connections, and flows.

## 'TO SCALE' – PROCESSES OF BECOMING AND DOING

The political organization of territories and spaces has been connected to a 'politics of scale' (Brenner et al. 2003), in which the nation state in particular has been seen as an agent for re-thinking and re-scaling the political organization of territory. Moreover, the emergence of supra-national entities such as the European Union has given reason to explore how scales are not just nested and ordered layers, but relational and power-laden dynamics (Jensen & Richardson 2004). Cities, regions, nation states and beyond – the European Union has been conceptualized as a multi-scalar field of politics where different policies and interests are articulated. Within political science and geography such re-scaling means:

> 'The continual production and reproduction of scale expresses the social as much as the geographical contest to establish boundaries between different places, locations and sites of experience. The making of place implies the production of scale in so far as places are made different from each other: scale is the criterion of difference not so much between places as between different kinds of places' (Smith 1993:99)

Lefebvre spoke about a 'stratified morphology' as his way of conceptualizing the relations between scalar spaces such as the room, the hut, the farm, the village, the city, the area, and the state (Lefebvre 1997:45). According to Lefebvre, such scalar logics meant both an ordering as well as he saw it as a precondition for establishing a 'science of space' (ibid.). Within the study of politics and states, scale has been identified as both a troubled but also an important concept (Brenner et al. 2003). The ways in which processes of territoriality and identity-formation connects to scale has been subject to analysis in relation to politics. So

has the meaning and importance of borders and regions as vehicles for socio-spatial identity formation and territoriality (Jensen & Richardson 2004).

## RETHINKING SCALE

The scalar imaginary from geography has been predominantly fixed and layered. However, more recent studies influenced by Actor-Network-Theory has problematized such a layered, hierarchical and fixed scalar ontology (Latham & McCormack 2010). Through a critique of traditional sedentary, fixed and hierarchical notions of scale within geography Latham and McCormack sees a danger is conflating the abstract concept and representation of the world (here scale) with the reality of the world. Far from being a neutral abstraction, scale may indeed become generative and thus shape and affect the world is supposed to 'mirror' (p. 67). Even though the notion of scale is criticized Latham and McCormack recognize the value and attraction of the term as an important concept to 'grasp and think through the qualities of space' (ibid). Scale, they say, need still to be part of the geographical vocabulary. So instead of dismissing the notion of scale ANT-inspired research should recognize that networks and connections should 'be followed' across scales, but also that affective and 'sensed scalar qualities' needs to be accounted for (ibid.). The notion of scale is thus kept alive, however corrected with an emphasis on relations, affects and atmospheres. In a similar attempt to apply ANT to urban studies Smith argues that scale needs to be critically re-conceptualized as a reflection of networks and movements taking place over continuums (2010:75). The appeal made by Smith to 'forget scale, follow networks' (p. 82) might stand as a slogan for the more radical type of such scalar rethinking (Smith is, however, more dismissive of the whole notion of scale than Latham and McCormack is).

British geographer Nigel Thrift puts the case a bit sharply, but addresses the problem of scale quite head on:

> '… I never really understood scale and I still don't. One of the problem you get into if you decide that there are scales is that you start allocating things to one scale or another, to one territory or another. Once you start doing that you almost predetermine the conclusions in ways which are really quite problematic. They are problematic in terms of the distinctions you use: big or small, flow or static, all these kinds of distinctions. Once you start using scale you start to foreground conclusions … For me, it is a term I can do without' (Thrift 2010:117)

Furthermore, scale is not only a question of size and reach:

> '… it is also about how resonant affects move and circulate between closely packed bodies moving together and differently. And the intensity of scale is also a matter of duration: not just a matter of how long an event lasts, but of how the temporality of an event registers differently in moving bodies' (Latham & McCormack 2010:67)

From these discussions, we want to point towards the specific situation and the ways in which we inhabit various infrastructural systems, landscapes and technologies with our bodies. Instead of seeing the body as 'the local' the networked technologies and the urban infrastructures discussed so far points towards understanding bodies as enacted in assemblages of infrastructures and materialities across geographies. Furthermore, this in ways that renders the idea of fixed and sedentary scales obsolete and problematic. In an argument for the value of Actor-Network-Theory to urban studies, Farias states that sites are not defined by spatial boundaries or scales, but rather processes, linkages and networked relations. In other words:

> 'Space, scale and time are rather multiply enacted and assembled at concrete local sites where concrete actors shape time-space dynamics in various ways, producing thereby different geographies of association' (Farias 2010:6)

The recent post-colonial and 'multiverse' thinking as articulated by Escobar (2018) and Cadena & Blaser (2018) is also a case of critically rethinking a multi-scalar and hybrid perspective. This way of thinking points towards an 'ontology of encounters and becoming'. It is a conceptualization disregarding the fixities of local-global scaling, that rather takes point of departure in processes, fluids, fluxes, and moments of encounters (Amin & Thrift 2002:30).

## CRITIAL ZONE AS MATTER OF SCALE

From the point of a relational and process-oriented sense of scale we might take our rethinking of scale towards the political. Increasingly, we see challenges with climate, inequality, migration, and environment that supersede many of the scalar fixities of the modern world. As Latour argues, the planetary reach of contemporary challenges moves beyond scale as we realize that there is 'no outside' (Latour 2018). The previous discussion drawing on geography and Mobilities research suggests that process-oriented, mobility-focused and fluid scalar conceptions are relevant. However, the pressing political issues and matters of concern not only transcends scale in a traditional sense. They also animate the need for

thinking through a new political ecology of the 'Critical Zone' (Latour & Weibel 2020).

The notion of critical zone refers to different earth science disciplines and their collaboration and holistic effort to understand the complex interplay between what in modern times was known as culture and nature (Latour 2006). In the words of Szweszynski the critical zone is:

> '… the near surface layer of the Earth where most living things reside … this region of the Earth's extended body is a complex, dense world, filled and folded, crowed with entities and processes, movements and transformation, activity and signs, whose powers and conditions of existence are hard or impossible to disentangle' (Szerszynski 2020:344)

Gaillardet argues, that we do not live on Earth but on a 'thin film, barely visible on a planetary view' (2020:122). The critical zone is one of the most important, complex and fragile 'interfaces of the planet … functioning at different scales' (p. 123):

> 'The concept of a Critical Zone does not set up an opposition between humans and nature or between living and non-living states. It refers to a system, which we still have difficulties naming and representing that is anchored locally, and orchestrated by biochemical cycles in which living organisms including humans are agents, among others (Gaillardet 2020:127)

The notion of critical zone is an attempt to articulate and comprehend what might be termed 'territorial metabolism' (p. 129), which require a rethinking of scale.

The earth science's focus on a 'zone' critical to life on this planet problematizes sedentary scalar politics and points to new and networked relationships. The interdisciplinary and multi-scalar (or cross-scalar) endeavor basically aims at offering a more viable perspective on the co-existence of humans and non-humans on the planet. Critical zone thinking explores the ecologies of materials and matter that enables life and sustains various lifeforms on planet Earth. According to Latour such knowledge becomes pertinent if we are to 'land safely' as he terms it (2018), and extend 'care for the planet' beyond humans (Veselova 2091).

The critical zones of planetary existence are beyond fixed and sedentary scales. They are volumes and 'life spaces' of human and non-human lifeforms whose interdependence only slowly are emerging on our political radar. A planetary scale for a planetary set of challenges seems obvious, but instead of distanced judgements and abstract solutions, we are 'in it'. The art of figuring out 'how to land' (i.e. survive as species in a manner respectful to the planet and its living species) requires not only fluid, volumetric, multi-scalar thinking. It requires politics close to the matter of concern:

> 'Instead of trying to indicate a distance from the situations that require judgement, it points to the effort of gaining a *new proximity* with the situations we have to live in. The logic of *critical proximity* is what this book [Critical Zone] is about' (Latour & Weibel 2020:9, italics in original)

The increasing concern with the material conditions of planetary existence requires a politics of critical proximity as much as it requires a set of global solutions. Elsewhere, Latour has made a point of stressing that the urgent matters of concern increasingly relates to territory and soil (2018). The politics of the ground, the soil, and the earth are the urgent matters of concern (Latour 2020). Here, nested hierarchies of fixed scales for political institutions or territorial identity will lead us nowhere.

The critique of scale as fixed and flat needs to be countered by a sense of relational connectivity that moves continuously across volumes of relevance. Hence, the figure of 'Critical Zone' becomes a vital source of inspiration to think of human activities in their relations to ecologies that contains the underground, the surface level, as well as the atmosphere above. Designing for a sustainable future in light of this means that architects, urbanists, and designers should be aware of the interdependencies of what they might think of as separate parcels of reality (bodies, artefacts, buildings, cities, landscapes, regions, and nations). The notion of 'Critical Zone' is not only reminding us of complex interdependencies moving beyond human and non-human, nature and culture. It also means that the volumetric dimension of the world invites to a rethinking of scales as something dynamic and continuous. Regardless if one designs artefacts, buildings, or cities being critically aware of the 'holistic' interconnectedness is vital. 'Critical Zone' thinking is one potential vehicle for doing so.

## CONCLUDING REMARKS

Let us end on the note that scale is troubled – but still relevant! There are academic disputes over the concept's ontological status where things still are in process. However, there is also everyday life actions and practices in the mundane realms where a more or less traditional concept of scalar fixities and order still works to give meaning to the world. Moreover, much politics and planning seem to be based upon sedentary,

fixed and hierarchical notions of scale. This, however, does not mean that there is no reason to rethink scale. But it means that theoretical as well as empirical work still needs to be carried out in order to create more coherent frameworks of open-ended, process-oriented, relational and Mobilities-focusing senses of scale. What we are arguing for is not scale as ontological structure 'out there' (sedentary materialism), nor scale as conceptual grid and mental structure (idealism), but rather scale seen as a continuum of relational Mobilities. We might think of scale as a much more volatile and 'plastic' feature of the world.

From the discussion in this paper we want to advocate an approach to scale that recognizes it as an important but also troubled concept that often has been taken hostage by political agendas and regressive forces. Instead of abandoning the concept, we would rather attempt to rethink it in the light of this discussion. This means to think of scale as:

- related to a relational- and mobility-oriented sense of place
- a phenomenon working continuously across geographies and spaces
- non-sedentary and non-foundational
- relevant to ethnographies of situated accounts and explorations
- relevant to situational understandings that sees the body not as 'the local', but as an articulated node in a continuum of geographies
- matter of concerns that connects different geographies in a continuum rendering an 'outside' perspective on politics obsolete
- spatial and social dimensions of planetary reach that must include all species and soils, volumes and surfaces

It is useful to rethink scale with an eye to the distinction between the materialist and idealist discussion presented in the opening of this paper. What we advocate here is a pragmatic and reflective position that instead of insisting on scale as either a material reality, or a mental imaginary treats it as both! Somewhat similar to the famous gestalt drawing from Rubin where the spectator either see a vase or two faces in profile. We propose to rethink scale in such a pragmatic manner that it becomes useful for design, urbanism and architecture as a 'gestalt' that at times may relate to geographical hierarchies and spatial borders, and at other times to mental relations and imaginaries. This, however, can only be done if one accepts a rethinking that moves beyond the sedentary and fixed ideas of scales as ontologically material structures out in the world. This idea needs to be critically rethought.

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