

Paola Viganò  
Chiara Cavalieri  
Martina Barcelloni Corte *Editors*

# The Horizontal Metropolis Between Urbanism and Urbanization

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# The Horizontal Metropolis: A Radical Project



Paola Viganò

## A Book

The book is an account of the international encounter held at the EPFL between researchers and Ph.D. students belonging to different geographic and disciplinary contexts and constructed around two joint occasions: the Latsis Symposium and the 8th Ph.D. Urbanism&Urbanization Seminar 2015. The general theme we have proposed, *The Horizontal Metropolis: a radical project*, is both an image and a conceptual device through which to criticize, apprehend and imagine the contemporary city and its future challenges. It refers to a specific spatial condition characterized by a horizontality of infrastructure, urbanity, relationships, and by closely interlinked, co-penetrating rural/urban realms, communication, transport and economic systems.

The book is part of a broader research into the roots, the physical and immaterial substance, the vision and the project of a “Horizontal Metropolis”.<sup>1</sup> It aims at documenting such an occasion, discussing the changes underway in urbanism and in the urban condition through a wide variety of research forms and interdisciplinary approaches: between urban analysis, design research, case studies and theoretical elaborations, which nurture and critically develop the theme.

The Horizontal Metropolis is a vaguely defined and open conceptualization. The oxymoron of the title triggers both the notion of metropolis and that of horizontality. In fact, the traditional concentration of wealth, power and production of the

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<sup>1</sup>Two books are in preparation: *The Horizontal Metropolis. A radical project* (Cavalieri, C., Viganò P., eds., Park, Zürich, 2017, forthcoming), *The Horizontal Metropolis. The Anthology* (Barcellona Corte, M., Viganò, P., eds., Springer, 2017, forthcoming).

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Metropolis/*Großstadt* (Scheffler 1913), its way of life and degree of personal freedom (Simmel 1903; Park et al. 1925) are today, in many places, a less selective condition: metropolitan areas include vast urbanized regions and expand their effects on much larger territories; metropolitan areas are not always generated by big cities.

Horizontality (as opposed to vertical centre-periphery relations), territorial complementarity (as opposed to dependency, dominion and submission) characterize large polycentric and acentered urban configurations. Less simplistic and complex relational socio-spatial structures are at work, beyond the idea of a centre and a periphery, but also beyond the idea of balanced regions where cells would live in a supposedly stable order.

The Metropolis, deeply reconsidered in its contemporary evolution and forms, is not here expunged from the urban discourse, neither weakened by a “post”, as in Soja’s *Postmetropolis* (Soja 2000), although several topics here discussed are common to his reflection. The process of urban restructuring has been deep, old categories and traditional interpretations of the urban are no longer useful, the modern Metropolis belongs, *hélas*, to the history of urbanism, as one of its most powerful myths (Chambers 1990). The change has been revolutionary: something new is out there, Edward Soja acknowledges it, and *Postmetropolis* is a working title mainly dictated by the risk of a misunderstanding.<sup>2</sup>

Horizontality can be related to a diffuse and extended urban territory (Berger 2006). More difficult and politically engaging: horizontality deals with spatial justice, power and social relations. Horizontality is often part of longer histories of shared territorial responsibilities and of long political construction, as in the case of Europe (Buijs et al. 2010; Grosjean 2010). It is also related to practices of common production of city space, although often at a low and poor level, as investigated in Quito by Giulia Testori in the second part of this book.

Horizontality is to be related to the dense debate which cyclically re-emerges about centred and acentered systems, where the latter are not guided by an external rationality, nor by an overarching vision, not even by a global awareness pervading each individual. Horizontal is a configuration, the dynamics of which are contextualized on the basis of limited and close information. As Jean Petitot has stated: the awareness of the situation is the product of the situation itself (Petitot 1977–1982). An acentered system is typically shortsighted (Guzzardi 2015).

Horizontality deals with city territory where the traditional hierarchical Christaller model is not verified, pyramidal structures cede space to low hierarchical configurations: in terms of size, location or distribution of services. Vast parts of the planet contain horizontal metropolises in germinal form.

The clash between the two terms gives rise to the oxymoron and the research hypothesis: the Horizontal Metropolis, originally tested in the construction of a

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<sup>2</sup>“I have chosen the term ‘postmetropolis’ as a working title for what might otherwise be called the new urbanism, had not the latter term been taken up by architects and designers for other and narrower purposes”. Soja (2000), *Postmetropolis*, Preface xiii.

long-term vision for the Brussels Region<sup>3</sup> (Secchi and Viganò 2011; Viganò 2013a), is meant to highlight the space in which metropolitan characters coexist with horizontality of relations; an extended urban condition is supported by long-term diffuse infrastructures which guarantee accessibility and inhabitability. The urban and metropolitan characters develop thanks to specific “spatialities” which are “powerful forces in shaping the very nature of social production and reproduction” (Soja 2000: 69), always intrinsically urban and metropolitan.

The Horizontal Metropolis opens to novel interpretations and positioning.

## The Construction of a Discourse

The fundamental hypothesis of the Symposium is that the Horizontal Metropolis, as spatial capital and agent of transformation, may be supportive of a radically innovative urban and territorial project—and thus considered as an original urban ecology.

The ambivalent and ambiguously hybrid urban condition has been since decades the object of conceptualization and interpretation, in the effort to delineate a body of theories useful to understand its characteristics and challenges, as well as to project its potentialities in the future. Historically this specific spatial condition has provided test cases for the elaboration of original urban theories which are slowly generating a new discourse on urbanism and urbanization. Contemporary urban figures, oxymorons, conceptual metaphors, such as *città diffusa* in Northern Italy, *desakota* in Asia, *Zwischenstadt* in Germany, are just some of the examples able to effectively describe an emergent urban and metropolitan form, increasingly related to the dispersion of the urban fabric within the agricultural and equipped landscape.

Since Geddes, the main themes nourishing such a body of theories and discourses have been the *city countryside continuum*, related to the territorial reorganization following the industrial revolution, later transformed into explicit territorial policies, for example in Belgium, at the beginning of the last century; a *revolution in land use* (Gottmann 1961) which completely modifies our perception of what is urban, rural, or wilderness, which accepts heterogeneity as a value and overcomes the rigid division of labour in favour of new integrations, coexistences and synergies; the concept of *urbanized countryside*—Samonà in the Trentino plan (Provincia di Trento 1968), where to spread the benefits of the urban, in terms of services and activities contrasting the rural and mountain exodus, maintaining people where they were living: a strategy has been developed which has become the field for spatial and functional hybrids. Against polarization and exclusion, the challenges and potentialities of an extended urban and metropolitan condition are here finally coupled with the theme of horizontality of relations among territories and subjects.

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<sup>3</sup>The team: Studio Bernardo Secchi, Paola Viganò with CREAT, Egis Mobilité, Gerhard Hausladen (TU München), IDEA Consult, Karbon.

The Horizontal Metropolis considers and relies on the urban figures which have revealed the dispersed condition and the related mechanism of the production of space as a potential asset, rather than and only as a problem. They act as an inspiration for the construction of a sustainable and innovative urban-rural project to tackle new paradoxes and crises, from a social, economic and environmental point of view. A new transcultural discourse on urbanism is on its way, which originates from autonomous intellectual trajectories and situated modernization paths, of vast, but still too limited exchanges among cultural, academic and geographic contexts.

Beyond the project of Modern Urbanism, but, and at the same time, being one of its concrete physical results, the Horizontal Metropolis can finally be investigated as a possible space of emancipation, where spatial and natural capital can be the support for better conditions of life moving through the radical nature of the change underway.

### Three Parts

The symposium has gathered a variety of approaches, connected young and well-experienced scholars; ongoing Ph.D. dissertations have been discussed, as well as long-term research trajectories, bringing together a set of statements to feed the debate. Deeper conversations have been structured around three main topics.<sup>4</sup>

### *Horizontal Metropolis: Theories and Roots, a Transcultural Tradition*

The Horizontal Metropolis has come to the fore at different times: a dense legacy of concepts and of interpretations of the urban phenomena has been accumulated. This legacy is also the result of influences and exchanges among authors, interpretations and contexts in very distant parts of the world. The first part of the book investigates the role of exchanges and references in constructing, by integration or differentiation, various conceptions of the urban phenomena. It focuses on theories, images and distinct archives.

Some important research tracks converge in the HM reflection: an agrarian urbanism, in the aspiration to reconcile the new industrial society with older and traditional forms, or as an alternative to the big industrial city, a new decentralized order (Maumi and Waldheim essays).

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<sup>4</sup>The Symposium was organized in three sessions (1 *The Horizontal Metropolis: spatial and natural capital*, 2 *The Horizontal Metropolis: issues and challenges of a new urban ecology*, 3 *The Horizontal Metropolis: a transcultural tradition*) which have been re-elaborated in this publication, reorganizing the contributions in function of a more fluid and clear chain of reflections.

Concern for the ground, its qualities, properties and interactions with the extended city that is structured on it, is reconstructed through the thought of Geddes, Reclus and Dokuchaev (Durand). The question of the ground and of the soil, central to the territories of dispersion which have always been condemned for their high land use, is treated by the three authors in ways different from those subsequently developed by the CIAM debate and in particular by Bernoulli (1943). The latter being more interested in ground ownership, which has to be public, rather than in its biological and ecological value: only public ground would have allowed the *tabula rasa* for the realization, without constraints, of the modern city project. However, Hans Bernoulli and Franck Lloyd Wright share the same references: the theories of Henry George and Silvio Gesell with all their implications on city space. Finally, a multiple interpretation of the land and soil centrality in the Horizontal Metropolis emerges, where a pioneering perception of the city and new survey methods are introduced (Skjonsberg).

A body of essays (Veronesi, Pisano, Rebillot), weaves the threads of continuity between metaphors, theories, like that of radical decentralisation, and concrete situations (the Berlin metropolis, the Randstad metropolitan systems, the “ecological retrofit” of the rapid process of urbanization in China). Several convergences appear in the debate on Asian urban, rural and dispersed conditions which enlarge the western theoretical tradition and open a dense research agenda (Cairns), without losing in cultural specificity. Advocating, finally, for more adequate lenses (Lin) to deal with the new urban rural territory that “has been hybrid, path-dependent and locally constitutive, blending elements from the past with the present and the local with the global.”

### ***Horizontal Metropolis: A Spatial, Social and Natural Capital***

It is in fact impossible to account for the structure and functioning of the social world unless one reintroduces capital in all its forms and not solely in the one form recognized by economic theory. (Bourdieu 1986)

The second part of the book critically reflects upon the relation between the natural capital and long-term artificial rationalities, where novel ecological dynamics are today part of the urban (McGrath, Girot) and upon hybrid urban-territorial figures in relation to conditions of spatial and social justice.

Enlarging the concept of social capital proposed by Pierre Bourdieu (as *l'ensemble des ressources actuelles ou potentielles qui sont liées à la possession d'un réseau durable de relations*, 1980) and later by Robert D. Putnam, interested to the structure of networks, “arguing that ‘horizontal’ ties represented more productive social capital than vertical ties” (Putnam 1995), space is here considered as capital (Lévy and Lussault 2003).

This part of the book focuses on the long-term construction of a productive territory where horizontal supports to mobility and inhabitability have been developed. Water management and accessibility, among others, are a fundamental physical and spatial capital of the Horizontal Metropolis, an “accumulated labour (in its materialized form or its ‘incorporated,’ embodied form) which, when appropriated (...) by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labour” (Bourdieu 1986).

Diffuse, low hierarchical meshes, micro-infrastructures (Viganò 2016) are accumulated in the Horizontal Metropolis, whose cost of maintenance, adaptation and reproduction today require investments and collective care. In particular, the diffuse networks, in their complexity and chaotic stratification, demand to be understood, represented and mapped. In such a palimpsest, the spatial capital exists thanks to and because of civic uses and engagement, a true social capital “bound together by horizontal relations of reciprocity and cooperation, not by vertical relations of authority and dependency” (Putnam 1993).

The Horizontal Metropolis can be seen as a product of specific processes of infrastructuring and conveying urbanity in extended territories. The technical and spatial devices to render the land inhabitable, their measures and modules are often the expression of deeply embedded rationalities related to the organization of economic and social systems where population, mechanisms and resources can reproduce. The construction of a productive landscape—dealing with water management, qualities of soil, parcels and property size, types of agriculture, mix of functions, presence of biodiversity (see Toselli, Rojas, Rivera, Zhang contributions); of territorial accessibility—mobility networks, their permeability and degree of connectivity, exchange nodes, social infrastructures and amenities - enhancing abilities of individuals and firms to move and to locate (see Broes, Burgemann, Pagnacco), as well as of social and cultural infrastructures (Vanhalen) are investigated.

A new “environmental box” (Mantziaras) to regenerate and valorize the spatial, natural and social capital of the Horizontal Metropolis is under construction.

### ***Horizontal Metropolis: Issues and Challenges of a New Urban Ecology***

The third part of the book considers the radical nature of the change underway and the emergence of new practices and paradigms, scenarios and design strategies for re-cycling and upgrading the city-territory.

The Horizontal Metropolis is a space where the “urban question” (Castells 1972), in its new and future forms (Secchi 2006), takes on a peculiar meaning (Viganò 2013b). As a new urban ecology, the Horizontal Metropolis redefines the relation between open and built space, between soil, water, forest, waste production..., their cycles and the urban (Baccini, Furlan, Wambecq, Vanneste in this part). The HM metabolism is different from the one created by the traditional urban/



rural dichotomy, still, its qualities and potentialities have not yet been fully investigated and appreciated. Old industrial and rural landscapes are today urban problems, fertility and soil productivity, water quality and energy production are problems of the urban, intrinsically and spatially urban, to be considered and valorized: this generates contradictions and new possibilities. The upgrading of the infrastructural level of the HM, where the palimpsest has been exploited and rewritten time and time again, where “actors have been able to externalize the social and environmental cost of their individual choices” (Dehaene in his statements), is today a difficult and ambiguous issue which also involves the ecological transition and the economic crises, opening to the recycling of the dispersed and small grain industrial activities typical of the city-territory (Garofoli, But, Sega).

The problem is especially tricky if we imagine to treat it with the sole tools of concentrated investments and projects to solve randomly diffuse problems (from mobility to health issues, to industrial restructuring or flooding problems, to soil pollution and resources consumption). In this sense, the hypothesis of the Horizontal Metropolis as a renewable resource (Viganò 2011) serves to challenge common sense, it helps in differently highlighting the question of consumption and reproduction, of maintaining and reproducing life.

Slowly but steadily, the Horizontal Metropolis has become the object of explicit political and institutional projects, often bridging academia, institutions and local administrations through research by design explorations (Declercq). Its public space is still under-defined and certainly still under construction: rethinking its infrastructural network brings together reflections on the design of the Horizontal Metropolis public domain (Gheysen, Vialle, Bahrami). A new shared imaginary is needed (Travasso).

## **Details and Visions: A Style of Thought**

The conference and this book have been conceived as a network structured around certain themes and words that do not even attempt or wish to build, and indeed are incapable of building, a vision that is complete, defined or definitive. The different contributions add details and views that are sometimes lateral, but not marginal. From their reading emerges what the reflection on the Horizontal Metropolis reveals in terms of our current concerns: the urgency of a new environmental awareness in the Anthropocene era (Sieverts in its conclusions, and twenty years after the publication of *Zwischenstadt* in 1997), the limits of a debate polarized between top-down and bottom-up, expectations as to the consolidation of new systems of relationships (Grosjean) and of a different perception of space (Cogato Lanza); the need to overcome the dichotomy between infrastructure and city, “operational” and “agglomeration landscapes”, in favour of new interdependencies (Katsikis), celebrating the multiplicity of positions (Shane in the Afterword). The weight and polysemy of the concept of hierarchy, both subordination and domination, but also integration and functionality, is also under investigation. Despite “the centric/

hierarchical/specialized organization entailing some dangers such as waste, rigidity, fragility, even parasitism” (Morin 2015: 34), the concept of hierarchy continues to occupy the role of influential metaphysics, which the Horizontal Metropolis shakes, and strongly reconsiders, not taking it as evident.

The city has changed and the ways of reading and interpreting it are also changing. A critical approach, from the point of view of the *Horizontal Metropolis: a Radical Project* Symposium, does not imply a “post” affixed to modernity. We do this, not to be forced to claim, for our time, the possibility of a project, both progressive and emancipatory that, instead, belongs to us by right.

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**Part I**  
**Horizontal Metropolis: Theories and Roots,  
a Transcultural Tradition**

# Horizontal Metropolis: Theories and Roots, a Transcultural Tradition: Introduction



Chiara Cavalieri

Theories and concepts of horizontal urbanism have come to the fore at different times throughout the history of the city and territory, assembling a dense legacy of interpretations and a very clear tradition of urban phenomena. In this sense, the term Horizontal Metropolis can be read as a connector, as the common denominator of theories and concepts that seeks to unfold an alternative urban condition, going *beyond* (and not necessarily against) the idea of concentration or accumulation. This chapter collects researches on both theories and historical roots of these urban phenomena.

Researches on different authors (i.e. Geddes, Rosseau, Wright, Branzi, Sieverts, Neutelings), different places (i.e. China, Switzerland, Berlin, Netherlands) and different questions (i.e. globalization, urbanization, sustainability) first of all highlight the effort made in identifying, picturing and describing the Horizontal Metropolis as a multi-scalar process, presenting concepts that are at the same time global and site specific.

Firstly, the global dimension of the Horizontal Metropolis can be unfolded in two different ways. On the one hand, this collection of theories can certainly draw an almost exhaustive world map, in which different terms (such as *megalopolis*, *città diffusa*, *patchwork metropolis*, *Zwischenstadt*, *desakota*, *hyperville* [...]) have been used to describe similar phenomena and projects. On the other hand, the Horizontal Metropolis can be conceived in itself on a global scale as a planetary

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pattern where borders, boundaries and flows blur (Cogato Lanza). And yet this space, despite being global, can be considered to be narrow. If one follows the theories of planetary urbanization<sup>1</sup>, the Horizontal Metropolis could be considered as part of an up-scaled ‘agglomeration’ landscape, where beyond it, there lies a much more extended horizontality, the ‘operational’ one, equipped for food, mineral, energy and water production and circulation, orchestrated through the operation of logistical networks into global commodity chains. Together, these two horizontal metropolises constitute the vast majority of the ‘used’ part of the planet (Katsikis). This extended idea of urbanization suggests that the same is not only about expanding agglomeration areas or creating new ones, but also about the incrementation of operational areas (such as agricultural lands, resource extraction sites, forests, physical infrastructures and logistic system), which lie today in a condition of geographical interdependence (Katsikis).

Secondly, next to its global (and interlinked) dimension, the Horizontal Metropolis is certainly a site-specific phenomenon: its singular theories and definitions do not seek to outline an ideal or a model of city, but rather to investigate specific characteristics and dynamics of real situations (Pisano)<sup>2</sup>. Indeed, the different definitions for these similar conditions might represent a clue for comprehending the intimate bond within theories and contexts (along with their culture and their urbanisation processes). For these reasons, the Horizontal Metropolis taken as an overall conception should not lead to the idea of the ‘generic city’ nor seek for similarities rather than understanding the intimate relation between history, context and global dynamics (Grojean).

The importance of this interscalar connection is quite clear in the development of the Chinese conjugation of the Horizontal Metropolis, which grew as hybrid, path-dependent and locally constitutive blending of elements from the past with the present as well as the local with the global economy (Lin).

If taken from another perspective, the same concept of site specific can be conjugated with the renewed consciousness for geographical features (versus the idea of ‘tabula rasa’) of the *New Regional Pattern* of Ludwig Hilbersaier (Cogato Lanza; Waldheim), or it can find its roots in the social and physical survey of Patrick Geddes (Skyonsberg). Furthermore, the same specificity of sites might also hark back to the global dimension in approaching the idea of ecological region,

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<sup>1</sup>Lefebvre, H. (1970). *The urban revolution*, 1970. (R. Bononno, Trans.). Minneapolis: University of Minnesota; Brenner, N. (2014, Ed.), *Implosions/explosions. Towards a study of planetary urbanization*. Berlin: Jovis Verlag

<sup>2</sup>In his contribution to this chapter, Carlo Pisano inscribes the ‘Patchwork Metropolis’ of Willem Jan Neutelings inside the literature of ‘site specific Manifestos’ of the 70s. Indeed Neutelings used this work as a pretext for investigating some specific aspects concerning the operative principles of the Dutch Metropolis. In the same way, Laura Veronese, investigating the case of Berlin, performs a parallel reading of Sieverts’ idea of *Zwischendstadt* (Sieverts T. 1997, *Zwischenstadt: Zwischen Ort und Welt, Raum und Zeit, Stadt und Land*, Bertelsmann Fachzeitschriften, Birkhäuser) and of the Oswald Mathias Ungers’ proposal for Berlin as a ‘green archipelago’, already inscribed into the ‘site specific’ literature by Sebastien Marot and Florian Hertweck (Hertweck F., Marot S., 2013, *The City in the City, Berlin: a Green Archipelago*, Lars Müller Publishers).

envisioned by Dokuchaev (1850), Reclus (1895) and the same Geddes (1905) as fundamental for comprehending physical, natural and social facts, and as a whole belonging to a larger system: the world (Durand).

The second main point that this chapter brings to light is that theories of ‘horizontal urbanism’ have come to the fore in different times as intimately connected to processes of transition. Besides the ‘metropolitan bias’<sup>3</sup> brought by the oxymoron ‘horizontal metropolis’ in itself, the metropolitan condition of this kind of urbanity should be perhaps traced in its attitude towards change (Cogato Lanza), towards economic, social and environmental shifts.

Many processes of horizontal urbanization can be directly related to shifting economies, from agrarian to industrial, or from industrial to post-industrial societies. Curiously, this overview on shifting economies and hence on processes of urbanization does not follow, as might be expected, a chronological order, but rather a geographical one, where once again the global dimension plays a non-neutral role.

On the one hand, one could find theories that, reacting to the process of concentration, foster processes of decentralization of both urbanization and economies.

A first example can be found in Wright’s *Broadacre City* (1934–35), where, while envisioning a decentralized and democratic society, it represented a model against the process of ‘metropolization’, against the standardization imposed by the monopoly of the metropolis (Maumi). Metropolization for Wright meant the destruction of resources, the ruin of landscape, the disappearance of rural economy killed off by intensive farming, the dying out of local farming. In other words, the metropolis was seen as a form of ‘deterritorialization’ (Maumi), where decentralization, which does not mean dispersion, was proposed as a real alternative to the ‘industrial metropolis’. Like *Broadacre City*, Ludwig Hilbersaier’s *New Regional Patterns* (1945–49) and Andrea Branzi’s *Agronica* (1993–94) are also conceived on the assumption of an ongoing process of decentralization led by industrial economy (Waldheim). These ideas, visions for a different kind of urbanity (discharged of their utopian, political and social aspirations), went on to partially take shape in different contexts where decentralized economies have led to diffuse urbanization or vice versa, i.e. the *città diffusa* in the Veneto Region, as defined by Francesco Indovina<sup>4</sup>; or the *Banlieu Radieuse* in Flanders, as described by Marcel Smets<sup>5</sup>; or the Swiss territory where the idea of ‘growing’ dense industrialized cities has been rejected (Tursic).

On the other hand, unlike the situations in the West, where the emerging of diffuse urbanization has been closely intertwined with the transition of the economy and society from industrialism to post-industrialism, the growth of the

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<sup>3</sup>See infra, Michiel Dehaene, *Statements on ‘Horizontal Metropolis: Issues and challenges of a new urban ecology’*.

<sup>4</sup>Indovina F. (ed), 1990, *la città diffusa*, Daest, Iuav, Venezia.

<sup>5</sup>Smets, M. 1986. *La Belgique ou la Banlieue radieuse in Paysage d’architectures*, exhibition catalogue. Fondation de l’Architecture, Brussels, pp. 33–35.

'peri-urbanism' in the Chinese context of Dongguan occurred alongside the transition from an agrarian society into an export-led industrializing economy, which has led to a widespread spatial pattern primarily located at the village level (Lin).

Furthermore, the construction of horizontal metropolises refers to a second type of transition, the one related to mobility patterns, to material and immaterial networks (Cairns). The horizontal metropolis is a space of exchange, where a continuous system of relational forces is opposed to a collection of objects (Waldheim), where important flows of people, goods and information go on to become a distinctive characteristic in opposition to those spaces that thrive on accumulation (Grosjean). These multilayered and multi-scalar connections, recalling André Corboz' metaphor of hypertext<sup>6</sup>, set this kind of landscape apart from that of immanence and multiplication. Hence, it is via this hyper-connected space where diffusion does not mean dispersion, that each fragment encounters its potential meaning (alongside to its nostalgic dimension), becoming part of a whole such as, for example, a *patchwork* (Pisano) or an *archipelago* (Veronese). It is indeed this infrastructural support that could build the so-called *isotropy*<sup>7</sup>, that equal spatial and social distribution of possibilities, that democratic principle (Cogato Lanza) of fair distribution that Wright imagined for *Broadacre City* (Maumi).

In this sense, the question of democracy leads directly to another type of transition, that of resources, their limit and their alternative. The Horizontal Metropolis, as both any project and de facto urbanized pattern, has come to face questions such as the 'limits to growth' or 'our common future'.

Once again, as an attempt to redistribute goods and to preserve natural resources, *Broadacre City* represents a pioneer vision, conceived as a 'transition scheme', where the use of the resources, the exploitation of the ground and the preservation of nature would be measured for the generation to come (Maumi), anticipating the question of 'our common future' and of the sustainability of the planet by more than 50 years. In addition, the 1970s radical environmental thinking clearly suggested the abandonment of cities in favour of an extended, broader, better distributed urbanized pattern (Rebillot). Despite these promising indications, after the UN's report of 1987<sup>8</sup>, any hope for a synergy between an ecocentralism and mature (post)industrial urban systems was shelved in favour of a traditionalistic approach committed to the compact city (Rebillot). But the dominance of the horizontal metropolis as both 'aggregational' and 'operational' landscapes on a planetary scale (Katsikis) legitimates and gives room for exploring the ecological potential of the extended urbanization here described. It is an exploration that could feed both existing and emerging territorial systems (Rebillot), such as the Asian context,

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<sup>6</sup>Corboz A., 1994, 'Apprendre à décoder la nébuleuse urbaine', in Cahier no. 8, Institut pour l'art et la ville, Givors.

<sup>7</sup>Fabian L., Secchi B., Viganò P. (eds), 2016, *Water and Asphalt. The Project of Isotropy*, Parkbooks, Zurich.

<sup>8</sup>WCED, 1987, *Our Common Future*, Oxford University Press.



revealing the demographic, economic and ecological interdependencies of such regions (Cairns).

The last process of transition that the horizontal urbanism encounters is placed at a theoretical level: it refers to the flows of ideas and references during the construction of its theory and tradition. Over the decades, the exchanges among different conceptions of these urban phenomena have played a fundamental role in portraying, by integration or differentiation, a *transcultural tradition*,<sup>9</sup> that perhaps still needs to be investigated in depth.

In short, through contemporary and historical theories, the Horizontal Metropolis emerges as a strong interscalar and site-specific concept, as both a vision and a de facto spatial process that occurred in different contexts in between major shifts in the political, economical and social structures, catalysing clear global and local mutations. The Horizontal Metropolis is the possibility for an alternative and extended urbanism, an open idea of urbanization that brings together a tradition of thought, a resilient rather than unstable (or stable) territorial structure, capable of adapting to both constantly changing conditions and multilayered mutations.

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<sup>9</sup>'A transcultural tradition' was the title of the third session of the Symposium in Lausanne, 2015.

# Horizontal Metropolis: Theories and Roots, a Transcultural Tradition Statements



Elena Cogato Lanza

The Horizontal Metropolis is explicitly proposed as a paradoxical project. Developed at the turn of the last century, this project *literally* crosses two research topics in the field of urbanism with the aim of, on one hand, offering a horizontal conceptualization of the metropolis and, on the other, making the different forms of existing horizontal urbanization develop towards a fully metropolitan dimension. The metropolis and horizontal urbanization represent two fundamental theoretical frameworks, both hinging on the observation of phenomena over a long period of time and dealing in large numbers: large population sizes and vast quantities of built structures, goods and material flows. Where is one to look for the roots of this contradictory union? To answer this question, I will seriously consider the world map developed by the Horizontal Metropolis work group, which assigns a geographical location to the nomenclature corresponding to the various forms of horizontal urbanization. I am basing my approach on the premise that the Horizontal Metropolis is a vision, and that, as such, is made possible by a representation of the city within a global spatial context—on a world map. It follows that the tradition to which the Horizontal Metropolis belongs is to be looked for within this particular representation of space. In my view, two other decisive factors are worth introducing here: a certain relationship with time and an idea of democracy. Space, time, and democracy are the three points on which I will elaborate here.

1. In *Die neue Stadt in Landschaft und Klima* (1951), Ernst Egli, Professor of Theory and History of Urbanism at ETH in Zurich, provides a vision of cities located on the world map in relation to climatic regions. In order to observe a world undergoing an unprecedented demographic boom, he uses as his lens the conditions that are common to all types of settlement, urban and rural. Resources and threats are to be considered at the global scale. While urban geography was distinguished

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from geography thanks to the two categories of “site” and “situation” (local and regional scale), for Egli urban geography conquers the global scale. Within the frame of the world-system, the door to comparative study of settlements and typologies, and to the definition of lines of demarcation, borders, flows, and marginalities opens. By reconstructing the genealogy of this global representation of the city, we must inevitably reckon with Constantinos Doxiadis’ *Ecumenopolis* (starting from 1967, see Doxiadis 1968), which has now become the subject of intensive critical study, as well as *Totale Stadt* (1968–1975) by Fritz Haller, in which the topic of mobility has the decisive weight that Egli had assigned to climate and soil. Alongside these representations of cities on the global scale—literally of the city *on the support of the world map*—, schools of thought that integrated this framework of global scale without necessarily making it explicit in the form of an image also deserve recognition. I refer here to Ludwig Hilberseimer. Leaving Europe for the United States, Hilberseimer also left behind the *Vertical City* in order to model a new horizontal city to the scale of North America. However, rather than attempting to revive the Jeffersonian grid, he instead sought to develop figures organically tied to geography: climate, winds, the resources of the soil, and subsoil. His *New Regional Pattern* (1949) emerges from a reckoning of a real trans-Atlantic voyage (an imaginary intercontinental flight) and from a vision of the city transformed by the Stock Market Crash of 1929. Crisis provides a lens through which Hilberseimer recalibrates his assessment of everything: figures, models, and osmotic interfaces—in other words, of patterns of porosity, as they would be called much later in the theoretical work of Secchi and Viganò (2011).

2. Neither city, nor megalopolis, but metropolis—among the three terms, the latter is inextricably linked to a specific psychological condition. Starting with Baudelaire, then the fundamental contributions of Simmel, the psychology of the metropolitan individual depends on an original socio-spatial reality. This mentality is characterized by a certain relationship to change. When the political and civil transformation brought by the French Revolution was still being processed, the metropolis transported the European individual through a new radical change, one just as violent, just as liberating, just as inhibiting: that of the socio-spatial conditions of the city. A condition at the same time of extreme individualism—the endless renewal of differentiation processes—and of extreme anonymity, the metropolis emerges as the locus of ceaseless technical and aesthetic innovation.

How does the metropolitan mind address the Horizontal Metropolis? Can it carry the tradition forward, even as other foundational concepts of the Horizontal Metropolis, more strictly related to urban studies, stress its relationship to change in a different manner? I’m thinking in particular about the theme of inertia and the concept of palimpsest. The *desakota* or northern Italy’s *città diffusa* are studied as a selective stratification of infrastructures and economies. Palimpsest (Corboz 1983) is a descriptive concept requiring simultaneous reflections on what comes first and what comes after in order to understand the salient features of change. What comes after, are both the present and the future: they are not studied as discrete objects, but rather in how they relate to the past, through the layers of the palimpsest. The palimpsest is also a project. What can be said about the psychological conditions of

the Horizontal Metropolis when the metropolis is dealt with as a palimpsest? The relevance of the subject of the *metropolitan mentality* remains an open question, like an unsolved riddle.

3. In the Horizontal Metropolis, space comes forcefully into view as the deciding factor to democracy. The project of the welfare city accomplished a series of guarantees—financial guarantees or guaranteed access to services—as a tool of democracy. Today, during a historical period characterized by widespread criticism of the welfare state, the Horizontal Metropolis recognizes the pre-eminence in the spatial project of building democracy, a task which increasingly is dislocated away from political rights and toward human rights, or rather the rights of living beings. I will not linger on this last point, even though it is a pressing issue, but will instead suggest a final area for further investigation. Is it possible to designate a tradition of humanitarian urban planning to international organizations? Far from being an unprecedented research topic, the urban planning of international organizations can nonetheless be studied in light of the Horizontal Metropolis and its paradoxical ambition. The urban planning of international organizations deals necessarily with space as a good, material as a resource, each structure as infrastructure. To use a term from the Horizontal Metropolis tradition, it ends up producing social capital. The tradition of Ernst Egli, who worked as a UN technical adviser in Ankara during the 1950s, was followed up by Albert Bodmer—who had already previously served as director of Geneva’s Service d’Urbanisme during the 1930s—who oversaw the reconstruction of 365 Turkish villages threatened by natural disasters. After designing Geneva’s network of green spaces and infrastructure as a park system, guaranteeing equal access to public spaces, nature and roads, did Bodmer carry on his efforts for governance through geography? Only an investigation of the original documents can show whether or not that was the case. Here the aim is to draw attention to the approach to the project as shedding light on existing qualities, valorization of spatial, material, and symbolic resources, so that the society itself is approached as a resource—a resource that yields democracy. Such is the case with landscape architect Philip Lewis, whose Recreation and Open Space Plan of Illinois State (1960) identifies “Natural and Cultural Landscape Wealth” in a completely bottom-up participatory process, revealing a convergence of their distribution and the space determined by environmental corridors (Lewis 1996). What results is a task for the designer to promote comprehension of unique landscapes, and to conceive the preservation of diversity and continuity as a collective work of art.

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# The ‘Other’ Horizontal Metropolis: Landscapes of Urban Interdependence



Nikos Katsikis

## Urbanization as Geographical Organizations

...we define the city in the truest sense, supposing to a specialization of activities leading to this specific feature of all human concentrations: that such concentrations are incapable of sustaining themselves and require the support of the inhabitants of neighbouring regions. This is precisely the distinctive mark of urbanism. (Bairoch 1988, 95)

Cities are the focal points in the occupation and utilization of the earth by man. Both a product of and an influence on surrounding regions, they develop in definite patterns in response to economic and social needs. (Harris and Ullman 1945, 7)

The starting point of this research can be very well reflected upon these two quotes about the ‘essence’ of urbanization, coming from two notable 20th century urbanists: Urbanization here is understood as a condition of geographical interdependence, one that leads to a particular form of organization of the human use of the planet, or, as a common notion from early 20th century human geography would suggest, a particular way of organizing the ‘human occupation’ of the earth (Philbrick 1963). ‘Human occupation’ refers both to patterns of land use, as well as to patterns of land cover and questions their association. These patterns include not only settlement areas, but also connectivity infrastructures, productive and extractive landscapes, and in general all structures and infrastructures that equip the earth, and all geographic areas accessible and operationalized by humanity (Gottmann 1969). How does then the generalized equipment and activation of the planet connect to urbanization processes broadly defined?

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It could be argued that urbanization connects distinct specialized geographies through the socio-metabolic interdependency of agglomeration systems and complex webs of surrounding or more distant territories due to their needs in energy, nutrients, water and other resources (Luke 2003). Until the late 17th century, these supply areas, these urban ‘hinterlands’, remained rather geographically contiguous and confined at a regional scale (Harvey 1996). However, consecutive waves of industrial and post-industrial capitalist urbanization, in combination with the pressures from the growth of agglomerations and their expanding metabolic needs, gradually exploded these boundaries (Billen et al. 2012). Technological advancements and reductions in transport and communication costs, the liberalization of trade, and the increasing integration of emerging markets into the world economy, have led to the creation of specialized and globalized production regions (Donaghy 2012). As a result, contemporary agglomerations appear largely detached from their surrounding hinterlands. They are rather thought to share a wide network of extensive, fragmented, global hinterlands (Ibanez and Katsikis 2014).

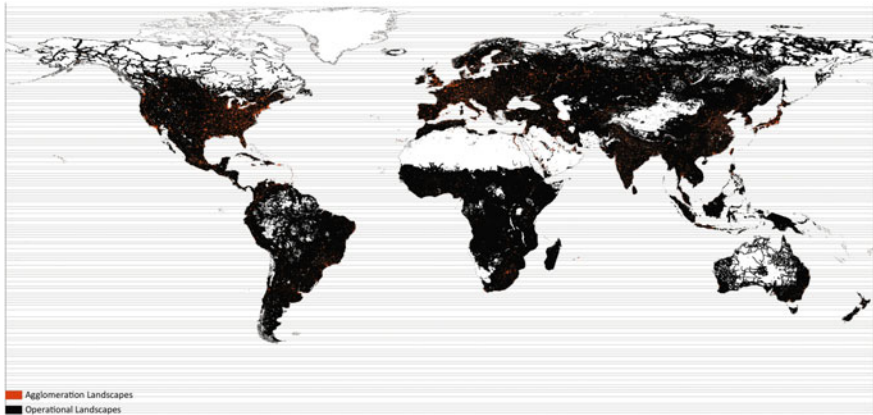
Building upon the emerging agenda of ‘planetary urbanization’ introduced by Brenner and Schmid (Brenner and Schmid 2011, 2015), the main hypothesis of this research is that almost the totality of the human occupation of the planet at the beginning of the 21st century is shaped by globalized, capitalist urbanization processes. Revisiting the work of Henri Lefebvre and his concept of ‘complete urbanization’ (Lefebvre 1970), Brenner and Schmid have started elaborating on the structures, contours, dimensions and development patterns of this planetary condition in which:

...agglomerations form, expand, shrink, and morph continuously, but always via dense webs of relations to other places, territories, and scales, including to realms that are traditionally classified as being outside the urban condition. The latter include, for example, small- and medium-size towns and villages in peripheralized regions and agroindustrial zones, intercontinental transportation corridors, transoceanic shipping lanes, large-scale energy circuits and communications infrastructures, underground landscapes of resource extraction, satellite orbits, and even the biosphere itself. As conceived here, therefore, urbanization involves both concentration and extension: these moments are dialectically intertwined insofar as they simultaneously presuppose and counteract one another. (Brenner 2013, 95)

This proposition can be summarized through the following visualization, Fig. 1: This global map is highlighting in red the total area of the major agglomeration zones of the planet, plotted against a dark background that delineates all the used parts of the earth’s surface. While the delineation of the agglomeration areas poses a problem in itself that will be discussed below, it is striking to note that the area occupied by the totality of all densely inhabited agglomeration zones, even according to the most ambitious calculations, covers no more than 3.5 million km<sup>2</sup>—and most likely 500,000–600,000 km<sup>2</sup> according to more moderate calculations (Potere and Schneider 2007). This might sound an impressive number. However compared to the more than 70 million km<sup>2</sup> of used land, it is less than 5% (Kowalski and Haberl 2007). As it will be discussed, the composition of this obscure dark pattern is mostly land-extensive productive areas of agriculture,

grazing, forestry and mining, as well as transportation networks. Although all these active elements of the human occupation of the earth are central to the configuration of dense agglomerations, and are essentially co-produced with them, they have rarely been studied as part of the development of urbanization processes.

The scope of this paper then, will be to conceptualize and comprehend how this 'terra incognita' can be integrated into the study of urbanization. A series of recent trends render this call particularly timely: On the one hand, social and environmental concerns regarding the geopolitical and ecological implications of urbanization are urging an investigation of its extended geographical 'footprints' (Seto 2012). At the same time, designers are increasingly compelled to shape larger scales and contexts and to address questions related to infrastructural, economic and ecological systems that transcend the traditional boundaries of the city (Ibanez and Katsikis 2014). And while the proliferation of geographic information systems and remote sensing techniques promise an unprecedented mapping of the planet, these geographies remain inadequately comprehended and even more inadequately connected, both conceptually and methodologically, to the processes shaping the dense urban cores (Brenner and Katsikis 2012). They constitute a contemporary 'wilderness' waiting to be charted. Returning to Brenner:



**Fig. 1** The used part of the planet showing the global distribution of agglomeration landscapes (in red) and operational landscapes (in black). *Source* Cartography and spatial analysis by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224; Global Rural-Urban Mapping Project, Version 1 (GRUMPv1): Urban Extents Grid developed by the Center for International Earth Science Information Network—CIESIN—Columbia University, International Food Policy Research Institute—IFPRI, The World Bank, and Centro Internacional de Agricultura Tropical—CIAT



the conditions and trajectories of agglomerations (cities, city-regions, etc.) must be connected analytically to larger-scale processes of territorial re-organization, circulation (of labor, commodities, raw materials, nutrients, and energy), and resource extraction that ultimately encompass the space of the entire world. (Brenner 2013, 103)

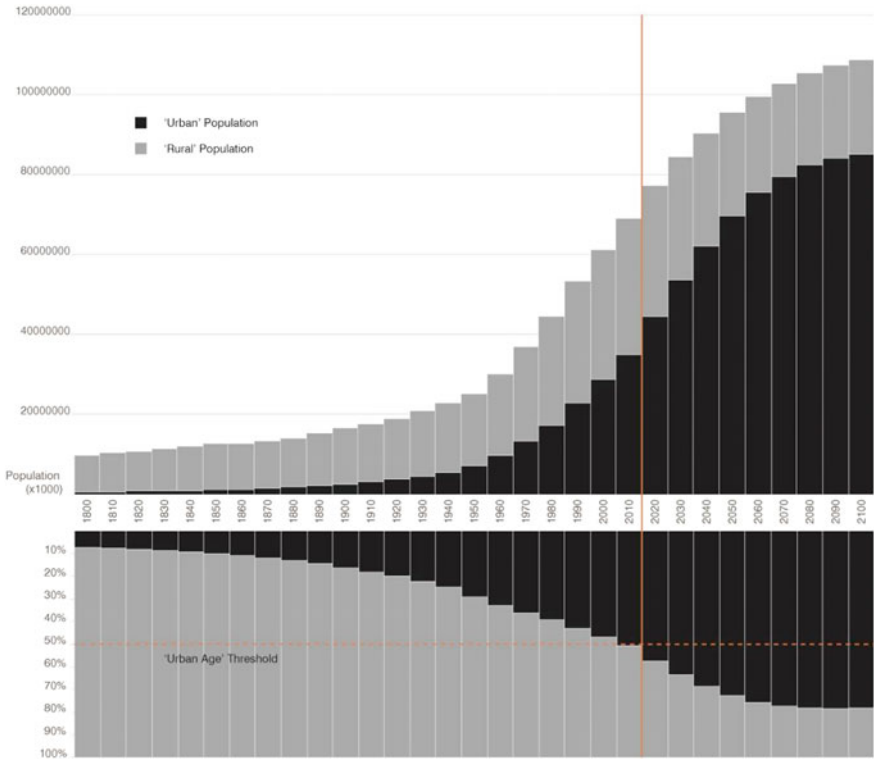
## The Quest to Capture the Elusive

At first sight, this approach might appear quite obvious, as well as quite generic. However, it is crucial to establish such an understanding of urbanization in order to depart from two very pervasive and quite narrow understandings. Since the conception of the term by Ildefons Cerda in the mid-19th century (Cerda 1867) and for most part of the 20th century, urbanization has mostly come to refer to a dual process of population concentration in dense settlements and the associated areal expansion of the later. One of the clearest and most abstract statements of this definition can be found in a 1942 text by Hope Tisdale on ‘The process of urbanization’:

Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of points of concentration and the increase in size of individual concentrations [...] Urbanization is a process of becoming. It implies a movement, not necessarily direct or steady or continuous, from a state of non-urbanism toward a state of complete urbanism, or rather from a state of less concentration toward a state of more concentration. Just as long as cities grow in size or multiply in number, urbanization is taking place [...] As soon as population concentration stops, urbanization stops. (Tisdale 1942, 312)

This approach is directly reflected upon the mainstream understanding of urbanization, as crystallized in the predominant UN studies on world urbanization and its prospects, as well as the recently very influential ‘urban age’ discourse (UN 2014; Burdett and Sudjic 2007; Burdett et al. 2011). This population-centric view of urbanization is summarized in Fig. 2: Urbanization proceeds as a factor of the concentration of population in dense settlements. In the beginning of the 19th century from the 1 billion of global population only around 7% was estimated to live in ‘cities’, dense and large enough settlement areas. By 1900 the total population was above 1.5 billion and almost 15% was living in ‘urban’ areas, while in 1950 this percentage had risen to 30%. Six decades later, we were informed that we were officially living in an ‘urban age’, since more than half of the 7 billion people on the planet were living in cities. By 2100, when the world population is expected to start leveling off at around 11 billion, it is estimated that more than 70% of it will be settled in dense ‘urban’ areas.

Within this context, the delineation of the ‘urban area’ proves essential in order to define the population that lives within it as ‘urban’. According to these approaches, urbanization is largely a question of the size and structure of densely built up and densely populated areas. The ‘urban fabric’, the physical footprint of a city, is an area that is supposed to be differentiated from its surroundings though its densely ‘artificial’ landcover. These efforts have been recently amplified by the

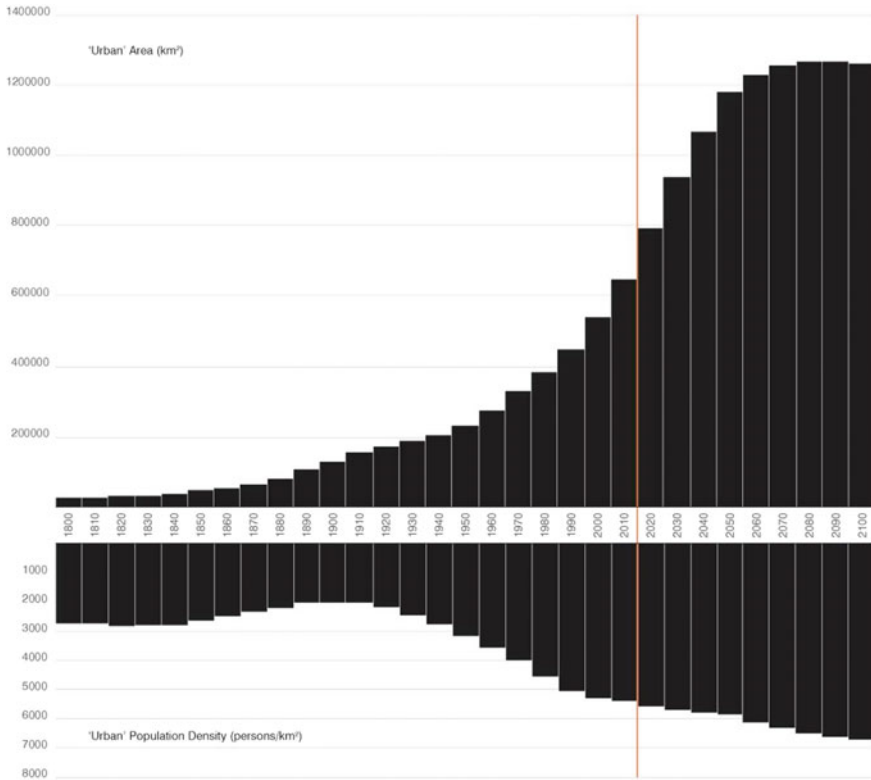


**Fig. 2** Historical and future evolution of urban and rural population of the world. *Source* Elaborated by the author based on data from: United Nations (2014)

proliferation of remote sensing technologies that are able to monitor the expansion of artificial areas through satellite imagery and construct easily comparable time lapses that record the relative expansion of urban areas (Potere and Schneider 2007). Within this context, urban development is often limited to a single directionality: That of expansion. A seminal and perhaps the most systematic example in this direction has been the attempt of Schlomo Angel and the Urban land Institute to put together an elaborate ‘Atlas of Urban Expansion’ that monitors the expansion of the sizes and forms of agglomerations (Angel 2012).

Generalizing the two aforementioned paradigms, Fig. 3 shows the evolution of urban areas around the world since the beginning of the 19th century in relation to the associated evolution of population densities within urban areas: In 1800 the combined areas of cities did not cover more than 30,000 km<sup>2</sup> and the average urban densities were in the range of 2500 people per km<sup>2</sup>. By 2000 urban areas were estimated to cover more than 550,000 km<sup>2</sup> with an average density of more than 5500 people per km<sup>2</sup>.

Having said that, and returning to Tisdale’s definition, it is rather easy to reconstruct this dual ‘mainstream’ narrative of urbanization over the past two



**Fig. 3** Historical evolution of the spatial relationship between urban areas and urban population densities. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011); United Nations (2014)

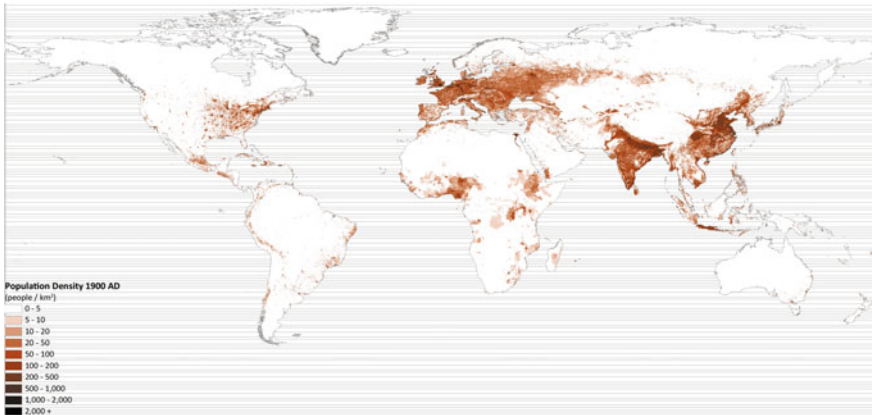
centuries: Indeed, since 1800 the global distribution of population densities has led to the initial multiplication and subsequent densification of areas of population concentration. This process of course has unfolded asymmetrically around the world, with the ‘old’ agglomerations in the West slowly expanding, while the new agglomerations in the East and global South largely densifying and multiplying in number. Overall, it is important to note that the expansion of urban areas has not followed linearly the dynamics of concentration of population concentration. The result has been that overall population densities have grown faster than the growth of the population size—or in a more simplified way, areas of dense inhabitation have not expanded, or multiplied as much as they have been densified. Overall densities in agglomerations have reached unprecedented levels, while even more importantly, densities that were once only met in very limited ‘central’ areas, are now to be found in extensive regions.

Within this context however, the delineation of urban areas, or cities, has become increasingly challenging with the diffusion of agglomerations and the overall dissolution of the distinction between the 'urban' and the 'rural', the 'town' and the 'countryside', spatial categories that used to be fundamental for establishing the building blocks of territorial organization. Already in 1969, the first ever UN report on urbanization recognized the problems that such a dynamic population reshuffling posed for a fixed definition of the 'urban':

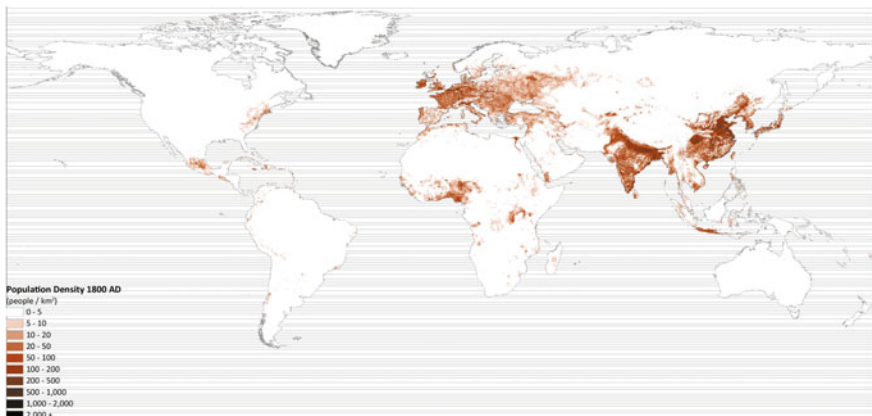
in a fluid situation it is doubtful whether any detailed scheme can remain valid over an extended period of time. With the increase in number of urban attributes and their wider diffusion, it is doubtful that the historic twofold 'urban' and 'rural' distinction will retain its relevance much longer. (UN 1969)

It is quite striking then to note that more than fifty years later the 'urban-rural' dichotomy has not only persisted, but has even become the basis of the celebration of an 'urban age' (Brenner and Schmid 2014). In a paradoxical way, the 'age of cities' is simultaneously the age where cities become so diffuse into variegated agglomeration zones that can hardly be defined as such. Figures 4, 5, and 6 show the distribution and intensification of population densities around the world for the years 1800, 1900 and 2000 respectively. The extended areas of high population densities in the core of Europe are slowly complemented by the development of dense coastal gradients in North America and Asia creating the conditions for continuous agglomeration zones that are impossible to delineate and define as 'cities'. At the same time, while agglomerations are becoming increasingly elusive to define as spatial patterns, their interdependencies to broader webs of fragmented hinterlands are exploding through the webs of international trade. Both in terms of spatial morphology, and in terms of socio-metabolic function then, contemporary urbanization seems to reject any fixed territorial delineation.

In sum, it is argued that the study of urbanization cannot be restricted to the study of agglomerations, not only because they cannot even be delineated as units of analysis, due to their increasingly sprawling configurations, but most importantly, because this framework would be very incomplete as it excludes the understanding of a broad set of geographical transformations that are directly connected to the urbanization processes that are unfolding in the core. The proposed framework then suggests that urbanization is a process that transcends any possible boundary of cities, or post-metropolitan formations and its understanding needs to be extended beyond agglomerations. As a result, the 'urban' as a spatial analytical unit is rendered obsolete. If we follow the hypothesis of Lefebvre and more recently Brenner and Schmid that the whole planet is completely urbanized, and if the 'urban-rural', or the 'town-countryside' distinctions are not valid anymore, which are the new spatial categories that we could instrumentalize in the study of planetary urbanization?



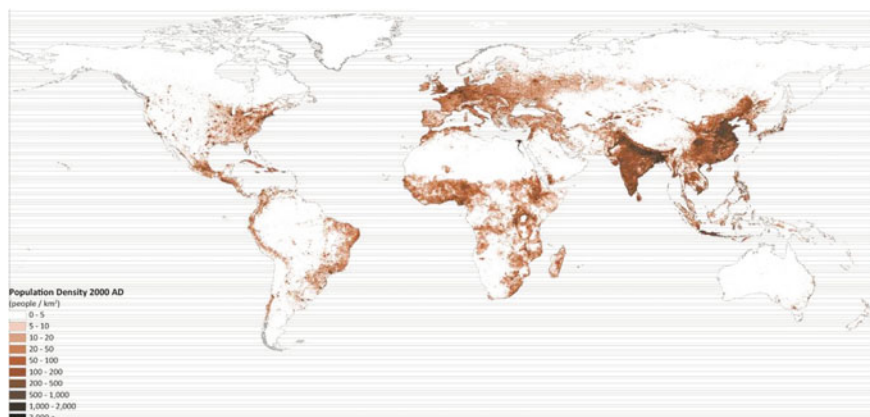
**Fig. 4** Distribution of global population densities in the year 1800. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)



**Fig. 5** Distribution of global population densities in the year 1900. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)

### ‘Agglomeration Landscapes’ and ‘Operational Landscapes’

Although it is argued that urbanization is indeed a universal condition, this does not imply the existence of a homogeneous, symmetrical landscape. Quite the contrary: Contemporary urbanization incorporates very different and very asymmetrical geographies and patterns of both socially and ecologically uneven development



**Fig. 6** Distribution of global population densities in the year 2000. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)

(Smith 2008; Moore 2014). In order to start grasping these complex configurations, Brenner and Schmid have recently introduced the dual categories of concentrated and extended urbanization (Brenner 2013; Brenner and Schmid 2014). These categories do not constitute opposing, or exclusive spatial units, but rather refer to mutually constructed dialectical processes that connect sociospatial configurations in densely inhabited and densely built areas of intense economic activity (concentrated urbanization), with sociospatial configurations in extensive landscapes of production, extraction, disposal and circulation that could include even very remote areas, like deserts the atmosphere or the oceans themselves (extended urbanization). The concentrated–extended urbanization framework, offers then a significant and very productive starting point. Since this framework has been only recently introduced, the aim of this study is to offer some further elaboration and directions for further development.

Both the ‘concentrated urbanization’ and ‘extended urbanization’ categories suggest a certain geographical categorization that refers to density broadly conceived. However, density or dispersion can occur in different degrees and for different structural and functional reasons. Density, concentration and extension, deserve some unpacking. Agglomeration is undeniably a form of densification and can refer to both demographic, economic, or land use and land cover asymmetries in the geographic distribution of phenomena. From a functional perspective, associated with the concentration of population, built space and economic activity, is a double process of specialization reflected upon a broader spatial division of labor, and the associated regional specialization and eventual geographical interdependence. Since urbanization presupposes some form of agglomeration, it’s dynamics become immediately bound to a broader set of constraints and

interdependencies associated with the aforementioned specialization of labour and of areal configuration.

On the one hand, the concentration of population and infrastructure is advantageous for certain social and economic activities. These activities belong mostly to the secondary and tertiary sectors of the economy (like manufacturing and services), and are those that can benefit the most from the externalities associated with agglomeration economies: Benefits from proximity, access to material inputs, labour pools and consumption markets, information exchange, as well as innovation through spillover effects, etc. (Jacobs 1969; Soja 2011). On the other hand, the same concentration is not beneficial and in some cases prohibits certain other activities that are equally fundamental for the continuation of social production and reproduction (Ciccantell and Bunker 1998). These activities belong mostly to the primary sectors of the economy (such as agriculture and resource extraction) that are extremely land extensive. Moreover, while there are economic and social factors that maintain a certain mobility, and can indeed be moved easily, displaced geographically and become concentrated, several other categories, such as the later, are depended upon specific geographic locations or environmental attributes.

Thus elaborating upon the concentrated–extended dialectical framework, it is suggested that the way urbanization structures the human occupation of the earth is through the conjuncture of ‘agglomeration landscapes’, with ‘operational landscapes’: Agglomeration landscapes are the geographies where agglomeration economies, and in general agglomeration externalities and dynamics can unfold: These would normally include the metropolitan, megalopolitan and post-metropolitan areas of dense settlement, population concentration and infrastructural intensification. However, with the advent of information technologies and transportation infrastructures, the necessary density required for the development of agglomeration economies is largely relativized. Still we can call these landscapes ‘agglomeration landscapes’ and accept that in most cases they overlap with landscapes of concentrated urbanization, or the typical understanding of agglomerations.

On the other hand, ‘operational landscapes’ are the geographies that are connected to land extensive and/or geographically bound and specific operations that are either not susceptible to, or impossible to cluster. These geographies include areas of agricultural production, resource extraction, forestry, as well as circulation infrastructures, energy production systems and grids and in general types of equipment of the earth’s surface that are largely point, or area bound. While density and moments of concentration can also characterize ‘operational landscapes’, such as for example the concentration of activities around a mining zone, or a logistics or processing hub in an agricultural area, these types of concentrations do not normally mean the presence of agglomeration economies. Moreover, in some cases (like for example in India’s Ganges plains), very high population densities are connected more to labour intensive agricultural operations and do not necessary materialize the potentials for agglomeration economies. In short, high density of population of infrastructure does not guarantee the presence of agglomeration economies, while low density does not deny it. On the other hand, primary

production operations are often very much bound not only to particular environmental and climatic conditions, but also to certain types of equipment in the absence of which they cannot be adequately exercised. In short, 'agglomeration landscapes' appear much more footloose and flexible in their configuration than 'operational landscapes'.

At the same time, it should be noted that while indeed the sectorial model of economic functions (primary, secondary, tertiary) offers a reasonable entry point to grasp the specific functional basis of 'agglomeration landscapes' and 'operational landscapes', it does not mean that economic operations taking place in one or the other are distinct: On the contrary, the dialectical relationship of both is the basis of their mutual transformation, as almost all economic functions under the contemporary capitalist production and circulation system activate several geographies that cut across several 'agglomeration' and 'operational landscapes'. The food sector for example includes not only agricultural areas ('operational landscapes'), but also processing facilities and distribution centres that are often clustered in and around cities ('agglomeration landscapes'), while the construction sector is dependent upon mining operations that often source material from very remote mining areas mediated through heavy and often dedicated freight transportation systems (Knox 2014; Dicken 2007).

Within this context, the fluid patterns of population concentration, capital accumulation, and the associated social, cultural and administrative frameworks which are undoubtedly centred on 'agglomeration landscapes', are directly or indirectly interconnected with broader configurations of 'operational landscapes'. The later, define equally crucial but quite different developmental paths and trajectories than the ones that are crystallized within 'agglomeration landscapes' and have more to do with the social, technical and administrative construction of material and institutional frameworks of production. The potentials of 'operational landscapes' are mostly connected with the malleability and exploitation of competitive asymmetries associated with natural geographic factors and their technical realization and institutional regulation. In this way, urban development that at first sight seems to unfold within the rather insignificant agglomeration areas of the world, is revealed as a phenomenon of wide geographic coverage deeply depended upon geographic, environmental and material specificities that contemporary production and circulation regimes have managed to blackbox and contemporary (western) societies overall have learned to ignore.

In sum, beyond the Horizontal Metropolis of diffuse 'agglomeration landscapes', lies a much more expanded Horizontal Metropolis: Hard or soft 'operational landscapes', equipped for food, mineral, energy and water production and circulation and orchestrated through the operations of logistical networks into global commodity chains. Together they constitute the vast majority of the used part of the planet.

Unfortunately, 'agglomeration landscapes' and 'operational landscapes' have not received equal attention over the past years, with urban scholars being overly invested into unpacking the complexities of contemporary agglomerations that have indeed been paramount. On the one hand, since the early 60s when Jean Gottmann



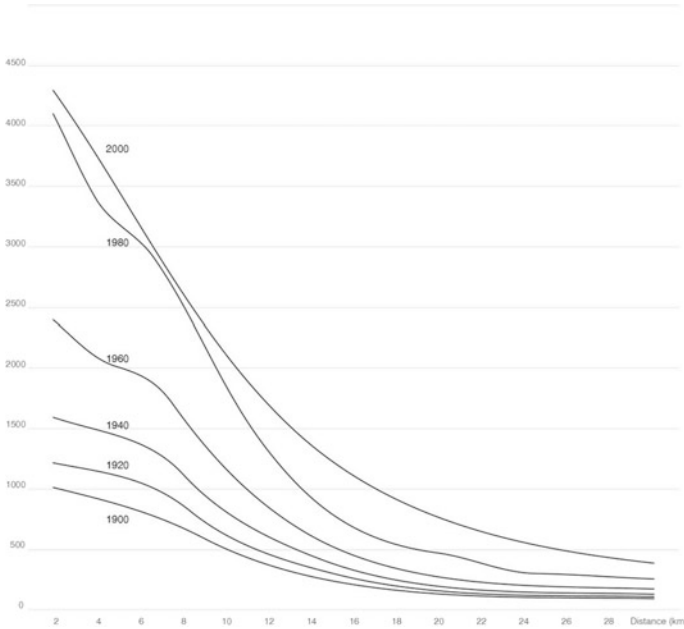
used the term ‘Megalopolis’ in order to describe the continuous agglomeration form along the East coast of the United States, numerous concepts and paradigms have been introduced in an effort to grasp agglomeration patterns that departed significantly from the monocentric, ‘metropolitan’ model that characterized the early 20th century and was largely associated with the Chicago school (Gottmann 1961; Soja 2000). Terms like ‘polycentric’, diffuse, regional, corridor or ‘edge cities’ are indicative of the efforts to grasp these increasingly continuous, both physically and functionally, agglomeration forms (Hall 2006; Garreau 1991; Indovina 2009; Soja 2000). As Soja successfully summarizes:

Once steep density gradients from the centre have begun to level off as peripheral agglomerations multiply and the dominance of the singular central city weakens (...) in what can best be described as a regional urbanization process. (Soja 2005)

Indeed, as Fig. 7 shows, the shift in density gradients over the past 100 years has been dramatic: In 2000 the average population densities more than 15 km around the hypothetical centres of the 500 largest cities in the world were comparable to the densities in their cores in the beginning of the 20th century. ‘Urban’ densities then, densities that once characterized the dense urban cores of metropolitan centres, are now to be found across much more extended zones, which in some cases blend with each other leading to continuous agglomeration zones.

At the same time, as the traditional urbanized regions in the west were becoming largely de-industrialized and the whole system of production was becoming increasingly horizontal during the second half of the twentieth century, the ‘global cities’ debate highlighted the emerging role of cities—or better selected cities—as commanding centres of the world economy (Sassen 2000, 2011; Taylor 2003; Knox and Taylor 1995). According to this influential debate, the ‘flexible’ globalization of processing and manufacturing industries, characterized by increased outsourcing, relocation to areas with lower labour costs and the increasing importance of logistics, was creating the need for increasingly sophisticated centralized management while at the same time the financialization of the economy offered an additional boost to the tertiary economic sector. What characterized cities at the beginning of the 20th century then, was not their relation to their immediate surrounding areas, but rather their rank in this chain of command, a command that was taking place not only in persisting central business districts, but also in ‘new forms of centrality’ that were reconstituted at a regional scale through polycentric structures, or even at the global scale over advanced information and communication technologies (Sassen 1995).

Overall, it could be argued that the study of cities in globalization emphasized on how agglomeration economies were constituted either within a certain urbanized region as a polycentric set of nodes, or how this region operated as a node within a network of other global city regions-nodes (Storper 1997; Scott 2001). The overall celebration of agglomeration has focused often uncritically, both on their potentials to generate innovation—the holy grail of contemporary entrepreneurship (Florida 2014) as well as on their relatively more environmentally ‘sustainable’ behaviour in relation to their sprawling expansions. As these narratives overemphasized the

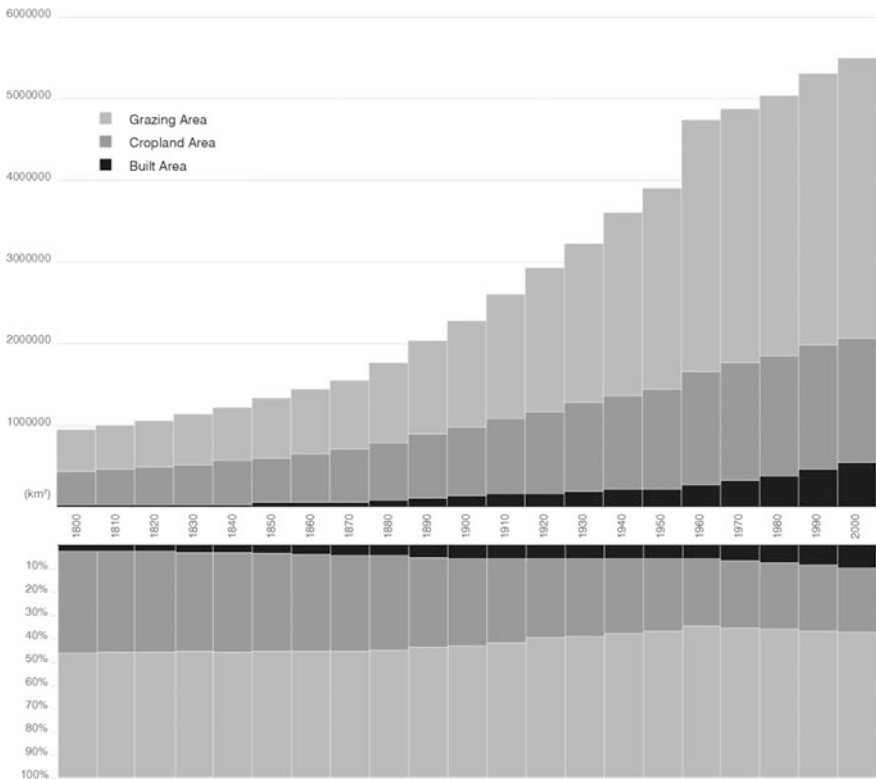


**Fig. 7** Historical evolution of the population density gradients from 1900 to 2000 around the 500 largest agglomerations in the year 2000. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011); United Nations (2014)

internal dynamics of agglomerations, and the relation of urbanization to the global restructuring of the secondary and tertiary sectors of the economy, they almost completely ignored a set of parallel processes that was shaping the majority of the surface of the earth, the other 70% as we already discussed: A globalization of the primary economic sectors of the economy that was reshaping the ‘operational landscapes’ of planetary urbanization.

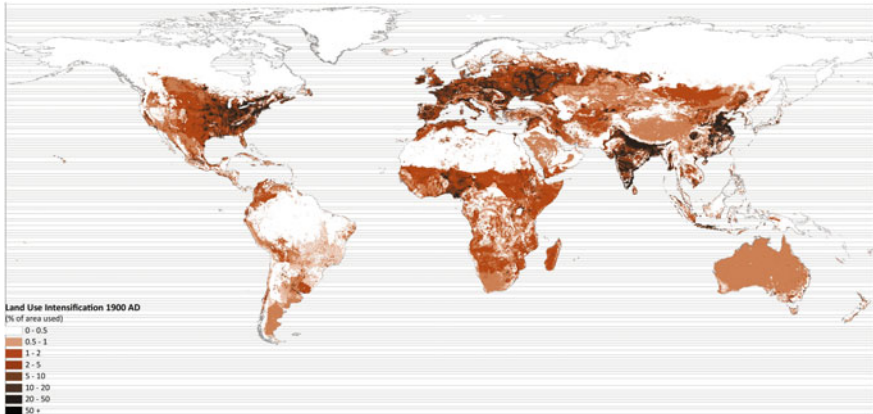
### Charting the ‘Operational Landscapes’

It should be clear by now that this project does not suggest that urbanization is not about the expanding agglomeration areas. It suggests that it is not only about that. Highlighting only the process of concentration as the essence of urbanization, offers a limited understanding of the geographical configuration of the broader phenomenon. Complementary to Fig. 3 and Figs. 4, 5, 6 then, a second set of diagrams reveals the expansion of these associated geographies, of the global ‘hinterland’ that unfolded from 1800 to 2000: The diagram in Fig. 8 plots the evolution of urban areas in relation to the evolution of agricultural and grazing areas since the



**Fig. 8** Historical evolution of major land use systems of the world from 1800 to 2000. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Dreht (2011); Food and Agriculture Organization of the United Nations. FAOSTAT. FAOSTAT (Database). (Latest update: 07 Mar 2014) Accessed (15 Sep 2015). URI: <http://data.fao.org/ref/262b79ca-279c-4517-93de-ee3b7c7cb553.html?version=1.0>

beginning of the 19th century. In 1800 when the combined areas of cities did not cover more than 30,000 km<sup>2</sup>, agricultural and grazing areas were more than 9,500,000 km<sup>2</sup>. In 1900, with industrialization and urbanization taking off, urban areas covered around 130,000 km<sup>2</sup>, while agricultural and grazing areas almost 20,000,000 km<sup>2</sup>. Finally in 2000, with agglomeration areas spreading over more than 550,000 km<sup>2</sup>, agricultural areas were more than 15,000,000 km<sup>2</sup> and pastures more than 30,000,000 km<sup>2</sup>. It is important to highlight that along the intensification of densities in agglomeration zones that we saw in Fig. 3, a much more extreme intensification has been taking place through the operationalization of agricultural landscapes. Figures 9, 10, and 11 show an estimate of the distribution of the ‘operational landscapes’ of the world for the years 1800, 1900, 2000, through a combination of agricultural lands and grazing areas: While between 1900 and 2000



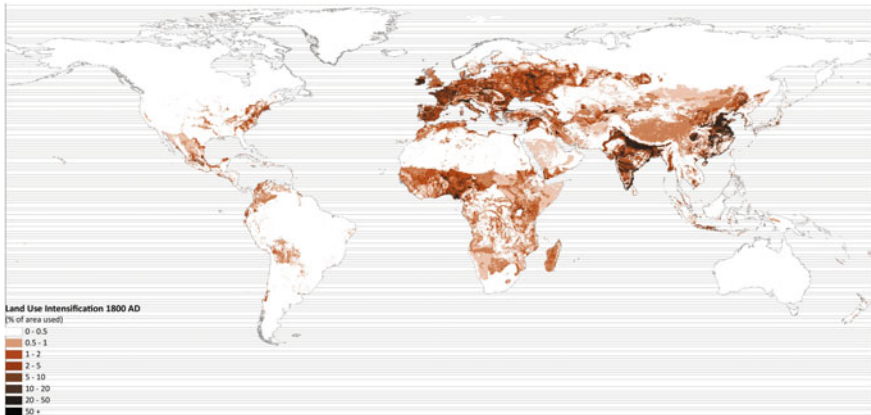
**Fig. 9** Distribution of global ‘operational landscapes’ in the year 1800. The intensity gradient represents a weighted composite of built up areas, cropland and pastures. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)

the world population has almost quadrupled, the agricultural areas of the world have not even doubled.

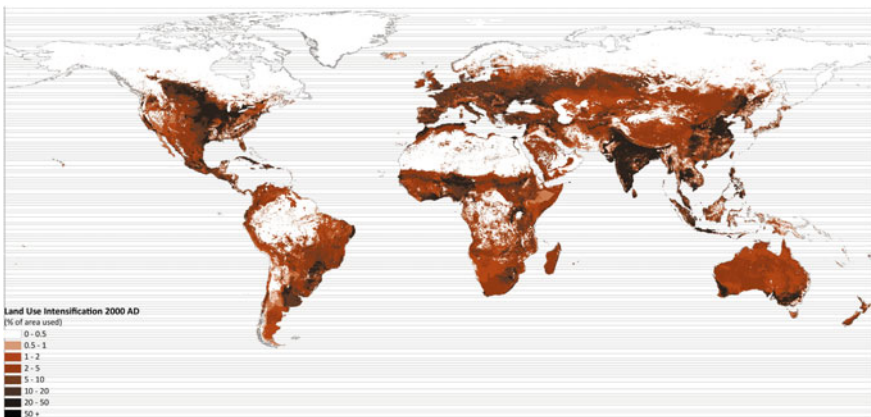
And yet these landscapes have been able to sustain an increasing population through their continuous industrialization and specialization (Federico 2009). Since the 1950s continuous mechanization, fertilizer application, as well as heavy investment in land capital, such as drainage and irrigation systems, have allowed agricultural yields per km<sup>2</sup> to rise substantially and cover demand, creating however very particular landscapes that did not resemble at all the ‘rural’ landscapes of the early 17th century. As a result, what largely characterizes the construction of ‘operational landscapes’, is not only their geographical expansion in area, but rather their specialization and the intensification of their productive capacities through increasing investment in land capital, energy inputs, even labor. As Jean Gottmann noted when he was discussing the development of the Megalopolis along the northeastern seaboard of the United States:

The long-accepted opposition between town and country has therefore evolved toward a new opposition between urban regions, of which Megalopolis is certainly the most obvious and advanced case, and agricultural regions, the largest and most typical of which is found in the grain-growing Great Plains (Gottmann 1961, 215)

For Gottmann it was clear that megalopolitan formations, such as the Bosh-Wash corridor, were only one part of the broader picture of geographical reorganization, the other being the creation of specialized, industrialized production landscapes, that were very far from operating as part of subsistence economies and were increasingly integrated into the global system of exchange. Table 1 attempts to offer a first sketch of the ‘operational landscapes’ at the beginning of the 20th



**Fig. 10** Distribution of global ‘operational landscapes’ in the year 1900. The intensity gradient represents a weighted composite of built up areas, cropland and pastures. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)



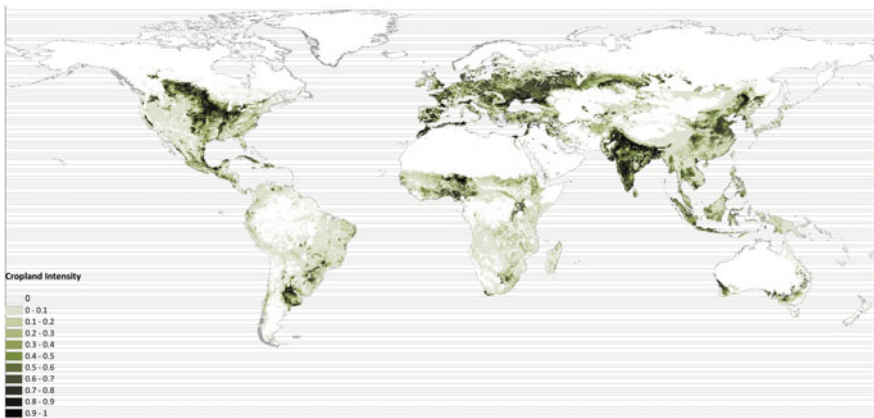
**Fig. 11** Distribution of global ‘operational landscapes’ in the year 2000. The intensity gradient represents a weighted composite of built up areas, cropland and pastures. *Source* Cartography and spatial analysis by the author based on data from: HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years developed by Klein Goldewijk, K., A. Beusen, M. de Vos and G. van Drecht (2011)

century through a breakdown of the used part of the planet according to a study of the Institute of Social Ecology at Alpen-Adria University, while Figs. 12, 13, and 14 offer additional visualizations of agricultural areas, grazing lands as well as forestry regions. The compilation of these datasets has been the basis for the construction of the ‘dark’, used part of the planet in Fig. 1.

**Table 1** Major land use systems of the world and their respective percentages in relation to the total land area

Land use	Area in km <sup>2</sup>	% of land surface	% of used land surface
Built area	1,230,000	0.82	1.2
Cropland	15,200,000	10.2	14.9
Pastures	48,100,000	32.3	47
Forestry (potential)	37,660,000	25.3	36.9
Total used	102,190,000	69	100

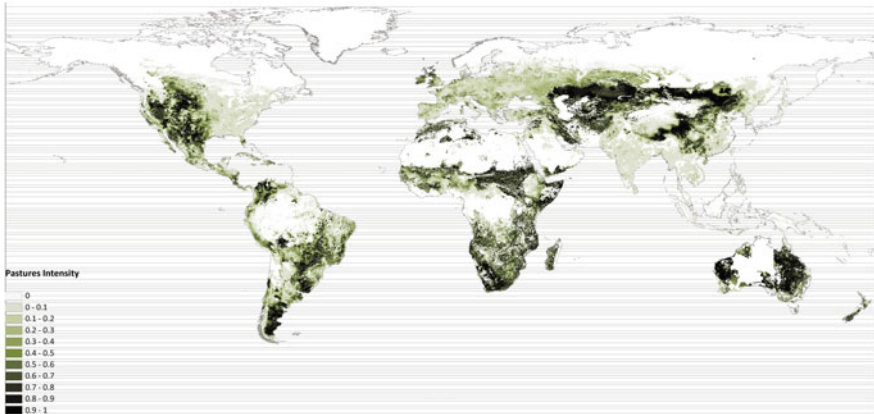
*Source* Elaborated by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224



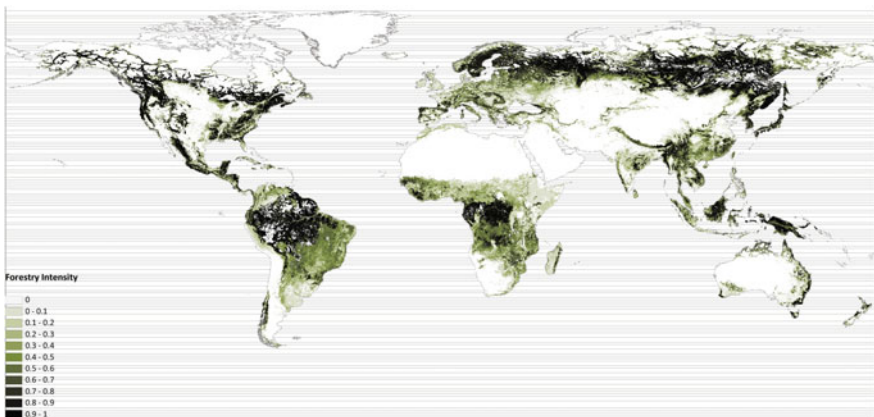
**Fig. 12** Distribution and intensity of global cropland areas. *Source* Cartography and spatial analysis by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224

What seems to characterize then the relationship between contemporary agglomerations and their ‘operational landscapes’ today, is a shift in the mode and scale of exchange between them: From a regional model of rather contiguous and rather heavily regulated supply hinterlands that together were constituting a unit, that of the city-region, to an ‘open’ globalized model of interconnected agglomerations and a set of globalized hinterlands, mediated through the weakly and asymmetrically regulated neoliberal trade and development processes.

The establishment of this globalized system of exchange is of course not without its infrastructural base: Besides the liberalization of trade, the continuous commodification and the integration of more and more countries into the global system of exchange (virtually the whole world after the 1990s), what brings this landscapes together is very much connected to developments in the organization of

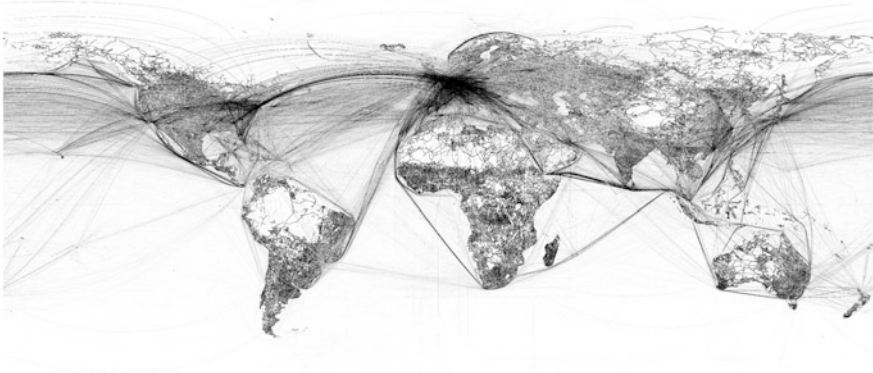


**Fig. 13** Distribution and intensity of global grazing areas. *Source* Cartography and spatial analysis by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224



**Fig. 14** Distribution and intensity of global forestry areas. *Source* Cartography and spatial analysis by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224

transportation systems. Not unlike the expansion and subsequent intensification of the development of the production landscapes themselves Fig. 8, after the mid-20th century what mostly characterized the development of transport systems has not so much been their expansion, but rather their integration or ‘convergence’—that is the increased interconnectivity and intermodality of networks into generic ‘meshworks’ (Rodrigue 2013). These developments however, were not limited to the



**Fig. 15** The global transportation system. A compilation of land (road and rail), marine and air transportation systems. Cartography and spatial analysis by the author based on data from: Vector Map Level 0 (VMap0) dataset released by the National Imagery and Mapping Agency (NIMA) in 1997; Marine routes based on the global commercial activity (shipping) dataset compiled by The National Center for Ecological Analysis and Synthesis (NCEAS)

development of physical infrastructures (such as innovations in freight systems like containerization and long-haul shipping), but also included advancements in the coordination and management of global distribution through logistics systems (Hall and Hesse 2012). As a result, only part of the essence of the global transportation system can be revealed in Fig. 15 which shows the major surface (road and rail), marine as well aviation networks.

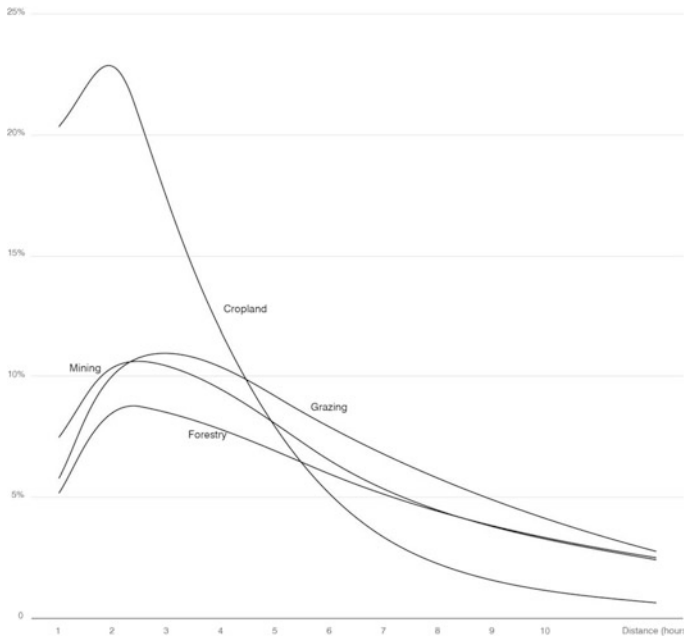
However, the extensive equipment of the ground with infrastructural networks beyond agglomeration areas remains a fact and is revealed in Table 2. This diagram correlates the distribution of artificially constructed areas with the distribution of population densities around the globe. It is rather expected that areas of high population density are also characterized by high density of constructed areas. However what is striking to note is that the majority of built areas in absolute numbers, do not lie in high density areas—in ‘agglomeration landscapes’—but rather in very low density or completely uninhabited areas. That essentially means that most of the constructed areas of the planet (highways, dams, etc.) equip its ‘operational landscapes’. These landscapes however are still rather close to agglomeration zones: Building upon a global map of accessibility (Nelson 2008), Fig. 16 shows the distribution of the major primary production operations in relation to the major agglomeration areas. More than 50% of agricultural areas, and around 30% of grazing lands, mining and forestry areas lie within 3 h of the closest agglomeration of considerable size.



**Table 2** The spatial relationship of the distribution of population densities with the distribution and density of constructed surfaces

Population density (people/km <sup>2</sup> )	Population	Area (km <sup>2</sup> )	Built area (km <sup>2</sup> )	Density of built area (%)	% of total built area	% of total population
0–100	646,390,180	139,376,705	305,933	0.22	50.56	9.45
100–500	959,656,468	4,426,350	95,498	2.12	15.78	14.03
500–1000	688,464,048	962,537	45,625	4.74	7.53	10.06
1000–2000	846,753,621	610,856	50,780	8.31	8.39	12.38
2000–5000	1,670,357,241	386,068	50,056	12.97	8.27	24.42
5000–10,000	1,361,089,074	131,702	26,675	20.25	4.40	19.90
10,000–15,000	849,281,129	40,815	12,253	30.02	2.02	12.42
15,000–30,000	847,583,876	30,486	12,220	40.08	2.01	12.391
30,000+	485,996,125	10,704	6106	57.05	1.01	7.10

Source Spatial analysis by the author based on a combination of data from: LandScan (2012) High Resolution global Population Data Set copyrighted by UT-Battelle, LLC, operator of Oak Ridge National Laboratory; Global Density of Constructed Impervious Surface Areas (ISA) developed by the Earth Observation Group (EOG), National Geophysical Data Center (NGCD)



**Fig. 16** Geographical accessibility of the distribution of primary production landscapes from major agglomeration zones. The diagram shows the percentage of land area associated with cropland, pastures, forestry and mining that is within 1 to 12 h from agglomeration areas with population of 50,000 or more. Cartography and spatial analysis by the author based on data from: Erb, K.-H., Gaube, V., Krausmann, F., Plutzer, C., Bondeau, A., H. Haberl. (2007). A comprehensive global 5 min resolution land-use dataset for the year 2000 consistent with national census data. *Journal of Land Use Science* 2(3), 191–224; Nelson (2008)

## Concluding Remarks: Urbanization as Geographical Interdependence

The broader aim of this research, is to cancel the distinction that the map in Fig. 1 suggests, a distinction that has haunted urban studies for quite a while: Agglomerations and the vast extended geographies of 'operational landscapes' are in fact two sides of the same coin. We are not living in an 'urban age' because more than half of the population lives in cities; we are living in an urban age (and perhaps have been living for quite a while now), because even the areas that lie well beyond densely populated areas, are significantly reconfigured as part of urbanization processes. Urbanization does not—and will not—stop, or reverse itself if and when the concentration of population in agglomerations stops, or if and when agglomerations stop expanding, as Tisdale suggested or as several contemporary scholars imply (Champion and Hugo 2004); as long as agglomeration patterns define a state of geographical interdependence of specialized areas of production, circulation and inhabitation, urbanization prevails. Thus it could be argued that urbanization, as a trend is not characterized by a shift from a condition of less concentration to a condition of more concentration, although concentration is definitely part of the process; it is rather characterized by a shift from a condition of less interdependence to a condition of complete geographical interdependence.

This complete geographical interdependence can be understood as a shift from a state of relative subsistence, during which settlements were dependent upon a relatively limited and geographically contiguous set of surrounding regions—or 'hinterlands'—for their ecological support, to a state where global 'agglomeration landscapes', areas of dense concentration of population and economic activity where agglomeration economies take place, share a global set of 'operational landscapes', specialized regions of production, extraction and circulation where land, energy and labour are invested in the exploration, harvesting and operationalization of all physical and material substances that sustain contemporary urbanization.

As urbanization becomes a generalized phenomenon of planetary dimensions, incorporating more and more 'operational landscapes' into the web of interdependency that unfolds around expanding 'agglomeration landscapes', its organizational principles become increasingly interwoven with, and not independent from, the climatic, topographic, geologic, hydrologic and resource asymmetries of the earth. These elements can no longer be considered as distinct attributes of an external natural geography, as they are now being internalized into the extensive, complex and thickening urbanization fabric that extends beyond dense agglomerations to include the operational landscapes that sustain them and make them possible. It is the increasingly hybrid and sclerotic nature of the urbanization fabric—both physical and sociotechnical—that defines the geographical organization of world urbanization.

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# Industrial Economy and Agrarian Urbanism



Charles Waldheim

Industry will decentralize itself. If the city were to decline, no one would rebuild it according to its present plan.

—Henry Ford, 1922, as quoted by Ludwig Hilberseimer 1949

The proposition of a “horizontal metropolis” and this publication’s examination of radical projects for a horizontal urbanism recall the correlation of industrial economy and agrarianism evident in the work of many progressive urbanists over the past century. The agrarian and the urban are two categories of thought that have more often than not been opposed to one another. Across many disciplines, and for many centuries, the city and the country have been called upon to define one other through a binary opposition. This essay<sup>1</sup> revisits the history of urban form conceived through the spatial, ecological, and infrastructural implications of agricultural production. In the projects that form this alternative history, agricultural production is conceived as a formative element of the city’s structure, rather than being considered external to it (Fig. 1).

Many projects of twentieth century urban planning explicitly aspired to construct an agrarian urbanism. Often these agrarian aspirations were an attempt to reconcile the seemingly contradictory impulses of the industrial metropolis with the social and cultural conditions of agrarian settlement. In many of these projects, agrarianism came to stand as a progressive alternative to the dense metropolitan form of

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Ford’s precise formulation was: “Industry will decentralize. There is no city that would be rebuilt as it is, were it destroyed—which fact is in itself a confession of our real estimate of our cities.” (Crowther and Ford 1922, p. 192). Hilberseimer published his slightly amended version in “Cities and Defense,” 1945, and reprinted in Pommer et al. (1988), pp. 89–93.

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<sup>1</sup>Aspects of this argument were developed in Waldheim (2009, 2010).

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**Fig. 1** Ludwig Hilberseimer, the city in the landscape, aerial view, c. 1945

industrial arrangement that grew from the great migrations from farm village to industrial city in the nineteenth and early twentieth century cities of Western Europe and North America. The agrarian aspirations of many modernist urban planning proposals lie in the first instance in the relatively decentralized model of industrial order favored by Henry Ford and other industrialists as early as the 1910s and 20s (Crowther and Ford 1922).

The emergence of these tendencies in the twentieth century might be read through a range of projects advocating a decentralized agrarian urbanism: Frank Lloyd Wright's "Broadacre City", 1934–35; Ludwig Hilberseimer's "New Regional Pattern" (1945–49); and Andrea Branzi's "Agronica", 1993–94 (Wright 1958; Hilberseimer 1949; Branzi et al. 1995; Branzi 2000). While these projects were produced decades apart by three very different architects, taken collectively they illustrate the implications for urban form of agricultural production as inherent to the structure of the city. These projects also form as a coherent genealogy of thought on the subject of agricultural urbanism as Branzi explicitly references Hilberseimer's urban proposals, and Hilberseimer's work was informed by familiarity with Wright's urban project. Each of the projects presented their audiences with a profound reconceptualization of the city, proposing radical decentralization and dissolution of the urban figure into a productive landscape.

Implicit in the work of these three urbanists was the assumption of an ongoing process of urban decentralization led by industrial economy. For Wright, Hilberseimer, and Branzi, the prospect of a horizontal metropolis produced through the new industrial logic of decentralization came to depend upon landscape as the primary medium of urban form. These suburban landscapes were embodied and fleshed out with agricultural lands, farms, and fields. These projects proposed large territorial or regional networks of urban infrastructure bringing existing natural environments into relationship with new agricultural and industrial landscapes.

From the perspective of contemporary interests in landscape as urbanism, these projects offer equally compelling alternatives to the canonical history of urban landscape, from progressive garden city models to the tradition of urban parks as exceptions to the industrial city. These projects reconceptualize the fundamental distinctions between city and countryside, village and farmland, urbanism and landscape are dissolved in favor of a third term, a proto-ecological landscape urbanism for industrialized North American modernity.

The work of the Italian architect and urbanist Andrea Branzi might be found equally relevant to an understanding of the contemporary potentials for an agrarian urbanism. Branzi's work reanimates a long tradition of using urban project as social and cultural critique. This form of urban projection deploys a project not simply as an illustration or 'vision,' but rather as a demystified distillation and description of our present urban predicaments. In this sense, one might read Branzi's urban projects as less a utopian future possible world, but rather a critically engaged and politically literate delineation of the power structures, forces, and flows shaping the contemporary urban condition. Over the course of the past four decades Branzi's work has articulated a remarkably consistent critique of the social, cultural, and intellectual poverty of much laissez-faire urban development and the realpolitik assumptions of much urban design and planning. As an alternative, Branzi's projects propose urbanism in the form of an environmental, economic, and aesthetic critique of the failings of the contemporary city (Aureli 2008).

Born and educated in Florence, Branzi studied architecture in a cultural milieu of the Operaists and a scholarly tradition of Marxist critique as evidenced through speculative urban proposals as a form of cultural criticism. Branzi first came to international visibility as a member of the collective Archizoom (mid-1960s) based in Milano but associated with the Florentine *Architettura Radicale* movement. Archizoom's project and texts for "No-Stop City" (1968–71) illustrate an urbanism of continuous mobility, fluidity, and flux. While "No-Stop City" was received on one level as a satire of the British technophilia of Archigram, it was received on another level as an illustration of an urbanism without qualities, a representation of the 'degree-zero' conditions for urbanization (Archizoom Associates 1971).<sup>2</sup>

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<sup>2</sup>For Branzi's reflections on the project, see Branzi (2005). For more recent scholarship on the project and its relations to contemporary architectural culture and urban theory, see Kazys Varnelis (2006).

Archizoom's use of typewriter keystrokes on A4 paper to represent a non-figural planning study for "No-Stop City" anticipated contemporary interest in indexical and parametric representations of the city. Their work prefigured current interest in describing the relentlessly horizontal field conditions of the modern metropolis as a surface shaped by the strong forces of economic and ecological flows. Equally, these drawings and their texts anticipate current interest in infrastructure and ecology as non-figurative drivers of urban form.

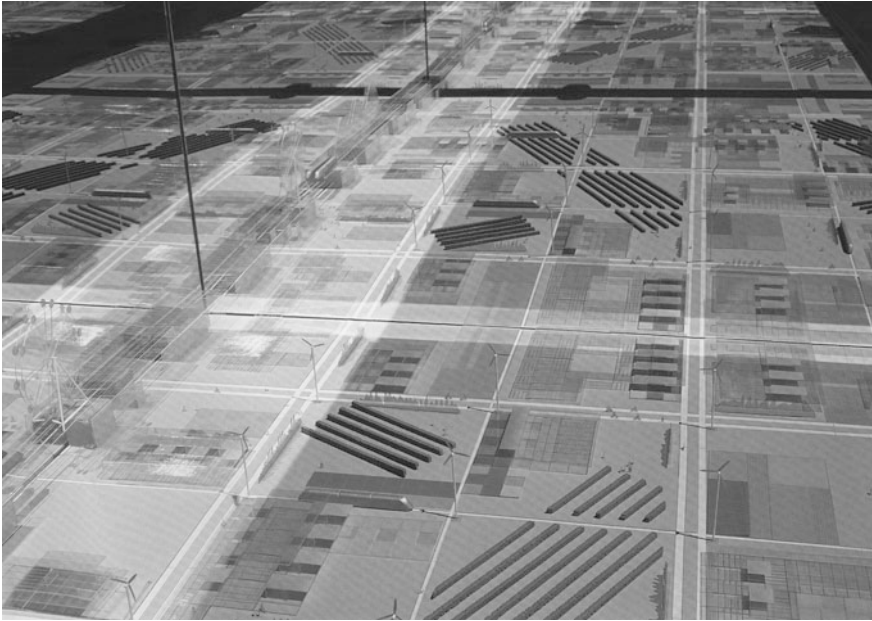
As a form of 'non-figurative' urbanism, "No-Stop City" renewed and disrupted a longstanding tradition non-figurative urban projection as socialist critique. In this regard, Branzi's "No-Stop City" draws upon the urban planning projects and theories of Ludwig Hilberseimer, particularly Hilberseimer's "New Regional Pattern" and that project's illustration of a proto-ecological urbanism. Not coincidentally, both Branzi and Hilberseimer chose to illustrate the city as a continuous system of relational forces and flows, as opposed to a collection of objects. In this sense, the ongoing recuperation of Hilberseimer, and Branzi's renewed relevance for discussions of contemporary urbanism render them particularly relevant to discussions of ecological urbanism. Andrea Branzi occupies a singular historical position as a hinge figure between the social and environmental aspirations of modernist planning of the post-war era and the politics of 1968 in which his work first emerged for English language audiences. As such, his work is particularly well suited to shed light on the emergent discussion around ecological urbanism.

Branzi's Agronica project (1993–94) illustrated the relentlessly horizontal spread of capital across thin tissues of territory, and the resultant 'weak urbanization' that the neo-liberal economic paradigm affords. Agronica embodies the potential parallelism between agricultural and energy production, new modalities of post-fordist industrial economy, and the cultures of consumption that they construct (Branzi et al. 1995). Six years later in 1999, Branzi (with the Milanese post-graduate research institute Domus Academy) executed a project for the Strijp Philips district of Eindhoven. This project for the planning of the Strijp Philips portion of Eindhoven returned to the recurring themes in Branzi's oeuvre with typical wit and pith, illustrating a "territory for the new economy" in which agricultural production was a prime factor in deriving urban form (Branzi 2000).

Branzi's 'weak work' maintains its critical and projective relevance for a new generation of urbanists interested in the economic and agricultural drivers of urban form. His longstanding call for the development of weak urban forms and non-figural fields has already influenced the thinking of those who articulated landscape urbanism over a decade ago and promises to reanimate emergent discussions of ecological urbanism (Branzi 2009a, b). Equally, Branzi's projective and polemic urban propositions promise to shed light on the proposition of agrarian urbanism (Fig. 2).

More recently Pier Vittorio Aureli and Martino Tattara/Dogma's project "Stop-City" directly references Branzi's use of non-figurative urban projection as a form of social and political critique (Aureli and Tattara 2008).

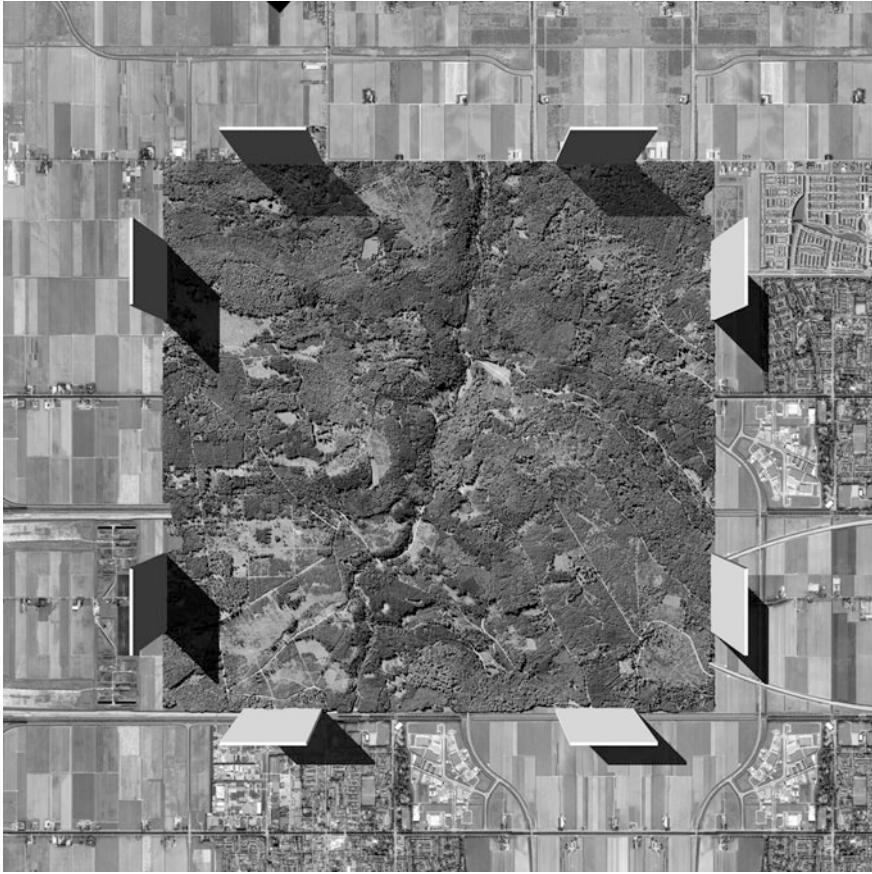




**Fig. 2** Andrea Branzi, Lapo Lani, and Ernesto Bartolini, Masterplan Strijp Philips, Eindhoven, model, 1999–2000

Aureli's interest in autonomy in architecture brings him to the potential of the non-figurative, and a tradition of critical thought. Like Baird, Aureli has remained committed to a position of criticality through architecture as a political project, and has remained sceptical of the claim of landscape as a medium of urbanism. In spite of this position, and his concern that landscape is too often deployed as a medium of green-washing, Aureli too draws upon a European tradition of the project of the city as a political project. Equally he continues a longstanding interest in typology as a means of formal and morphological analysis in urban form (Fig. 3).

In this regard, the fact that Aureli was a student of Bernardo Secchi and Paola Paola Viganò is equally significant here. As Secchi and Viganò have articulated the concept of the *città diffusa* (Indovina 1990), they have reconciled a tradition of critical theory and architectural autonomy with the increasingly evident empirical facts of diffuse urban form. Secchi has referred to the '*città diffusa*' as the most important urban morphology for the twenty-first century. In this regard, Secchi and Viganò have articulated a theoretical framework, political position, and methodological approach using landscape as a medium of urbanism for the contemporary city (Viganò 1999, 2001).



**Fig. 3** Pier Vittorio Aureli and Martino Tattara/Dogma, Stop City, aerial photomontage, 2007–08

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# The Echoes of Broadacre City in the Twenty-First Century



Catherine Maumi

In 1940, Frank Lloyd Wright distributed the new publication<sup>1</sup> called *Taliesin*, entirely made by the Taliesin Fellowship, and entitled “The New Frontier: Broadacre City”.<sup>2</sup> The entire issue was totally dedicated to the project of Broadacre City, presented for the first time to the general public in April 1935, under the auspices of the National Alliance of Arts and Industry organized at the Rockefeller Centre, in New York.<sup>3</sup> This issue contained all the articles written or interviews given by Wright about Broadacre City since 1935. It was distributed as part of the “campaign” led by the Taliesin Fellowship<sup>4</sup> to promote Broadacre City’s principles to a larger audience.

To what “frontier” does Wright refer with this title? We rapidly understand, leafing through the presentation, that this frontier is not a geographical one, but an economic, politic and social one. This aspect of Broadacre City is probably the most difficult to understand, since we expect an architect to work on spatial proposals and not on political or economic solutions. Nevertheless, Wright insists repeatedly on the fact that to understand Broadacre City—the model and the concept—we must learn to read between the lines because “There is more between the lines than appears in the lines” (Wright 1940c, p. 18). We have a confirmation of this fundamental meaning of Broadacre City in the foreword he wrote in 1944 to his new book *When Democracy Builds*. He then explains: “Once upon a time the conquering of a physical or territorial realm was The New Frontier. But to conquer

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<sup>1</sup>The first one if we don’t consider the issue of 1934, which was also untitled *Taliesin*, vol. 1, n° 1, 1934.

<sup>2</sup>*Taliesin*, Vol. 1, n°1, « *The New Frontier: Broadacre City* », Mineral Point (Wisconsin), Democrat-Tribune Press, October 1940.

<sup>3</sup>This article is based on Maumi (2015).

<sup>4</sup>The school of architecture founded by Wright in 1932.

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sordid and ugly commercialism in this Machine Age: this bony fibre of the dry trees; this conquest is now ‘the New Frontier.’ Only by growing a healthy Aesthetic in the Soul of our polyglot people can we win this victory: the greatest of all victories” (Wright 1945, p. vvi).

The 12-foot by 12-foot model of Broadacre City, built for the 1935 exhibition, shows four square miles (2560 acres) of a “typical seat of government”, on which is settled a community of 1400 families having gained this victory and living, since four generations, according to the principles of Broadacre; its inhabitants founded a real decentralised society, fully democratic—according to Wright—living in harmony with its environment. Each family lived in its own house built on its own homestead, growing—if it so wished—fruits, vegetables, etc.; it is surrounded by small farms, small businesses, orchards, and all kinds of services—which are public—and can be very easily reached on foot: school, university, the zoo, aquarium, museums, a concert hall, etc. All the buildings as well as for all elements of infrastructure are of the same quality, everything being designed by the county architect according the principles of organic architecture. As Wright explained many times: “it is true that landscape becomes architecture just as architecture becomes a kind of landscape. But both are integral with the ground and are an orchestration of form according to nature. Right in the midst of the future city we have fields of flowers and grain. Right in the farming section are the buildings of industry, culture, recreation and residence. Right in the midst of all is the market place, a perpetual fair. And anywhere in it all folk may live happily at work” (Wright 1940c, p. 16). Such a decentralization of all activities means that it is impossible to anymore dissociate the rural world from the urban one. “To reiterate, Wright insists: the basis of the whole is general decentralization as an applied principle and a harmonious architectural reintegration of all units into one fabric” (Wright 1940a, p. 9). Wright hoped that his contemporaries would be the first generation of Usonians<sup>5</sup>, living as inhabitants of the Earth, conscious of its value. “This book, Wright reiterates in 1944 in *When Democracy Builds*, is written in the firm belief that all true human Culture has a healthy idea of the Beautiful as its Life-of-the-Soul: an Aesthetic-Organic, as *of* Life, not *on* it. One that nobly relates Man to his environment” (Wright 1940a, p. v).

Like all great artists, Wright was a visionary. He already understood during the 1920s and 1930s most of the changes we have to face now; and because he couldn’t accept them, he conceived Broadacre City with the hope that it would show the way towards a more democratic world, where human beings would not fight anymore against nature but, on the contrary, would adopt a way of life respectful of it, that is to say, respectful of themselves. Broadacre City invites us to think about most of the problems we have had to face for so many decades now, in any place on the Earth. It doesn’t intend to offer the miracle cure to all of them, but it asks us to see

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<sup>5</sup>Wright started to use this term beginning of the 1920s to refer to the inhabitants of the United States. Usonia refers to the United States of North American finally become a democratic nation as imagined by the Founding fathers of the new Republic, Thomas Jefferson being the main reference for Wright, with Thomas Paine.

the world as it is in order to understand the various and complex dynamics that explain them. It suggests principles and not recipes, principles worked out in order to avoid all speculation—on land, on money, on natural resources, on human potentials—as well as the terrible waste of and irreparable damage wrought on the natural environment. Presented eighty years ago, they still seem so obvious and they sound so contemporary that they invite us to think about the here and now and to figure out why we haven't made any progress regarding so many aspects pointed out by Wright.

What is the real meaning of the decentralized—and very horizontal—organization of Broadacre City? And why does it speak to us today? It is truly worth highlighting five main aspects.

The first one refers to the obvious fact that the Earth is our main reservoir of resources. Broadacre City's horizontality means that Man settled in relation with the natural resources available on the ground—it could be wood, ore, agriculture, energy power, etc.—and these resources are managed by the whole community by means of cooperatives, or by the government, but in any case, not by big private firms or trusts. The cooperative economy is important for Wright in order to avoid the speculation on the work of Man as well as on the resource itself; to avoid the destruction of the resources as well as of all the potentialities of the land for the future, and, finally, to avoid the destruction of the natural landscape and ecosystems. Broadacre City is not against progress, but progress doesn't mean, for Wright, the destruction of Man's environment for immediate benefits, as has been the case from the 19th century onward.<sup>6</sup> Machines are used in Broadacre City, but in such a way that they respect both the human being and his environment. Broadacre is militantly against the power of engineering that is able to extract all the wealth from a ground without taking into account the damages generated, leaving behind the land totally ruined with no consideration for the future. This is one the meanings of Broadacre City's horizontality: decentralization doesn't mean dispersion; on the contrary, it means that each part of the land is inhabited in accordance with the potentialities it offers, by small communities perfectly aware of the wealth they have, so they don't want to waste it. Otherwise, once this potential has been destroyed, they will have to move on and find somewhere else to live. Destroying the Earth as we have been doing for so many decades, or even centuries, means that we are destroying our habitat, and our culture: this is one of the essential messages passed on by Wright with Broadacre City.

This brings us to another fundamental notion of Broadacre City: time. Broadacre City shows us a very long process “from generation to generation” as Wright used to say (Wright 1932). The model doesn't represent a final and perfect stage to be reproduced in the real world, but a “transitory scheme”, the work done by four generations of inhabitants living according Broadacre City's principles, and they will continue to do so in the future. This long duration referring to the cycles of life—as well as of nature—, always present in Wright's thought, is another important

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<sup>6</sup>Wright couldn't ignore the articles of his friend Lewis Mumford (1927, 1928)

notion to consider; it reminds us that we always have to keep in mind our past, the roots of our own culture and, simultaneously, we also have to take care of future generations. Broadacre City sets itself up as a critique of the selfishness of our societies, which mainly care about the present time, their own comfort or wellbeing, but very rarely about what will happen to their children. Thus, the horizontality of Broadacre City means that, “from generation to generation”, the community is living on and growing from the ground (idea of growth inseparable from the idea of organic architecture), the ground being the soil, the compost of all cultures; it is in close relation with the cycles of the Earth, of Nature. Broadacre City is fighting against *metropolisation*<sup>7</sup>, the standardization of the word imposed by the monopoly of the metropolis—by the way of its economy and power. *Metropolisation*, according to Wright—but he wasn’t alone in thinking that way at that time—, means the destruction of natural resources, the ruin of landscapes, the disappearance of the traditional rural economy, killed off by intensive farming, the dying out of local cultures. He hoped that Broadacre City would prevent the processes of “de-territorialisation” of whole populations that was already experienced during the 1920s and 1930s, and that we know nowadays in so many countries—because of wars, “natural” disasters (most often created by Man), or economic crisis in the urban as well as the rural worlds. It was an essential aim to achieve for him, because a civilization is rooted in a peculiar ground, and once those roots are destroyed or lost, the civilization starts to die. “The ground itself is the true sociological basis, and, when rightly interpreted the salt and savor of all good life” maintains Wright (1940b, p. 25). Obviously, one of the greatest tragedies of our present time is that the human being has lost the relations he once had with the ground, that is, most often, with his own culture. “Culture” is a word frequently used by Wright speaking about Broadacre City; it refers to agriculture but also to the cultural fact. Both are growing from the soil, and it is the reason why the human being has to stay connected with the ground, and has the duty to preserve its qualities and potentials in order to preserve his own subsistence and life. That is why the study and the understanding of nature are so important for Wright in the education of every child<sup>8</sup>. The stake is not only to understand nature and our environment better, but to also know ourselves better.

Education is the third point that we want to stress, being one of the foundations of Broadacre City. Looking at the model or the plan, we can see small schools, small universities distributed in the middle of the community. Actually, decentralization means that the right to education is the same everywhere on the ground; it is one of the foundations of democracy according to Wright. Broadacre City is

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<sup>7</sup>Instead of *metropolisation*, we would speak, today, about global economy.

<sup>8</sup>It is essential, in order to understand this specific relation to nature, to read Wright’s main references: David Henry Thoreau, Ralph Waldo Emerson, Walt Whitman; furthermore, Wright’s thought is also based on his own experience on his uncle’s farm during his childhood, as well as on the teaching experimented by his aunts in their school, one of the first progressive schools opened in Wisconsin.

militantly against the fact that the best schools, colleges and universities are located in the wealthiest cities, compelling the child to leave his home if he wants to study—and the parents to spend lots of money. In Broadacre City, every child can walk to school or to the university, as well as to the theatre, the museum, and so on. All are public services and are fairly distributed, so the whole population can access to the same level of education and culture. Which is why, according to Wright, there has ceased to be a difference between the city and the countryside. Equality between all the families is one of the principal aims of the horizontal organisation of Broadacre City. Each inhabitant has the same rights, can have access to the same services regarding education, culture, health, etc. and also has equal opportunities regarding employment. “Here the agrarian, the industrialist, the artist, the scientist, and the philosopher meet on the ground itself. It may not be logical. But is the rising sun logical? It is natural and that is better”, claimed Wright (1940c, p. 10). Another reason explaining why we have small schools, universities, so distributed in the middle of the community: they are, thus, in close relation with nature, and education can be based on the study of natural laws and systems, Man being one of the main agents acting on those systems. Until now, Man’s action has been mainly destructive according to Wright; in Broadacre City, it is in harmony with the natural laws because he/she now knows them and respects them.

This point is essential in order to understand another important principle of Broadacre City: the question of the ownership of the land. “Broadacre City is the entire country and predicated up on the basis that every man, woman and child in America is entitled to ‘own’ an acre of ground so long as they live on it or use it” explains Wright (1940c, p. 10). So, each inhabitant has the right to own an acre of the ground, his homestead, where he can build his house; this homestead is large enough so the family can grow its own fruits, vegetables, etc. One word is important: the ownership is related to the “use” of the land; the owner has to improve it, but he can’t speculate on it or ruin it. The Broadacre City citizen takes care of their land because it represents their main source of wealth, not only in terms of money, but also culturally speaking. Wright acknowledges that Henry George’s book *Progress and Poverty* (1879) is the best reference ever written in English regarding this question of the land. He explained to Mies van der Rohe in 1937: “Broadacre City follows Henry George in the belief that a man should not only hold his land by way of his own use and improvements, but dedicate himself to it in the best sense of the spirit” (Wright 1940c, p. 10). This question, obviously, echoes with our contemporary world, where so many populations are deprived of their soil, bought by foreign countries or private firms in order to cultivate it or to exploit their natural resources for their own profit. Doing so, they generally destroy traditional ways of life, local economies, natural resources and ecosystems, and they deprive entire populations of their natural and cultural ground, that it to say, their cultural identity (Sassen 2014). The question of the land and its ownership, as understood by Wright, is a democratic issue: a population deprived of its land is deprived of its



own rights, its cultural roots, and the result is a growing poverty and the obligation to move, or migrate. Broadacre City forces us to think about the irresponsible blindness of our contemporary world regarding this issue of the land.

The fifth and last point is in close relation to the previous one: Broadacre City is founded on a local economy, *versus* the global market. Its horizontality means that the community has succeeded in releasing itself from the influence of lobbies and markets imposed by the metropolis, or the global economy, and has set up a new economy based on the most direct route between the producer and the consumer. Wright explains that his main reference regarding this subject of money is Silvio Gesell's book *Natural Economic Order* (Gesell 1916)<sup>9</sup>, from whom he borrowed the idea of "free money". Food is produced locally in Broadacre City, as well as so many goods, in small farms, small industry, small workshops, everything being sold in the cooperative markets. Everything is done in order to eliminate the "middleman" who speculates on the work of the producer and enriches himself at the producer's and the consumer's expense. The stake of the local economy is important at different levels: first, the population can enjoy much better and fresher and much less expensive food. Second, it doesn't destroy ecosystems: small farmers and producers take care of their lands, rivers, forests, etc., unlike intensive farming or big firms. Then, the small farms and industries are settled so as to benefit from the potential of the land, but in such a way that they respect the natural, ecological and social balances. The horizontality of Broadacre City means that the local economy has managed to defeat the global market (or the monopoly of the metropolis). Broadacre City is based on "genuine capitalism" claims Wright: "Capitalism made organic since it is broadly based upon the ground and the individual upon the ground. [...] Let us call it 'Organic Capitalism' [...]. And that is the promise of true democracy" (Wright 1940c, p. 14).

Such is Broadacre City's New Frontier; the new horizon to be reached is the horizon of a true democracy, based on the rights of Man on Earth. "By only the few was the City<sup>10</sup> recognized for what it really was—a relaxed, resilient, fundamentally free structural FORM for the life that will, some day, become one great free City so founded in common sense as to make human life not only more secure but more beautiful" deplored Wright (1943, p. 29). Eighty years later, Broadacre City is still inviting us to think about this "common sense" that should lead us towards a more democratic world, as Wright suggested it. "Broadacre City has nothing to sell—but it does ask you to think" (Wright 1940b, p. 25) he admonished.

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<sup>9</sup>First published in German in 1916, and translated in English in 1929 by Philip Pye, Berlin, Neo-verlag.

<sup>10</sup>Wright refers to Broadacre City.

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# From the Russian Chernozem to the Valley Section: A Micro-Story of Soil



Marine Durand

## Reading the Horizontal Metropolis Through the Lens of Its Long-Term History with Agricultural Soil

Where the Blade Cannot Grow the Town Cannot Grow Either (Reclus 1895)

Most of long-term urbanized territories share a long-term history with agricultural lands: in *The Evolution of Cities*, the French geographer Elisée Reclus reminds that the ability of a territory to produce food from the soil through agriculture finds itself to be the primary “influential condition” for the spontaneous choice of settlement of Men in a given territory. His affirmation concerned the long-term and uneventful history of civilization, the “quiet, decent, constructive, agricultural and village civilization” that Patrick Geddes focused on with his concept of the *Valley Plan of Civilization* and evoked in his article “Cities, and the soil they grow from” (Geddes 1925a). By cutting the surface of the earth (Fig. 2), Geddes clearly links the form of the settlements and the lifestyle of its inhabitant to the use of soil through the “nature-occupation” of land in time.

### *Agricultural Soil as a Fundamental Resource in the Horizontal Metropolis*

According to Reclus, this relationship based on agricultural soil has stably structured the territory if we look at it on a larger scale: “one may discern beneath the apparent disorder a real order of distribution, which was evidently regulated long ago by the step of the traveller” (Reclus 1895). This long-term history of the

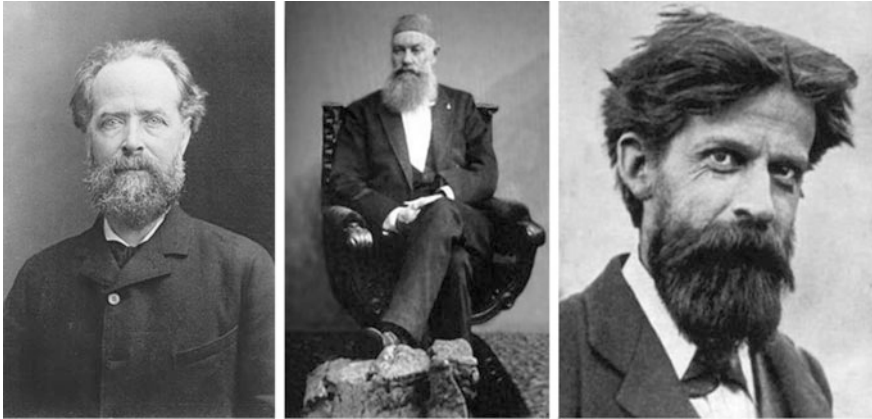
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**Fig. 1** Portraits (from left to right): Elisée Reclus (1830–1905), Vassily Vasilievitch Dokuchaev (1846–1903) and Patrick Geddes (1854–1932)

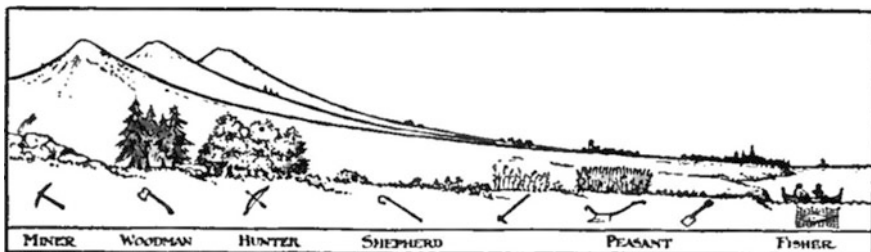
evolution of the city since its foundation on the most fertile lands—but safe from natural risks—and these rationalities between towns and fields, between human settlement and the quality of soil, can seem to be too far from us today. However, we believe that this reflection on the evolution of cities in relation to their agricultural soils has a lot to tell us about the construction by stratification and the contemporary condition of the diffuse city, of the Horizontal Metropolis, this “layered territorial construction where agriculture and non-agriculture economic activities create an original mix” (Secchi and Viganò 2010), especially today while agricultural soil is extremely challenged by its disappearance due to urbanization and by its depletion due to intensive agriculture, a phenomenon that can be compared as an event in this long quiet history and that need to be addressed.

Trying to build and explore an oriented genealogy of ideas around the relationship between Men and their environment by focusing on the question of soils, we have decided to start from the micro-story around a moment of contact that found the two protagonists evoked previously, the French anarchist geographer Elisée Reclus, the Scottish biologist-sociologist-anthropologist Patrick Geddes together in space and time as well as in ideas with Vassily V. Dokuchaev the Russian father of soil science, all three of them taking part at the *Exposition Universelle* of 1900 in Paris (Fig. 1).

### **The Third Dimension of Soil in the Exposition Universelle of 1900: The Relief on the Globe, the Valley Section and the Cube of Russian Chernozem**

Reclus imagined a 160 m-large and 195 m-high Globe for the *Exposition Universelle*, a spherical “temple of the Earth-Mother” according to Geddes (quoted in: Meller 1990), of geographical knowledge and experience, but more than an

unbuilt project, it's a statement against the only representation of the world through two-dimensional maps that are always adapting reality of Nature and transforming it, operating a shift that would also imply a revolution in the cartographic industry: since the globe would have been completed and perfectly representative of the earth, it could have produced maps through its photography. Patrick Geddes was supposed to be in charge of the representation of the Scottish part of the Globe in relief and he strongly supported Reclus' idea of superiority of three-dimensional representations, "the most active exponent of the need for advancing beyond maps to relief-models" (Geddes 1925a). The topographic 1:4000 model of the region of Edinburgh in his Outlook Tower confirms it, and his famous diagrammatic section, the Valley plan of civilization', (Fig. 2) reveals his attention to the relief with topographic consideration. While Geddes organized his summer school at the Exposition Universelle in 1900 even if Reclus' Globe project was aborted for lack of finance, Dokuchaev presented his scientific advancement in the Russian Pavilion. Among his soil samples, he exposed the first pedological map of Russia. The new-born soil science, pedology, finally had its own literature and method, and the Russian team—considered as the most innovative from the cartographical point of view (d'Almeida 1904)—presented to the world the three major keystones of Dokuchaev's scientific discoveries (Boulaïne 1989): the formation of soil or pedogenesis (1883) as the result of mutual activity of five agents of differentiation (living and dead organisms, bedrock, climate, relief and time available for pedogenesis to operate), the soils zonation in relation to climate (1892–96), and finally, based on these two ideas, the first classification of soil. With Reclus and Geddes, the soil was no longer represented and considered as a surface, it has appeared in relief of the earth, but for the soil itself to be thought in his depth and not only as the support for human activities, we needed Dokuchaev's discovery on soil formation and evolution. But with its proposal for the "Detailed project of development for Saint-Petersburg and its surrounding" in 1890 Dokuchaev also developed an innovative approach of territorial study starting from the soil quality, among other natural rationalities. As he considered Men and their environment as a unique and indivisible ensemble, he believed that it was impossible to imagine any development, or improve social wellness and quality of life without a detailed study of natural history of the environment where Men evolve (Dokuchaev et al. 1892), a global approach to the territorial project that meets his holistic approach to soil science.



**Fig. 2** Diagram illustrating the valley plan of civilization (drawn by Hendrick Willem Van Loon). From Geddes 1925b. The valley plan of civilization. *The survey*, 54, p. 288

## The Holistic Approach to the Environment: Regionalism and Collective Monuments

The Soil Is a Living Body of Nature, Such as Plants, Animals, Minerals, Rocks, It Was Born, It Grows, It Lives in Various Ways and It Can Die. (Quoted in: Boukharaeva, Marloie 2013)

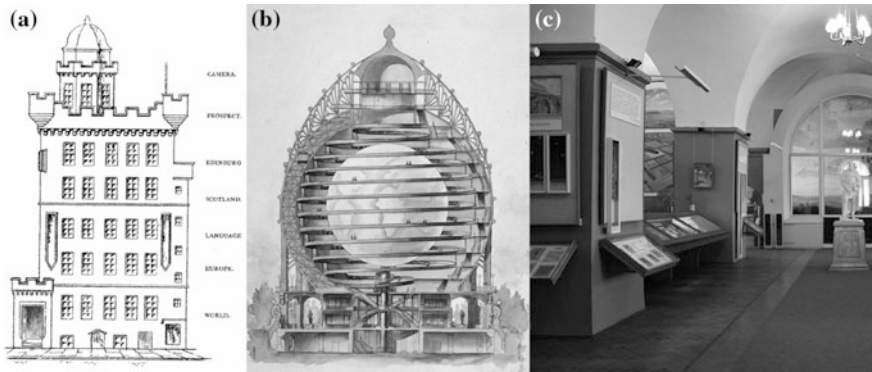
Not only Dokuchaev's definition of soil integrated the idea of soil as a dynamic environment on the close scale, depending on natural factors, but it also opened to the idea that the soil—as “the fourth reign of nature”—plays a role on a larger scale, since it interacts with other natural factors, evoking a very early ecological conception where each and every element has a fundamental role in the ecosystem. The holistic approach to soil science that is attributed to Dokuchaev (Boulaine 1989) crosses the holistic methodological and conceptual approach of Geddes and Reclus among the relationship between Men and the environment, in which, every physical, natural and social fact is a scientific object that needs to be precisely and finely observed and represented, but always considering its existence and role as a whole, belonging to a larger system, a unique and complete object, the world. For Dokuchaev, the prospective research for Saint-Petersburg development requires an understanding of the natural characteristics of the environment that is not only the city, but all its surrounding: the limit that Dokuchaev defines for this research is the watershed of the Neva river (Fig. 3), maybe one of the first urban projects that define its spatial limits on this natural limit of the region. “It takes the whole region to make the city” (Geddes 1905): Geddes and Reclus also claimed for the consideration of the natural limits of the watershed with its valleys as the new object of reference to understand the city, a city inside its region. For Reclus, the city needs a larger territory to run: “urban organism cannot be made to carry on its provisioning, [...], the repair of its forces and the expulsion of its waste” (Reclus 1895). The geographer imagined a straighter relationship between the city and the countryside, interpreting the phenomena of people leaving the city to live in the countryside as a signal of natural evolution that would change the limits of the city by itself: “By virtue of its very growth, the modern town loses its isolated existence and tends to merge itself with other towns, and to recover the original relation that united the rising market-place with the country from which it sprang”. Here the limits between the city and its natural or agricultural surroundings are disappearing, the natural region, the city and its countryside, become the new object organizing civilization on a given place, an early consideration of city-territory, not far from Geddes' idea of conurbation.



**Fig. 3** Map with the limits (in blue) of the River Basin Neva, 1890 conducted at the request of VV Dokuchaev, for the project “Detailed Search natural history, physical, geographical, agricultural, hygienic and veterinary St. Petersburg and its environs”. *Source* Central Soil Museum of St. Petersburg. Photography elaborated by the author, 2015

### ***The Globe, the Outlook Tower and the Central Soil Science Museum: Monuments for a Social and Pedological Project***

The soil is actually the principal protagonist of our story: although partially present at the *Exposition Universelle* in 1900, the soil was omnipresent in our protagonists’ conception of the civilization revealed by the different representations that they used to explicit their theories and visions. Above all, the public ‘monument’ was a powerful representation that engaged respectively our three protagonists into a social and pedagogical project (Fig. 4). In 1904 Dokuchaev founded the Central Soil Science Museum in Saint-Petersburg: as a part of the Soil Institute, it contained and still contains today the first collection of monoliths from Dokuchaev expeditions and the different maps of soil, but it was also a real museum open to the



**Fig. 4** The social monuments of geographical and soil knowledge (from left to right): The Outlook Tower in Edinburgh, inaugurated in 1892. Schematic Elevation with the geographical scale corresponding to each level (a); Reclus' Globe project designed by Louis Bonnier in 1897–98 for the Trocadéro platform (b); The Central Soil Science Museum created by Dokuchaev (1904), museum exhibition since it was elaborated by the Director Boris Aparin in 1976 (c); *From a Geddes 1915. Cities in Evolution*. London: Williams; **b** *Projet de Globe terrestre au 100.000e*, Elisée Reclus, edition B2, 2011; **c** Saint-Petersburg Central Museum of Soil, Photography elaborated by the author, 2015

public, aiming at educating by showing the soil formation and diversity, and at reflecting the interrelations of soils with other elements of ecosystems. The same scientific and pedological idea is contained in Reclus' Globe: the building is thought for the public education to geography, and the understanding of the plan-relief is immediate for everybody contrary to the two-dimensional maps, and the Globe must be completed in time by the collective discoveries around the earth. Beyond his museum, Dokuchaev organized another event that reflected the attention he brought to the participation of citizens into the construction of common knowledge around soil science: in 1892, while working on a research for the development of Saint-Petersburg and its region, he organized the first public scientific promenade in the region, the exact same year Patrick Geddes opens the Outlook Tower to the public in Edinburgh, a “world anamorphosis” (Chabard 2001) that solicited many different ways to show—and for the visitors to observe—its environment on the different scale, revealing the prospective and progressive goal of this pedagogical experience: “Observe to reform”. These three monuments were thought as collective places from which all the society could observe, learn, experiment and imagine the geographical facts of civilization. Not only did Geddes, Reclus, and even Dokuchaev share the idea of social progress through the implication of knowledge acquisition by the citizens, but they all assumed a prospective approach: understanding the laws of nature and the relationship between Man and its natural environment in order to improve it. Today, to imagine another possible and sustainable future for the diffuse city, starting precisely from its marginal agricultural



soil, often fragmented and threatened by urbanization, the Horizontal Metropolis could need its own monument where to build collective awareness and a place for innovative visions, an ‘Horizontal Soil Study Museum’ maybe.

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# Genius of Utopia: The Evolutionary Nature of Genius Loci



Matthew Skjonsberg

Seen through the ‘frankly *eutopian*’ lens of Patrick Geddes’s regional survey methods—encompassing both his pragmatic involvement with existing cities and his regional ambitions—this essay considers several practical interpretations of the term ‘genius’ as it relates to the legacy of ‘utopia’. First we will consider genius along the lines of the most commonly understood, conventional sense of the term—as someone of extraordinary ability, capability, and influence. Then we will consider *genius* in the sense of *ingenuity*—the genius of the *idea* of utopia—in that Thomas More’s ‘invention’ of the term *utopia* in 1516 gave subsequent generations a name for an effective way to conceptualize, communicate, and give form to future aspirations. Finally, we will consider the site-specific implications of *genius loci*, demonstrating that Geddes’s implicitly *ecological* notion of ‘utopia’ was fundamentally evolutionary—and explicitly temporal—and that it was informed by his active interest in cultivating the desirable qualities *already present* in existing cities.

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## The Legacy of Genius

When we hear the word ‘genius’, our tendency is to associate it with the great names of scientific history—Archimedes, Pythagoras, Newton, Darwin, Einstein—so it follows that a positive recommendation from one of these for another would also merit thoughtful consideration. As it happens, the young Patrick Geddes’s work as a botanist attracted the attention of Charles Darwin himself, (Fig. 1) who wrote Geddes an unsolicited letter of praise:

Dear Sir –

I have read several of your biological papers with very great interest, and I have formed, if you will permit me to say so, a high opinion of your abilities. I can entertain no doubt that you will continue to do excellent service in advancing our knowledge in several branches of science. Therefore I believe that you are well fitted to occupy any chair of natural history, for I am convinced that example is fully as important as precept to students.

I remain, dear Sir, Yours faithfully,

Charles Darwin (1882)

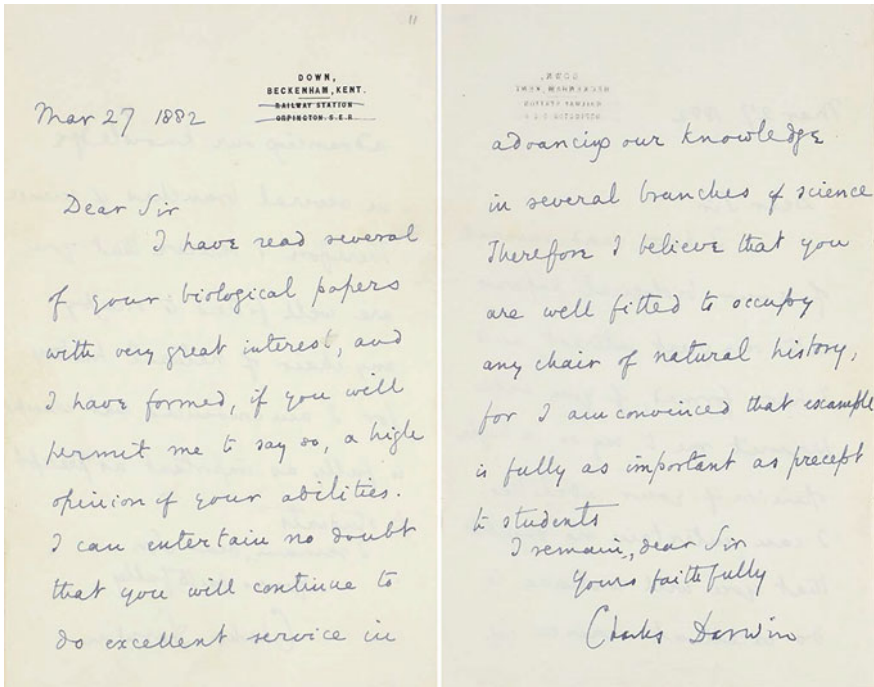
Clearly Patrick Geddes was a remarkable person—but was he a genius? How is one to introduce or evaluate Geddes? This is a question that has been wrestled with by his biographers (Welter 2002; Boardman 1978; Mairé 1957; Defries 1927) as Alessandra Ponte has written in the exemplary affirmative:

How does one describe a genius who wanted to be universal? ...Patrick Geddes was a biologist, sociologist, botanist, geographer, urban planner, educator, founder of museums, schools, and institutions, leader of meetings and associations, poet, and guru...a quick biography, a brief analysis of his works, might be worse than useless. A list of his written works...would fail to convey the complexity and impact of Geddes’s thinking. (Ponte 1989)

Indeed, for the purposes of this essay it is adequate to review a few key points of reference. Patrick Geddes (1854–1932) was born in Ballater, a small town in Scotland’s Royal Deeside. Three years later the family moved to a house on Kinnoull Hill near Perth, where Geddes lived throughout his formative years—gardening with his father, doing science experiments in the shed, and rambling the hills and valleys (Pullman 2012). From 1874 to 1878 Geddes studied with Thomas Huxley, the renowned natural scientist and free-thinker, whose ideas exerted an important early influence on Geddes’s own thinking as an evolutionary biologist. Patrick Geddes is generally regarded as Britain’s first ecologist,<sup>1</sup> having come to know the German biologist Ernst Haeckel—one of the leading interpreters of Darwin’s theory of evolution—who coined the term *ecology* in 1866 as ‘the study of the relationship of organisms with their environment’. Equipped with these formative experiences, Geddes turned his attention to the evolution of cities, and his legacy in this field is still being assimilated by the various disciplines whose

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<sup>1</sup>(Pullmann 2012) n. Dr. Keith Skene, director, Biosphere Research Institute.



**Fig. 1** Charles Darwin's letter to Patrick Geddes (unpublished, March 27, 1882). Image courtesy of the National Library of Scotland

territories he traversed. *Ecological planning* is one of many disciplines influenced by Geddes, for example, notably through his disciple Lewis Mumford to Mumford's protégé Ian McHarg (Ndubisi 2002, pp. 19–20). Even so, the term *ecology* itself rarely appears in Geddes's writing—he was more involved with the idea of *utopia*, an idea that remains provocative in design and planning disciplines.

## The Legacy of Utopia

While the word *utopia* has come to be understood as rather naïve, 'an imagined place or state of things in which everything is perfect,' Patrick Geddes characterized his own interest in the evolution of cities as 'frankly eutopian.' Thomas More's *Utopia*, published in Latin in 1516, is 'a frame narrative primarily depicting a fictional island society and its religious, social and political customs' (More 1869). In the preface to his first book, *The Story of Utopias*, (1922) Lewis Mumford—Geddes's protégé—attributes to Geddes the observation that More was a punster, and asserts that in coining the term Utopia he was playing on the implications between the Greek terms *outopia*—'no place'—and *eutopia*—'the good place.'

(Mumford 1922, p. 1). Mumford writes of ‘one-sided utopias,’ asserting that both the initial attraction and the perceived failure of utopian ideals are attributable to their tendency toward authoritarianism, conformity, and the exclusion of alternative modes of life. He observes that the most striking commonality of historic utopian visions is a kind of technological determinism, the implicit ideal of conquering nature (Mumford 1922, pp. 117; 242).

In contrast to this, Geddes was focused on transcending the limitations of historic ‘one-sided utopias.’ Citing Aristotle as the ‘founder of civic studies,’ Geddes emphasizes his insistence on “seeing our city with our own eyes,” urging that our view be *synoptic*, “...a seeing of the city, and this as a whole...Large views in the abstract...depend on large views in the concrete.” (Geddes 1915, pp. 13–15) *Synoptic*, meaning ‘seen together,’ implies simultaneity, but also suggests the situated experience, rather than an abstract or disembodied concept:

Despite our contemporary difficulties industrial, social, and political, there are available around us the elements of a civic uplift, and with this, of general advance to a higher plane...civic awakening and the constructive effort are fully beginning, in healthy upgrowth, capable not only of survival but of fuller cultivation also, towards varied flower and fruit flower in regional and civic literature and history, art, and science; fruit in social renewal of towns and cities, small and great. Such renewal involves ever-increasing domestic and individual well-being...art may again vitalise and orchestrate the industries, as of old. Nor is this ‘merely utopian,’ though frankly eutopian. In matters civic, as in simpler fields of science, it is from facts surveyed and interpreted that we gain our general ideas of the direction of Evolution, and even see how to further this; since from the best growths selected we may rear yet better ones. (Geddes 1915, v–vi)

Geddes optimistically relies upon his ‘frankly eutopian’ *synoptic* ideal—instrumentalized through his physical and social surveys—to enable a kind of social craft, through *civic design*, to bring about the evolution of *synoptic utopias* from existing cities. Considering *genius* in the sense of *ingenuity*, we can say that Geddes’s interpretation highlights the genius of the *idea* of utopia. It is about direct experience and situated knowledge—it is about being *there*.

## The Idea of Genius Loci

In Roman mythology ‘genius locus’ referred to the protective spirit of a place. In contemporary use, coming largely from discourses in landscape architecture, *genius loci* refers to a location’s distinctive atmosphere, or “spirit of place” (Norberg-Schulz 1980; Pope 1731). In *Our Social Inheritance*, (1919), in a section titled ‘A City Survey for Disoriented Citizens,’ Geddes describes a series of educational walks through London. Focused on the borough of Westminster—and walking from Piccadilly Circus to St. James’s Park, for example—these walks reveal Geddes’s dynamic interpretation of *genius loci*. This active interest in the one to one, real time experiences of a specific site as the basis for *interpretive* design is by now a vital tradition in progressive planning disciplines. Lewis Mumford later

credits these Westminster walks with having had a lasting effect on his thinking, Kevin Lynch's survey methods in *Image of the City* (Lynch 1960, pp. 123–181) are consistent with these, and Jane Jacobs's notion of the importance of 'eyes on the street' (Jacobs 1992) effectively conveys the essential ethos of *genius loci*. It is fundamentally about *being* there.

These urban walks directly inform Geddes's surveys in a way that builds on those surveys that were their nearest precedents. Indeed, he was intimately familiar with one of the earliest of 'comprehensive surveys'—the Survey of London. Initiated in 1894 by the architect Charles Robert Ashbee in response to the 1892 demolition of the Old Palace of Bromley-by-Bow, the Survey of London was therefore shaped by this somewhat reactionary motivation, and its main purpose was simply to compile a register of historic buildings (Wollaston Shepard 1966, pp. 131). As a member of the London Survey Committee convened by Ashbee, Geddes saw a much broader potential in such survey methods. Beyond inventorying buildings and monuments, for Geddes an effective regional survey would "display traces of all the past phases of evolution" (Barnett Geddes 1979).

Geddes's concept of history as a continuous process of growth is illustrated by his *arbor saeculorum*—'a schematic view of all known history' (Fig. 2). It is a totemic image of historic eras, with Egypt at the base, then Israel, Greece, Rome, the European Middle Ages, the Renaissance, and the French Revolution, culminating with the contemporary period of industrialized capitalism. Thus, walking through Westminster, Geddes would look for evidence of civic interest from the Roman founding of *Londinium*, (ca. 43 AD) and then subsequent ages, in order to discover its *genius loci*.

Geddes gives *genius loci* central importance in the design process, "...it is impossible to successfully plan against the spirit of the place. Each design that does not take the *genius loci* into account fails, as...John Nash's plan for Regent Street failed" (Welter 2002, p. 115). Geddes argued that Nash's plan failed of its intended effect because it "worked against the spirit of the place by ignoring the continuous history of fairs and trade in the area" and that it could only achieve "that which the *genius loci* dictated" (Branford Geddes 1919, p. 187). Design in this context is about expressing what is already present in the spirit of the place, as Geddes asserts, "There are deeds and events which cling to a place, and remain an 'unseen hand' in the ordering of its destiny" (Branford Geddes 1919).

Having identified the *genius loci*, the inspired survey "will thus express, stimulate and develop its highest potentiality, and so deal all the more effectively with its material and fundamental needs" (Branford Geddes 1919). The physical and social surveys are a means to identify *genius loci* through study, analysis, and patient observation, and as such they are essentially diagnostic—elicitive rather than projective. Having sensitively determined the existing dynamics of a site through such a fine-grained reading, Geddes developed an evolutionary approach to working in existing cities he described as 'conservative surgery.' Rather than relying on heavy-handed policy or sweeping legislation, he advocated for *civic*



ARBOR SAECULORUM

**Fig. 2** Patrick Geddes's *Arbor Saeculorum* (1892–95)—the tree of centuries—his schematic view of all known history. Image courtesy of University of Strathclyde, Glasgow

*design* -working with local people through local projects involving arts, community, neighbourhood beautification, and education. As Geddes writes, “My re-planning has not been ‘designed’ in the sense of patterns or inventions, but rather it has become disclosed, like a solution of a chess problem, by the close study of the board and all the pieces on it. There is no other way” (Geddes 1917, p. 42).

In fact, this is perfectly consistent with the true meaning of the term ‘design’, whose Greek etymology shows that ‘design is about something we once had, but have no longer’ (Terzidis 2007). Design explicitly involves memory, the recognition of existing conditions, and the kind of attentive observation that discloses the *genius loci*.

## Genius and Utopia

Thomas Carlyle, the great Scottish historian and polemicist whom Geddes regarded as a genius—writing to Lewis Mumford of the satisfaction he experienced when, on one of his educational walks in London, he encountered Carlyle (Novak 1995, p. 2)—was interested enough in the idea of genius to have published his own definition of the word (Carlyle 1865), which was later cited by the American architect Frank Lloyd Wright—also a close friend and correspondent of Mumford’s—when qualifying genius:

...the definition of genius that comes down from the ancient Welsh: a genius is a man who has an eye to see nature... Next, a genius is a man with a heart to feel nature...And last, a genius is a man with the courage to follow nature...And I think that is the best definition that I have ever heard...I never liked Carlyle’s - ‘a man who has the capacity for taking infinite pains’. In fact this is a common misquotation of Carlyle’s statement that ‘...genius (which means transcendent capacity for taking trouble, first of all)...’, as has been noted by Boller and George (1989, p.12). Well, of course, that he has – but that doesn’t define genius. This does. The only thing that is needed to clear it up and make it complete is the definition of the term nature. (Wright 1987, p. 88)

Wright’s reflective interpretation of *genius* seems particularly relevant in leading us finally to the question of nature itself—which Geddes addressed in his final published work, a biology textbook succinctly titled ‘Life’. Here Geddes’s love for his subject inspires him to write, in a manner quite uncharacteristic of biology textbooks, “No one who studies Animate Nature can get past the fact of beauty. It is as real in its own way as the force of gravity.” (Geddes Thomson 1931, p. 35). Indeed, Mumford had described as Geddes’s most salient characteristic his profound ‘reverence for life’ (Mumford 1944, p. 383). In a final testament, Mumford attested that the inspiration for his own ideal was none other than Patrick Geddes:

Geddes showed that a conception of life, unified at the centre and ramifying in many inter-relations and comprehensions at the periphery, could be rationally lived; that it had not been outmoded by the age of specialization but was actually a mode that might, through its superior vitality and efficiency, supplant this age; that one could practice in one’s own person, in the germ, a type of feeling and acting which might ultimately be embodied, with fuller, deeper effect, in the whole community; that, even on the crude test of survival, a life that was organically grounded and pursued with a little courage and audacity had perhaps a better chance than the narrow goals and diminished possibilities of our dominant civilization. My utopia is such a life, writ large. (Mumford 1976, p. 322–33)

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# Berlin Dispersed: A Genealogy of Ideas



Laura Veronese

The image of Berlin as a Horizontal Metropolis, placed on a continuous green surface is the result of a long tradition of projects and concepts that is worth reconsidering. In particular today, in a time where this prolific and peculiar tradition appears to fail with the risk of being forgotten. In this article the juxtaposition of theories and projects emerging from the German tradition serves to provide an understanding of the peculiar condition of Berlin's urban landscape and it may lead to a reappraisal of notion of the contemporary Horizontal Metropolis. I will focus on three theoretical positions, laid out in three different publications: *Die Inflation Der Grossstädte* (Erich Gloeden), *Berlin Das Grüne Stadtarchipel* (Oswald Mathias Ungers) and *Zwischenstadt* (Thomas Sieverts). These three books were written in different cultural and temporal contexts, (respectively in 1923, 1977, 1997) and are concerned with the concept of the Horizontal Metropolis. The hypothesis is that the primary arguments of each converge in a common theme, with several shared features. Although it is important to take into account the dissimilarities, the juxtaposition of these text makes a fundamental contribution to the understanding of the contemporary Horizontal Metropolis in Germany.

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## Archipelago, Fragment, Cell

In Germany special consideration has always been given to the design of the open space, despite the indifference to the shape of the territory by most modern architects and urbanists. Lereberecht Migge proposed an urban development for a city shot through with open spaces designed for several activities and in 1918 in his *grünes Manifest* he demanded that the disused hectares of the city would be replaced by public gardens, allotments, farms and community gardens. Migge's vision of open space was very forward-thinking, he believed that the greenery or urban landscape should provide space for agriculture and for recreation/leisure and acting simultaneously as a catalyst for urban waste prevention.

The picturesque tradition with well-established sense of nature and a deeply anti-urban sensibility, traced the ideological and cultural bases as well as the premises for complex thinking, imagining and drawing the open space. Particularly in Germany, several concepts—and diagrams—regarding the unbuilt space (or voids) have been produced, from the green-belt to the cellular metropolis, to the archipelago and the *Zwischenstadt*.

In the first part of the essay I will outline an introduction with some relevant theoretical positions on the concerns of the project of open space in Germany which, in my opinion, support the second part of the article, in which the emphasis will be placed on three contributions from three different moments in history: *Inflation der Gross-Städte*, 1927, *Berlin as a Stadtarchipel*, 1978, *Zwischenstadt*, 1997. These three books deal with the open space and the relationship between built-up areas and open space, and despite the dissimilarities, there are consonances and elements of convergence.

Gloeden's sequence of diagrams is maybe the most radical representation of the cellular project. The organic metaphor is very clear: indeed Gloeden used the word 'Zelle', cell, to express the core (nexus) of the settlements. Paola Viganò dedicated noteworthy contributions on this almost unknown author. To mention is her article *The Horizontal Metropolis and Gloeden's Diagrams: two parallel stories* and part of the second chapter of her book *I Territori dell'Urbanistica. Il progetto come produttore di conoscenza*. It is important to clarify that in this article I mostly retrace some of Viganò's positions concerning Gloeden's model.

As Viganò pointed out, Gloeden's work might not have had the impact and the circulation that it deserves: in literature it is not often cited despite the value of his contribution. Hilberseimer in his book *New City 1944* defined Gloeden's work as a "new city type," but he did not go further in the interpretation of Gloeden's diagrams. The background and context of Gloeden's book identifies the problematic of the dramatic and rapid growth of cities. *Inflation der Gross-Städte* delineates a city model for liberating the city from miserable conditions and outlines a theory for a better-functioning metropolis. The diagrams outline an alternative model to change dramatically overcrowded urban conditions. Gloeden advances a general proposal, he does so not referring explicitly to Berlin in the text, even if it is clear that he used Berlin as a model.

Indeed, Berlin in the 1920s was an overpopulated city, with not enough infrastructure to support the mass of people living in the capital. The living conditions were terrible due to a lack of space, air and light.

By the turn of the twentieth Century, the theoretical construction of the metropolis opened the debate about “internal occupation” (*innere Ansiedlung*), a model which was meant to improve living conditions in large cities, in contrast to the migration to America, which was defined as the only possible solution to the devastating urban living conditions<sup>1</sup> in Germany.

The first diagram in Gloeden’s book concerns territorial scale and is constructed on two conceptual planes. The first expresses the real territory and the second its geometry. The territory is an abstract surface, no topographic information is given but a river is visible. The grid is the implied geometry, which serves as a background for the cellular project.<sup>2</sup> This geometry leads to an isotropic association of cells with no dominant centre, not even the historic centre that becomes a *primus inter pares*. (Gloeden 1923).

Ludwig Hilberseimer compares Gloeden’s diagrams to Raymond Unwin’s for Greater London. According to Hilberseimer Unwin’s proposal (inspired by Sir Ebenezer Howard) does not clearly solve the problem of the rapid growth. Instead, Gloeden’s diagram, by not supposing a primary city in the territory, suggests that the growth can be potentially infinite around the initial cell. The cells in Gloeden’s project are closer to each other, thus composing a more compact schema than Unwin’s.

A remarkable aspect about Gloeden’s work is that the void, i.e. the space between the cells, defines the scale of the metropolis in which a hierarchically organised street-network does not exist. The entire territory is isotropically organised and the only preferred ways are indicated by the railway or tram. This aspect could be seen as an omission of information, but it is actually a very relevant point of the work: Gloeden’s proposal for a large city can be interpreted as a no-car metropolis.<sup>3</sup> In the second chapter of the book he stresses the importance of locating work and study environments no further than the ten to fifteen minutes walk from residential areas. For this reason Gloeden proposes a return to the decentralised rural settlement system, indeed the close proximity of home and work would solve the enormous problem of the overloaded transport system. Thus, his book’s first chapter starts with a remarkable quotation: “Jede großstädtische Verbindung ist unbequem im Verhältnis zu den Verkehrsmitteln der Kleinstadt, dem Gehen zu Fuß über kurze Strecken.”<sup>4</sup> (Cornelius Gurlitt in Gloeden 1923)

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<sup>1</sup>Hegemann cited in Viganò, p. 83 recalls that the migration to America was considered by Goethe in his work “*Wilhelm Meisters Lehrjahre*” to be the only possible solution to get out of the enormous crisis that cities were facing.

<sup>2</sup>On this concern Viganò did some interpretative redrawing of his model where one can see the layers by which the plan is composed. See Viganò 2011, pp. 86 and 88.

<sup>3</sup>See Gloeden E., chapter II paragraph I.

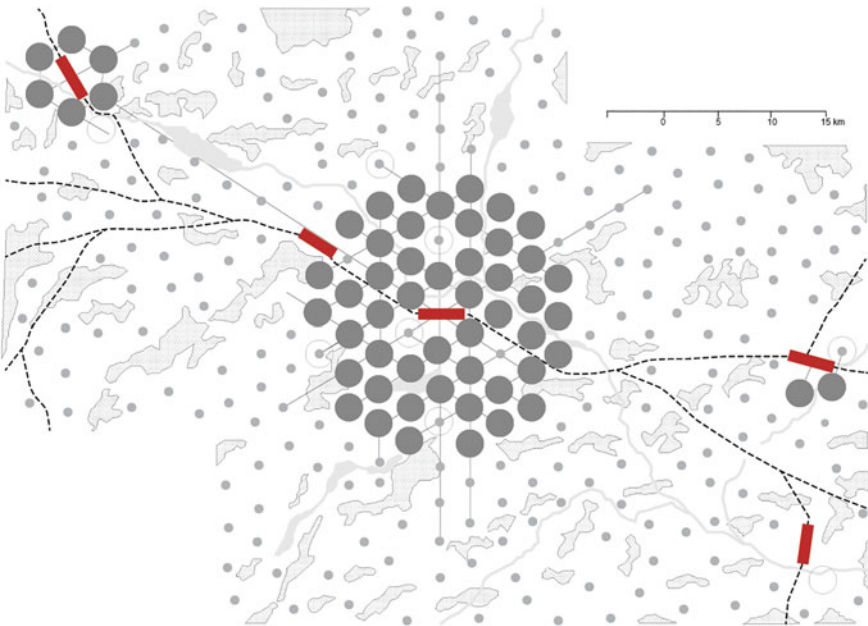
<sup>4</sup>Each large city connection is inconvenient in relation to the transport needs in small cities, where walking for short distances is feasible.

As Viganó stressed, in Gloeden's model the mobility is optimised, freed from heavy traffic. His metropolis is a well-organised, a Horizontal Metropolis, potentially infinite.

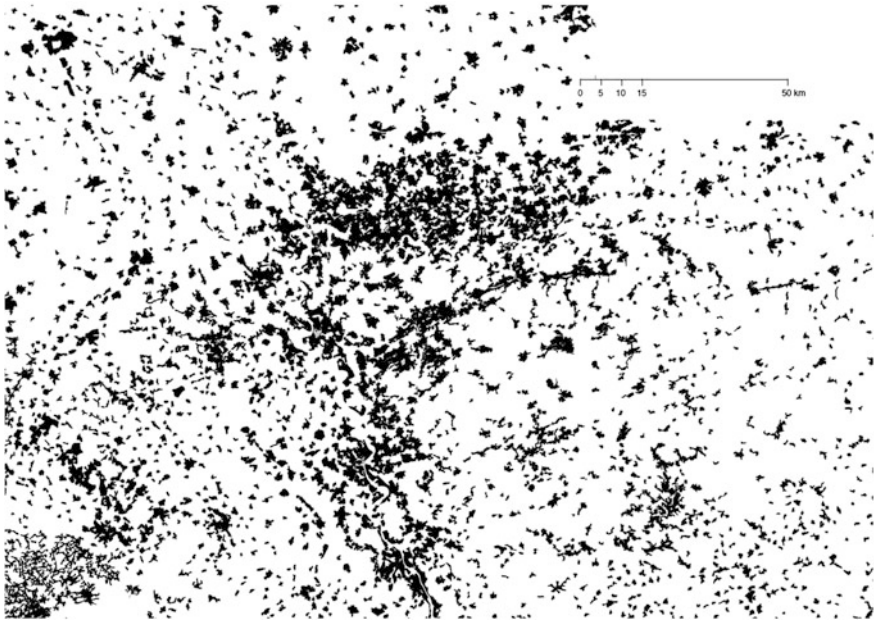
The mobility attracts particular attention as it improves the quality of the system: indeed by moving in the city-model one experiences the multitude of green spaces such as forests, meadows and only from far away can one glimpse the silhouettes of the buildings and eventually recognise landmarks of specific locations or a factory in the city-cell (*die Stadtzelle*). Every element is united by the green belt, which conceptually functions as an ancient city wall. Gloeden effectively defined a new urban condition (Fig. 1).

In real contemporary territories, such as the Ruhr region among others, one finds evidence of Gloeden's cellular hypothesis. The urban-units are extremely heterogeneous and consequently they are interpreted as 'fragments' instead of cells (Viganó 2011, p. 204). With this term 'fragments' Sieverts describes the condition of the *Zwischenstadt*. Conceptually, if the cells in an urban tissue are interpreted as fragments, then it becomes necessary to dig deeper and investigate the relationship between them (Fig. 2).

The relationship between urban fragments implies the expression of the multiple as a whole and introduces the idea of the 'archipelago'. The idea of the archipelago, instead of the cellular tissue, relates fragments to each other, yet leaves intact the



**Fig. 1** Gloeden's territorial plan. Redrawn by the author on the trace of Viganó's interpretative redrawing of the plan (see Viganó 2011, p. 92)



**Fig. 2** Fragmented condition of the Ruhr region, in black are built areas. *Data* CORINE Land Cover, elaborated by the author

singularities. Indeed, the archipelago collates the dissimilarities of the fragments and sets a ground for coexistence.

The metaphor of Berlin as a green archipelago, the *grün Stadtarchipel* (as coined in German in its first appearance in 1977) is without doubt one of the most fascinating metaphors in the history of urbanism.

This city model was developed in eleven theses during the Summer Academy in 1977 and was contained in a very modest publication called *Berlin das grüne Stadtarchipel*. Certainly the simplicity of the publication explains why its circulation was quite limited at the time. It contained an urban design concept for the future development of Berlin and was presented by Oswald Mathias Ungers. This idea took form in the context of his teaching at Cornell University.

For about twenty years now, the notion of the archipelago has started appearing frequently and it is no coincidence that the archipelago manifesto was relaunched in 2013. As Sébastien Marot writes in the introduction, “republishing the collective ‘manifesto’ that introduced this concept into the contemporary urban design debate, and unravelling the circumstances in which it was written, our intention is to set off and amplify its delayed effect”.

Before delving deeper into the archipelago concept, it is important to reflect briefly on the theoretical background of this model. Indeed, Berlin composed of heterogeneous islands—fragments in a way, even though after an accurate observation of Ungers’s drawings, one can see that those islands left are actually compact

units with a very clear and identifiable identity—dispersed in a diffuse green lagoon, is to be considered part of a long tradition. The genealogy includes among other theories, the English garden design, Schinkel’s concept of landscape, the ‘garden city’ concept. (Hertweck and Marot 2013: 14)

Jansen’s plan for the Gross-Berlin (Greater-Berlin) presented to the public in 1910 is also to be considered part of this background. In addition, it has been an important point of reference for Ungers. This is the reason why it deserves close attention in order to provide an as exhaustive as possible understanding of the archipelago manifesto in juxtaposition with the cellular project and the *Zwischenstadt*.

Jansen’s plan for the Gross-Berlin presented on the occasion of the competition ‘Gross-Stadt Berlin’ includes a complex design concept for open space. The large corridor traced by the river engages a set of green spaces organised in a ring. The corridor not only represents the continuity between the green spaces, but imposes the issue of the transition to the absence of sharp edges between one open space and another. In the map *Wald und Wiesengürtel* colours are enriched by nuances which indicate the transition from forests to agricultural fields to parks, expressing the actual transition between different ecosystems. What appears here, although not yet explicitly, is the concept of ecotone.<sup>5</sup> (Viganò 2011)

A quite remarkable fact about the competition is that the area is extended even beyond Potsdam. This considerable leap in scale was due to dramatic population growth around the turn of the century and its effects on the polycentric arrangement of Berlin’s urban areas: it had led to the various urban entities each developing their own economic and social dynamic. This has created a situation of functional and social dissociation that could be no longer be countered with an urban plan restricted to the old Berlin.

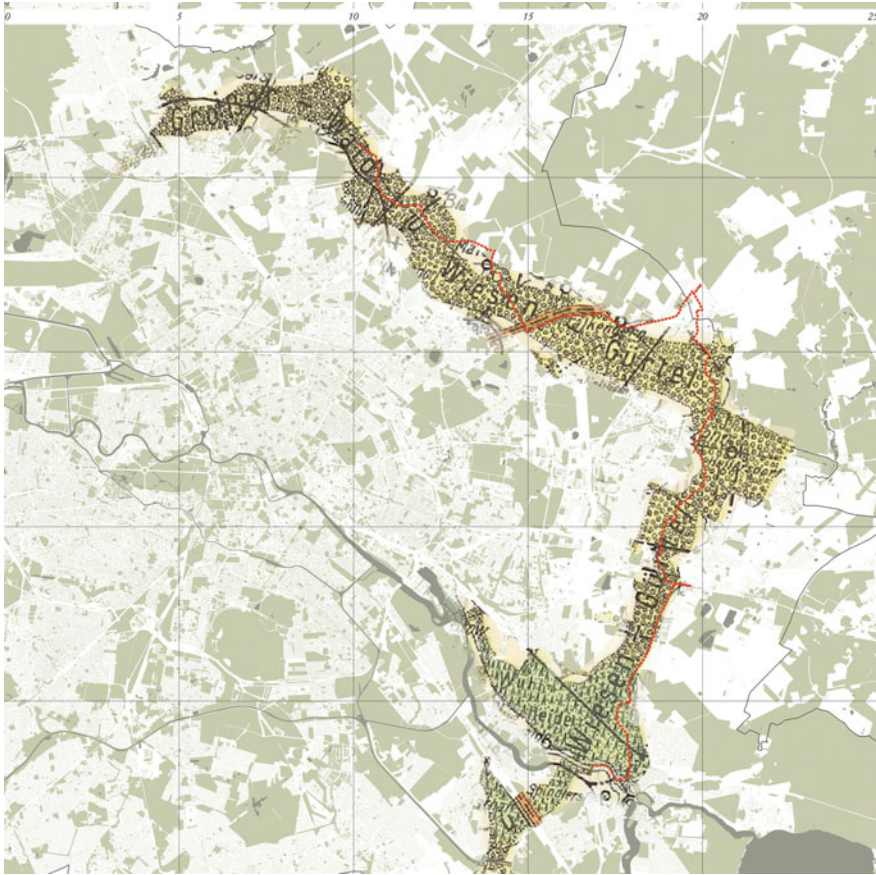
In the map *Wald-und Wiesegürtel* the green layer is more than a ‘strip’ or a ‘band’ (the translation in English is “woodland and meadow strip”): it appears as a green network (Fig. 3).

The stream of ideas that calls for the dispersion of the metropolis in the landscape culminates with—maybe the most radical of this history of ideas—Scharoun’s concept for an extensively greened *Stadtlandschaft*. The plan was the first to be proposed right after the Second World War in an exhibition in Berlin in 1946 called “*Berlin plan-erster Bericht*.”

The Collective Plan (Kollektivplan) is the result of the collaboration of a group of architects (Wils Ebert, Peter Friedrich, Ludmilla Herzenstein, Reinhold Lingner, Luise Seitz, Selman Selmanagic and Herbert Weinberg) under the supervision of Hans Scharoun. It calls for a decentralised, green urban landscape composed of islands and connected by a system (or a network) of freeways. The plan breaks radically with the city’s structure, with the metaphor of “stony Berlin” and with the

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<sup>5</sup>With this word it is intended the transitory area between different biomes and a the integration of two communities is supposed. This implied a in-depth understanding of the landscape and its ecology.



**Fig. 3** Portion of green belt of the Wald-und Wiesegürtel system (proposed in Hermann Jansen’s 1910 plan “In den Grenzen der Möglichkeit”) superimposed to a map of the contemporary territory

concentric form of the city. Scharoun and his team envisioned a dispersed city with modern architecture in a permeable green space. In this vision the only named monuments are the one Museum Island, Brandenburg Gate and the Charlottenburg Palace. Also a general urban concept was presented: an ideal large city composed of agrarian-industrial belts consisting of parallel sub-belts which contained cells for industry, mobility infrastructure, housing and green spaces. The belt (*das Band*) is designed to be infinitely continuous and it connects regions, and countries.

However, the Kollektivplan went far beyond a functional urban plan. Scharoun played with the Kollektivplan’s concept, the “*Stadtlandschaft*”, which leads to a further debate: the idea of the city as a natural organism. In the text accompanying the exhibition in 1946, Scharoun used a complex organicist terminology for an urbanism which legitimised itself through the analogy to nature. This organic urban structure as general plan would be intertwined with the concrete landscape and it would define a unique, distinctive *Stadt-Land-Schaft*. (Sohn 2008: 121)



The organic metaphor—such as the city as a biological element or the city as a cellular tissue—finds a persistence in the German tradition. Baumeister in his manual published in 1876 argues for the “natural” growth of cities. Martin Mächler wrote in 1920 about his plan for Berlin using terms from biology, using the metaphor of ‘the cell’, speaking about a single architectural unit able to be part of a large architecture—a large organism—in a shared cellular tissue. The cultural stratification of the passage of time on this concern is certainly very common in German literature.

Indeed, urbanists have often worked with naturalists or natural philosophers, and the numerous collaborations between urbanists and monists in the garden movements (*Gartenbewegung*) is noteworthy.

Especially the monist’s<sup>6</sup> definition of nature, seemed to be inspirational for urban planners and vice versa; a monist naturalist like Raul Heinrich Francé for example examining the city as a living creature.

All these attempts to decentralise Berlin and to stress the horizontality of the large city on a natural surface were facing the condition of anticipated growth in population. Instead, the archipelago manifesto was dealing with the loss of population. The archipelago expressed a methodology that would neither preserve the city and its historical structure, nor reinvent it, but rather the new urban entity would be generated through a selective *tabula rasa*, which by selections and eliminations of existing morphologies, would define a new order. The selection of the fragments to maintain is based on the identification of those areas that already have a strong existing identity that deserve to be preserved and reinforced. (Hertweck and Marot 2013: 14). Those named ‘fragments’ are actually architecture with a clear identity, therefore they lose the significance of ‘fragments’ to be islands.

The shrinkage in population is intended as an occasion: “around the ‘tuned-up’ and ‘completed’ enclaves, the remaining fabric of the city would be allowed to deteriorate and turn slowly into nature” (Hertweck and Marot 2013: 14). Those city districts that no longer serve a purpose will be returned to nature and will become a system, a green grid made by a variety of natural spaces, from parkland to young forests or agriculture areas.

This nature grid would isolate the islands and establish the metaphor of a “green” archipelago (Hertweck and Marot 2013: 14).

The archipelago project was basically demanding that Berlin be made the testing ground for an alternative model of urbanism and this was a clear position against what was the dominant and popular urban doctrine of urban renewal, a sort of prototype that could be a model in a zero-growth Europe. The model of the archipelago is the antithesis of planning theory rooted until the 1970s, which was based on the idea of the unitary city, a uniform and clearly recognisable entity.

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<sup>6</sup>As monist I am referring in particular to personality such as Ernst Haeckel and Raul Heinrich Francé and to the philosophical idea according to which every phenomenon is regulated by one basic principle. Especially Francé appear to be very influential in the urbanist discussion.

Ungers recognised in the fragmented urban space in Berlin the properties of a landscape and the model envisioned therefore the dissolution of the compact urban structure in an archipelagos of urban islands in a sea of greenery. (Hertweck and Marot 2013)

This was a radical model and the first manifesto project explicitly addressing the negative growth. In Berlin's heterogenous urban space, Ungers saw Berlin as a *Coincidentia Oppositorum* (Ungers 1991).

Indeed, starting with an understanding of Berlin as a conglomeration of diverging city fragments and not a whole, Ungers developed the figure of the city *within* the city. The fragmentary urban condition that Ungers describes is also politically a pluralistic concept in which several ideologies can coexist with a common ground. The "City in the City" idea corresponds with—the quite contemporary—society's structure, which is made by diversity and heterogeneity, in opposition to the totalitarian meaning of society in which every individualism would be oppressed (Ungers 1991: 214). This is expressing an extremely contemporary condition as well. Indeed, society is now increasingly based on the idea of the individual as unique, therefore customisation is becoming a real doctrine, which pertains the production of open space.

Right after the fall of the Wall, Ungers reintroduced the idea of the archipelago: again he presumed a shrinkage of the city would occur, which proved to be the case, right up until today. Ungers reaffirmed his contrary position to the restorative reconstruction of the city.

With regard to the latter, Ungers declared that every future plan for Berlin would have to reflect the city's history and by doing so not giving the illusion that the city should be 'repaired' in its historical form (Ungers 1991: 214). He underlined the idea of the fragmented urban condition, peculiar in Berlin, and he affirmed that Berlin should be seen as a "gigantic puzzle rather than an ordered and logical whole. (...). Every generation had passed the city to the next as a collection of fragments, no generation has been capable to come to a valid "end". The city remained—as Ungers wrote '*gottlob*'—discontinuous, incomplete and therefore varied and vital." (Ungers 1991: 215)

The conditions of negative growth, depopulation or dispersion and the subsequent creation of alternative models of urbanism is the ghost against which the doctrine of the urban renewal or critical reconstruction is fighting. The doctrine of the reconstruction of the city's ground structure is the negation of the palimpsest produced due the constant cycle of design followed by destruction and partial reconstruction. Berlin's palimpsest contain fragments of all overall designs and the narration of Berlin's landscape is expressed as much by these absences. The film director Wim Wenders underlined his experience of Berlin in the 1980s "the wide dimensions of the city which bring one back to the desolate expanses of the city's ancient glacial sand beds." (Wenders 1991). He noticed that precisely those areas, such as urban void or vacant plots, are those signs that trace the story of the city better than any words.

Both ideas, archipelago and *Zwischenstadt*, led to a criticism of predominant doctrine in the 1980s and 1990s in Berlin. Ungers presented his strategy to the

committee of the German Social Democratic Party in 1977, with the plea for a re-evaluation.

Sieverts' book does not deal directly with Berlin and its reconstruction, but it was written in the time when the predominant thinking was the restorative conception of the city and he was expressing, through the concept of *Zwischenstadt*, a contra-thesis. The fragment is the primary element and the first premise in the concept of the *Zwischenstadt*. The condition of the *Zwischenstadt* is to found everywhere in the world. The grain and density of development of the individual urban areas and the degree of penetration with open spaces and landscapes determine the specific character of each *Zwischenstadt*. Sieverts starts defining this 'strange urban form' which takes up large areas, and it has both urban and rural characteristics.

As known, the dissolution of the cities (*die Auflösung der Städte*) is not a new phenomenon: there are many examples from the history of ideas of urban development that could be mentioned, which demand the dissolution of the city, rooted in a criticism of the densely composed city. Sieverts, in his book *Zwischenstadt* and in a recent lecture delivered in Lausanne, remarks that still today, the 'Old City' is the dominant thinking, even though this is not the condition we experience every day. The search for a term that evokes a peculiar urban condition with features not quite ascribable to the city, nor to countryside, explains the difficulties even naming a condition that cannot be expressed by the word 'city'. *Zwischenstadt* was published in 1997 and the word "*Zwischenstadt*" has become a common term in the discussion of urban morphologies in German-speaking countries. In the English edition of the book there is an introduction to this term which reveals the difficulties of properly naming such an urban morphology. The book deals first of all with the discrepancy between urban reality and the persistent dominant ideology concerning how the European city should be.

H. G. Wells describes the condition of the dispersion quite early, indeed he predicted the emergence of a new city-type.<sup>7</sup>

The precision of his description is remarkable: "The city will diffuse itself until it has taken up considerable areas and many of the characteristics, the greenness, the fresh air, of what is now country, [and this] leads us to suppose also that the country will take to itself many of the qualities of the city". (Wells 1902)

The reality of our contemporary large cities and agglomerations is described as a continuum of built-up areas and open spaces, connected by a network of paths of different size and character.

This dichotomy between the city and the countryside is no longer relevant in the condition of the dispersion, rather it establishes a new dialectic between urban realm, territory and nature.

The concept of centrality also vanishes in the framework of the *Zwischenstadt*. Indeed, the centre of the "old city" is meant to designate a place in which everything important can be found and from which all major development starts. The

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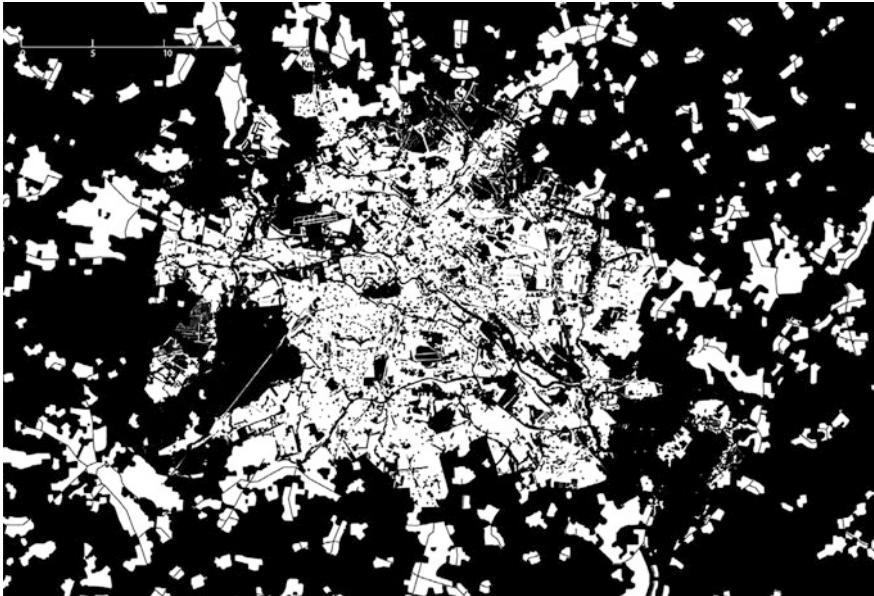
<sup>7</sup>See Sieverts, ix Foreword to the English version.

existence of a centre implies the existence of an hierarchical order in which the centre is the *primus inter pares*.

With the dissolution of the concept of the ‘centre’, the concept of the ‘periphery’ also loses its content, in particular because the periphery is enriching itself with a wide range of different kinds of centres becoming a polycentric infrastructured carpet. For a long time cities have not been organised in a hierarchical ‘tree structure’, instead the system should be interpreted as a network with nodes (Alexander 1965).

In such a network, all elements can ideally be co-equal, and there is no prioritising hierarchy. “The *Zwischenstadt* can develop any diversity of settlement and built form, so long as, as a whole, they are intelligible in their settlement of network and, above all, remain embedded as an archipelago in the sea of an interconnected landscape. In this way the landscape becomes the glue of the *Zwischenstadt*.” (Sievert 1997)

This aspect of the *Zwischenstadt* brings to mind several interpretation. It recalls the image of archipelagos in a green sea. The space between the islands—the fragments of the *Zwischenstadt* and the cells in Gloeden’s model—is not a void by significance, instead it is an infrastructured layer which serves as a ground (Fig. 4).



**Fig. 4** Map of the open space (black) in Berlin, 2014. Data from the Senatsverwaltung für Stadtentwicklung und Umwelt 2014

## An Interpretation of the Models in the Contemporary Metropolis

The idea of the *Zwischenstadt* in juxtaposition to contemporary Berlin morphology, reveals some extraordinary and unknown convergences. Despite the fact that Berlin's morphology diverges with the case studies described as *Zwischenstädte*, (the Ruhr region for example), Berlin is historically composed by fragments and therefore constructed on multiples and never really exists as a whole. Karl Scheffler as early as 1910 intuited, what Berlin's destiny might be: "forever to become and never to be". The polycentric character of the city has been recognised also before. In 1901 Henry Urban in his book *Der Entdeckung Berlins* wrote: "As a New Yorker, I find it particularly strange that there is no Berlin, only a mass of villages called Berlin." Berlin has a peculiar relationship with its voids and its density, a feature that is still nowadays uncommon in other large European cities. Indeed, it seems to have an osmotic relationship with its urban voids and open spaces. The stratification of events, ideas, projects, bottom-up interventions, have made Berlin a peculiar metropolis shot through with open spaces.

It appears that Berlin has some features of its morphology which can be attributed to a *Zwischenstadt* and a hypothesis is to read and classified Berlin as a type of *Zwischenstadt*.

The accumulation of events and the stratification of theories, has created a broad cultural deposit. The mnemotechnical aspect is highly relevant, as it allows one to perceive the city as a product of its complex history, which creates a project for Berlin. The theoretical proximity of Berlin to a *Zwischenstadt* or an archipelago in a green lagoon, or even more abstract, as a metropolis composed of cells, underlines precisely this peculiarity of Berlin's urban landscape which is gradually falling apart. This juxtaposition might result radical or too abstract, but it delineates the image of Berlin through its open spaces as a challenge that should be protected. It helps to better understand this matter as a value and a cultural heritage of this stream of theories and ideas.

According to several projects for Berlin, 'open space' should be a large system of natural spaces for many purposes, such as playgrounds, urban parks, regional parks, meadows and so on. This consideration leads to further questions. Thus, is this vision still possible, or has the point of no return been crossed and therefore will this peculiar aspect of Berlin's identity vanish and a new identity be established and regulated by market policies? To use Ungers' words, Berlin's future is not in pursuit of a new utopia, but of a design for a better reality. (Ungers 1991: 215)

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# The Patchwork Metropolis: Between Patches, Fragments and Situations



Carlo Pisano

In 1989 the young Dutch architect Willem Jan Neutelings, who had just left the Office for Metropolitan Architecture, was hired to develop a project for the area between Rotterdam and The Hague that was going to face, in the following years, a huge increase in population and activities. This part of the Dutch territory is located in between two urban areas but, at the same time, it is located in the middle of another construction known as the Randstad, in which the explosive growth of urban and suburban development has led to a singular blurring of the distinction between the city and the countryside. In this context Neutelings proposed his reinterpretation of the urban form called *De Tapijtmetroopol* or ‘Patchwork Metropolis’.

## The Patchwork Metropolis of Willem Jan Neutelings

*The Patchwork Metropolis* was published in 1991, in a small monograph that the 010 Publishers (Neutelings 1991) dedicated each odd year to the winner of the Maaskant prize for young Dutch architect of the year. In 1989 the young “enlightened prince of suburbia”, as Neutelings was described in the jury report, got commissioned by the Department of Housing Development of the Municipality of

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The Hague to study and design the area of the Zuidrand in-between The Hague and Delft, which afterwards faced a huge increase in population and activities, becoming internationally known as the Ypenburg neighbourhood. From this typical peripheral zone, Neutelings enlarged his focus point, describing the area between The Hague and Rotterdam as a continuous field of patches reaching from the North Sea to the Nieuwe Maas river.

### *After the Compact City*

The discussion about urbanisation in the Netherlands, since the 1980s and the content of the various parts of the Third Memorandum on Spatial Planning<sup>1</sup> are characterized by the concept of the city region and by fear of the phenomenon of dispersion. Major planning efforts were undertaken to keep the city regions compact and manageable by periodically setting new boundaries between what were the ancient cities that compose the Randstad and the portion of territory called Green Hearth. In other words, the doctrine underlying the Dutch policy at this governmental level is based on the objective of separating 'red' functions from 'green' ones.

In this overruled climate, Neutelings' proposal was met with immediate, widespread approval, influencing a generation of young Dutch designers, especially for the capacity of the patchwork model to criticize the planning practices of the late 1980s and to give a structure to what was thought of merely as a fragmented condition, turning the Randstad's lack of coherence—in contrast to what official planners thought the existing structure of the Randstad looked like—into its planning solution, into a breeding ground of prospective projects.

### *The Two Scales*

It is possible to distinguish in the work of Neutelings two sets of drawings which capture the two scales and the two objectives of the work. On one hand, a thirty-by-thirty kilometre frame<sup>2</sup>—consisting of the area between Rotterdam, The Hague and Leiden—allowed Neutelings to personally reinterpret the large-scale condition of the South Wing province of the Randstad and to introduce the metaphor of the Patchwork. On the other, at the scale of the patches—coinciding with the area of Ypenburg—he presented his design exercise through the definition of a catalogue of solutions and design possibilities.

At the patchwork scale, Neutelings represented the territory through two pen sketches. The first interprets the area between The Hague and Rotterdam as a series

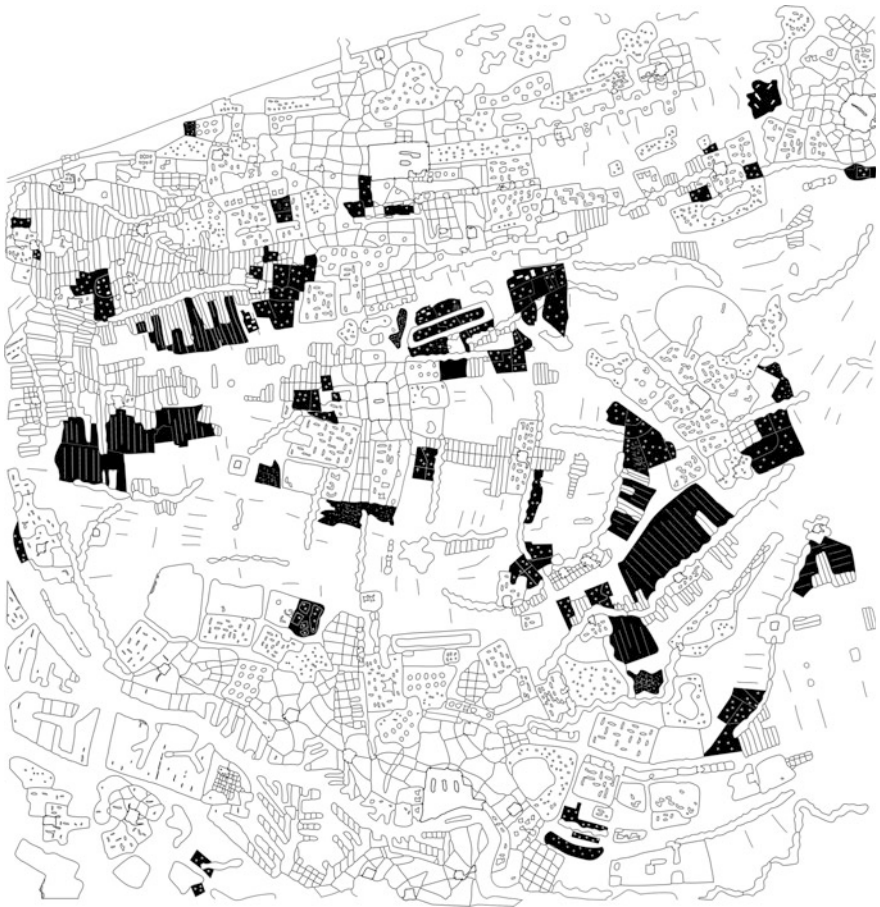
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<sup>1</sup>In Dutch *Derde Nota voor de Ruimtelijke Ordening* published in four parts from 1973 to 1983.

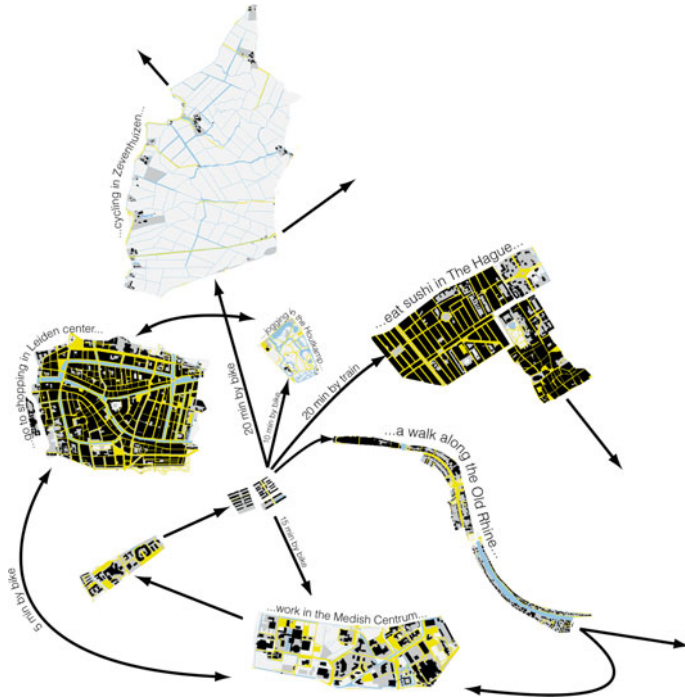
<sup>2</sup>That in the rest of this essay will be called 'the patchwork scale'.



of black urban figures on top of a white background, highlighting the conceptual simplification behind the common way to understand the urban condition in which “the absurd notion of a romantic polarity between a paradisiacal Arcadia and a megalomaniac metropolis, a red stain sprawling in an endless expanse of green. [...] has long been inadequate for interpreting the reality of the situation” (Neutelings 1991). The second sketch reconsiders the same area through a critical reinterpretation. The territory is presented as a composition of patches, each one with a specific functional program and a specific physical structure. If we take a close look at the image we can notice that not only the ‘periphery’—the area usually labelled as such—is a composition of patches but also the inner cities and agricultural areas ranging from rural to greenhouse complexes are transformed into a series of patterns (Fig. 1). The maps present a drastic new interpretation of the



**Fig. 1** The Patchwork Metropolis updated. Redrawing of the Neutelings’ drawing. In black the patches added after 1989. Author’s drawing, 2016



**Fig. 2** The World according to Huda. Description of the daily movements of a Vinex inhabitant. Author’s datas and drawing, 2013

territory, in which the “juxtaposition of shifting fragments seems to define the structure’s single element of consistency” (Beelen 2010).

On the patches’ scale Neutelings designed the area of the Zuidrand through the use of several analytical sketches, diagrams and a large model that clarified the scale and the conditions of the future development of the area. A series of collages illustrate the results of the design. A new commercial boulevard displaced along a motorway, socio-bungalows with a wide range of accessories, a linear park crowned by duplexes and roof garden dwellings, a square for events arranged below a motorway spaghetti node, dwellings for retired people positioned close to a golf course represent the abacus of new patches that are carefully inserted in the patchwork according to some parameters of proximity and accessibility. Highways, secondary streets and tram lines are then superimposed on the whole, creating a framework that meshes the new and pre-existing patches into a coherent system.

The operation of rescaling of the design focus, from the large scale of the patchwork to the single elements of the patches, produced an interesting and singular urban model able to consider both the enlarged urban condition—in which the ‘new’ metropolis is in the scale of the region and in the form of a field—and a

vocabulary of design solutions only detectable—from the author’s point of view<sup>3</sup>—at the scale of the patches (Fig. 2). Therefore, Neutelings’ project is not simply to offer an analytical description of the Dutch territorial configuration in 1989, but should be interpreted as a radical project able to indicate the coordinates at which, in the future, the design should take place.

## The Patch, the Fragment and the Situation

Paola Viganò in her research about ‘elementarism’ indicated that “Wittgenstein has pointed out how complicated it is to define ‘the simple constituent parts of which reality consists’; ‘What are the simple constituent parts of a chair?’ he asks. ‘The pieces of wood from which it is made? Its molecules? Its atoms? Simple means: not composite. And this is the point: composite in what sense?’ (Wittgenstein 1952)” (Viganò 1999). The selection of the elements that compose the reality is a complex operation that requires a design-based procedure of reduction of complexity. The interpretative operation—intrinsic to the construction of urban models and metaphors—is intimately linked with a process of selection of the right scale<sup>4</sup> at which a territory should be looked, of the elements that should be drawn and those that are unnecessary or even misleading, of the categories, or the different nuances of colour, through which the reality can be reduced.

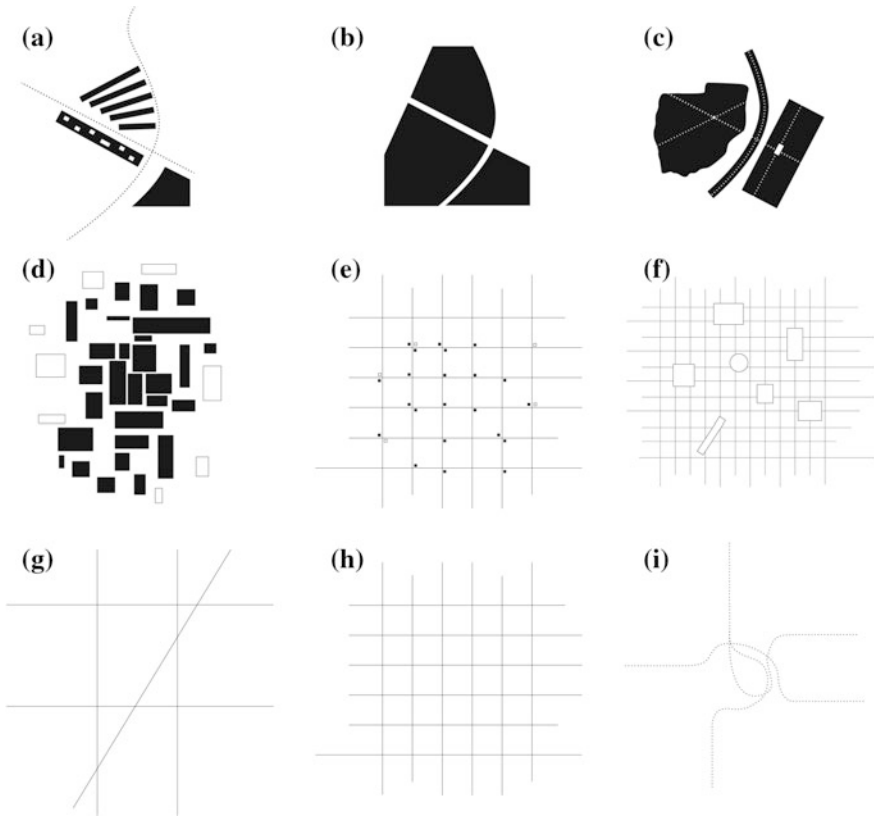
It is interesting to see how Neutelings looked at kind of medium grain, in between the oversimplification of the planning maps and the complexity presented in the topographical maps, deciding that, for him, the best scale at which to understand this part of the Randstad was that of the patch.

Part, fragment, cell, zone are just some of the conceptual constructions used, during the last century in urbanism, sociology, ecology and spatial planning, to understand and design this intermediate scale (Fig. 3). Even though the divisions between them are often quite fuzzy, the patch—as a theoretical figure—maintains some specificities.

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<sup>3</sup>At this regard it is relevant to quote an extract of an interview made by the Author with Willem Jan Neutelings the 21st of June 2011: CP—Do you think that it is possible to guide the evolution of the patchwork metropolis? WJN—We stated that it was impossible to guide the territory on the Randstad scale. The only way in which we can guide the territory is at the patch level. You can replace the old patches with new ones, you can fragment the existing ones, but in the neo-liberal and market oriented society you cannot still deem it possible to guide the Randstad as a whole (Pisano 2011, 2018).

<sup>4</sup>Here ‘scale’ is intended both as ‘resolution’, so the level of detail of the representation, and as ‘frame’, so the boundary at which the drawing can be cropped.



**Fig. 3** The genealogy of the patchwork. **a–c** The relation between infrastructure and the part **(a)** the fragment **(b)** and the patch **(c)**; **d** The patchwork; **e** The carpet; **f** The archipelago; **g–i** The network system connected with the patchwork **(g)** the carpet **(h)** and the archipelago. Author's sketch, 2015

The concept of patch, for instance, is opposed to the idea of fragment<sup>5</sup>, which always involves some form of nostalgia. As inherent parts of modernity, the notion of metropolis and fragmentation have been closely connected from the first (Berman 1982). From Georg Simmel, who understood the metropolis in terms of flux and fragmentation, to Adorno who highlighted the distance between modernity and the idea of harmonic aesthetic completion (Adorno 1970), the juxtaposition, accumulation, or succession of fragments has been understood as an intimate quality of the modern metropolis, one able to interpret its complex and chaotic composition.

<sup>5</sup>For a more accurate analyses of the concept of fragment in urbanism see: Secchi, B., 2007. *Prima lezione di urbanistica*. Roma: Laterza. And Jacobs, S. 2012. Shreds of Boring Postcards: Toward a Posturban Aesthetics of the Generic and the Everyday. In: Ghent Urban Studies Team (Eds), 2012. *Post Ex Sub Dis.: Urban Fragmentations and Constructions*. Rotterdam: 010 Uitgeverij.

Antony Vidler pointed out the double connotation of the fragment: “In the History of modern art and aesthetics, the fragment has had a double signification. As a reminder of the past once whole but now fractured and broken, as a demonstration of the implacable effects of time and the revenge of nature, it has taken on the connotation of nostalgia and melancholy, even of history itself. As an incomplete piece of a potentially complete whole, it has pointed toward a possible world of harmony in the future, a utopia perhaps, that it both represents and constructs” (Vidler 2000). Neutelings’ patches represent Vidler’s quest for harmony, of a utopia built on “semi-autonomous cells, each with its own logic and interested actors” (Shane 2005), planned and designed as such and distributed across the landscape.

One of the drawings that Neutelings used to accompany his text was a reinterpretation of Debord’s *Naked City* in which several urban and rural patterns were connected and related through lines and arrows. As Dirk van den Heuvel noticed (Heuvel 1992), the Patchwork should be associated with the long tradition of the Dutch situationists that goes from Constant to Rem Koolhaas. As Guy Debord wanted to transform the known geography through the mapping of the situations, Neutelings drew the patches as the representation of the variegated forms of living or lifestyles<sup>6</sup> of the Netherlands. In the series of black and white montages, that visually express the new designed patches, Neutelings displayed the new lifestyles that can take place in the area of the Zuidrand. Therefore the thirty-by-thirty kilometre frame is not just populated by urban patterns or formally completed morphological parts,<sup>7</sup> but by living environments in which the internal consistency is defined by the situations and the activities that can be developed. Living in a detached house along a canal or in a cauliflower estate immersed in wild nature, working in a business park along the A4 or in a warehouse complex along the Maas and relaxing in a park alongside a lake are the new categories proposed to increase the nuances of this part of the Dutch periphery.

## A Site-Specific Manifesto

The 1989 manifesto of the “Patchwork Metropolis” should be read as part of the theoretical and literary tradition of “site-specific Manifestos”<sup>8</sup> that during the 1970s appeared on the architectural scene with works such as “Learning from Las Vegas” (Venturi et al. 1972) and “Delirious New York” (Koolhaas 1978). In these works some territories are understood as interpretations or manifestations of specific

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<sup>6</sup>Lifestyle is used as the way to define the prevalent behavior of a specific social group. See Weber, M., 1978. *Economy and Society*, Oakland: University of California Press.

<sup>7</sup>With *part of city formally completed* I am referring to the Italian tradition of urban morphologists founded by Muratori and Caniggia during the sixties and led by Rossi and Aymonino between sixties and seventies.

<sup>8</sup>See Hertweck F., Marot S., 2013. *The City in the City: Berlin: A Green Archipelago*. Ennetbaden: Lars Muller.

phenomena of modernity. Neutelings' project, therefore, does not seek to outline an ideal city but aims to create a dialogue between the figure of the patchwork and the concrete measures of urban materials.

The manifesto of the "Patchwork Metropolis," extremely imaginative and contextual, is thus not simply the result of a provocative approach of a thirty year-old architect that has just left the Koolhaas court. A portion of the area between The Hague and Rotterdam becomes the pretext for Neutelings to investigate specific aspects concerning the concrete operating principles of the Dutch metropolis, which is increasingly moving away from the models pursued by traditional planning, based on the clear dichotomy between built and open spaces. For the first time in the Netherlands, the territory is considered as a whole, characterized by the presence of functions, activities and flows that, albeit with different intensities and meanings, and this perspective does not exclude any area from the metropolitan dynamics.

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# Aesthetics and Spatial Practices. Some Examples from Switzerland



Mirza Tursic

The main assumption underlying this article is that aesthetic categories and spatial practices are intrinsically connected. I argue that aesthetic experience and aesthetic judgment assume an importance for their high potential to activate the agency of urban actors. Any study of the evolution of urban space in Switzerland should account for the high importance assigned by different urban actors to aesthetic questions. As “small” actors engage in a production of their “aesthetics of existence” (term coined by Foucault 1977), their actions play the fundamental role in the structuring of urban space. The aesthetic sensibilities in Switzerland have been developing in the particular spatial, social and historical conditions with the city image in a pivotal role.

## The Success of a Single-Family House

According to the Swiss Federal Statistics Office, nearly 20 per cent of Swiss residents today live neither in a rural area, nor in a city, but rather, in an agglomeration with mostly detached houses. This low-density urban type occupies more land surface than central communes, which accommodate almost 60% of the Swiss population (Kohler and Goebel 2014). It is important to understand what attracts residents to the low-density environment, even at the expense of long daily car-travel for work, shopping or school. A 2003 study on Swiss spatial practices showed that there has been a cultural and political polarization between the residents of suburban

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or peri-urban agglomerations and the residents of larger centres—and especially of the inner cities (Hermann and Leuthold 2003). This polarisation does not coincide with socioeconomic boundaries but reflects opposed lifestyles, which differ in the way everyday life is organised and practiced. The two lifestyles, one practiced in the dense and diverse city and the other in areas with a lower degree of urbanity,<sup>1</sup> cannot be understood solely on their own terms. One is always defined in relation to its rejected opposite.

Although the idea of a decentralised urban space has been widely accepted in Switzerland from the beginning of the 20th century, the phenomenon of the single-family house has had unprecedented success, particularly from the early 1970s. Studies performed in Switzerland from 1970 to 1980 indicate that among the first reasons for moving to the periphery of the city were urban nuisances and a wish to live in the country (Longchamp 1989). It seems that, on the one hand, there are dominant aesthetic sensibilities towards the vegetal, towards rural picturesqueness or natural scenes in general, and towards dense and compact cities on the other. By 1981, the single-family house occupied 42% in the sum of total housing production and in only ten years the number of the single-family houses increased by 32% (Garnier 1985, p. 77). Occupation, income and education do not seem to show a significant importance for moving to the peri-urban zone. A 2015 study, based on the information of the Swiss Household Panel (SHP), showed that two elements distinguish the peri-urban dwellers from non peri-urban dwellers: family formation and full-time employment (Van Den Hende 2015, p. 274). In other words, a search for stability and ‘rooting’ is the centre of preoccupation of the peri-urban population. The single-family house represents the aesthetic ideal in which every peri-urban resident sees instantaneously two opposed worlds together: stability, simplicity and domesticity of the rural house on one side, and all the advantages of the modern urban civilisation, on another.

Any study of the evolution of the urban space should account for the high importance assigned by different urban actors to aesthetic questions. The aesthetic sensibilities in Switzerland have been developing in the particular spatial, social and historical conditions in which the image of the city played a pivotal role.

## The Beginnings of Spatial Planning in Switzerland

Before 1900, the urbanism of Paris and Vienna had an important influence on the way Swiss cities were imagined. Several cities, in the modest terms, made plans for expansion inspired by the two famous examples, particularly that of Paris, for example, the plan Dufour for Geneva (1854), the extension of Basel (1850s),

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<sup>1</sup>If we define urbanity as a combination of functional and sociological diversity and multidimensional density (built environment, flows, people, ideas), the compact city represents the highest gradient of urbanity (Lévy 1999).



the Ringstrasse in Zurich or Pichard's circle with the Grand Pont in Lausanne (1836) (Walter 1994, p. 394). At the beginning of twentieth century there was a turning point in this practice—a rediscovery of the old picturesque town. As Romanticism was a rejection of neo-classical ideals, which directly influenced the creation of the Alpine myth,<sup>2</sup> the revalorisation of an old picturesque town at the end of 19th century was likewise a reaction to the effects of modernity. The theoretical recognition of this particular sensibility came from Camillo Sitte, Viennese architect, who published in 1889 a very influential book “City Planning According to Artistic Principles”, which was translated in French in 1902 (1986). The glorification of gracious curved lines, closed public spaces and aesthetic historicism was turned against the regulatory spatial practices of which the Haussmann's Paris was a symbol. And this evolved in an unusual direction. The book, far from being anti-urban itself, inspired many anti-urban tendencies. The Historicism promoted by Sitte proved to be particularly relevant in the creation of the picturesque ideal. The book was a reaction to “the shock of the new”—to use an expression of the famous art critic Robert Hughes. Sitte promoted stability over change, a sentiment of a fundamental importance in understanding spatial and social processes which came with Modernity. The sentiment of ‘the paradise lost’, which is often associated with Modernity, is in fact a reaction to the disintegration of the stylistic uniformity of the pre-modern time. In this sense we must look at the persistence of suburban and the appeal of the picturesque ideal. The traditional picturesque town symbolizes the lost ‘organicity’, while the suburban ideal represents a unity-regained.

The image of a modern metropolis was first of all dismissed for threatening established collective values and national identity. The beginning of the twentieth century witnessed a movement in Switzerland, initiated from the private sphere, to promote the protection of historical heritage and preservation of the landscapes. In 1900, Marguerite Burnat-Provins, Swiss painter and poet, founded *Ligue pour la beauté*, which inspired other patriotic organizations such as *Ligue pour la conservation de la Suisse pittoresque (Heimatschutz)* (1905), *Ligue pour la protection de la nature* (1909), and the Alpine museum (1905).

Consequently it was a celebration of traditional aesthetics, as a symbol of unchangeable identity, which rapidly became an instrument for a critique of a changing urban society – seen as responsible for “the crisis of identity” and “degeneration” of a country (Le Dinh 1992). Many artists and authors supported this new anti-modern ideology—among others Charles-Ferdinand Ramuz, Charles Melley, George de Montenach, and Guillaume Fatio. In the book “*Ouvrons les*

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<sup>2</sup>The cultural construction of the Alps emerged with writings of Romantics who “celebrated wild landscapes, (...) empty deserts, impenetrable forests, frozen ice wastes and, in particular, rugged mountains. (...) Orderliness and regularity were out; untamed wildness was in” (Beattie 2006, p. 125). Before the 18th century, the Alps were perceived as an inhospitable land and aesthetically dismissed (Senici 2005 p. 23). Under the influence of Romantic literature, firstly from England and then from Switzerland, there's been a shift in a perception of the Alps. The writings of Jean-Jacques Rousseau had a particularly profound influence on Western attitudes towards the countryside and mountain landscapes.

*yeux! Voyage esthétique à travers la Suisse*” (1904), Fatio calls for an action against “*la laideur et la banalité de toutes les bâtisses modernes*”. Fatio’s book summarises the rising aesthetic sensibility towards rural picturesqueness utilized in the construction of a new architectural and urban paradigm which rejected new architectural models. This ideology was formally articulated in 1896 during the National Exposition in Geneva. For this purpose, a village was built on a surface of 23,191 square meters to be inhabited by 353 villagers. For Bernard Crettaz this 1:1 model of the Swiss village was used as a catalyser of numerous symbolic elements, with the aim of presenting the nation as a coherent entity (1987). The village was a pure construction, yet it provided an architectural archetype to be diffused all over the country (Cavin 2005, p. 58). The city, or more precisely the big city, had no importance in this construction. It is because the city lacked the stylistic uniformity on which such an identity could have been constructed. This had a strong impact on the politics regarding spatial planning practices (Walter 1994, 1985).

Switzerland’s urban planners did indeed embrace the modernist aspiration for the functionally devised environment, but they have put it in a backdrop of a picturesque conception of nature. The idea to create an institution on the federal level, which would regulate spatial practices in Switzerland, came from the politico-cultural movement of the group of elite citizens in the 1930s. A private initiative from The Federation of Swiss Architects (FSA) in collaboration with The Swiss Society of Engineers and Architects (SIA), led to the creation of the *Commission Suisse pour l’aménagement du territoire* in 1937—to become *L’association Suisse pour le plan d’aménagement national* (ASPAN) in 1943. Armin Meili, a Zurich architect, was a central figure in this movement. As director of the National Exposition in 1939 and later director of the ASPAN, he had a major influence on spatial planning in Switzerland. In a speech from 1942, he rejects the dynamic growth of dense industrializing Swiss cities, which he describes as the Babel towers constructed in stone, iron and concrete (Meili 1942).

Meili’s discourse underlines some very important ideas regarding the way the urban environment would be imagined by professionals during the following decades. “Nearly all the regional proposals from that period (after WWII) suggested an *orderly* reduction of the concentration of urban development and encouraging decentralized, regional centres intended to reduce the pressures of development in the large cities. (...) The notion that there was something ‘un-Swiss’ about a large city (...) became the dominant axiom of Helvetic planning” (Diener et al. 2005, p. 186). The two parallel processes thus have characterised Swiss urban practices: preservation of the traditional compact towns constructed before the twentieth century and preference for a low-density dispersed urban tissue. The aesthetic and ethical ideals for Meili’s urbanism were highly influenced by the English Garden-City. From the beginning of the twentieth century it seems that there was a consensus on this question among different urban actors in Switzerland. As Francois Walter noticed, this model found favour with utopians and progressivists, but also with the socialists and right-wing liberals. It united the hygienists, urbanists and local authorities and had a very important influence between 1910 and 1930 (Walter 1994, p. 412). The Garden-City paradigm in a strange way united two

ideals: nineteenth century utopians' dream of the auto-sustainable community and the aspirations of the English bourgeoisie for a residence in the natural environment away from the city. In the centre of this idea was again a paradoxical sentiment of both nostalgia for the pre-industrial age and desire for growth and progress.

## Conclusion

Aesthetic judgments concerning the inhabited environment are directly connected to the questions of transformation of both values and built environment. Aesthetic judgments are unactualised societal choices. A positive aesthetic judgment is made when the object in consideration 'reflects' one's way of thinking, when one finds him- or herself 'reflected' in it. Any aesthetic experience requires sort of active participation of the observer, because it is one's imaginative attention that enables one to see a certain object in one or another way. Scruton argues that pleasure is not so much an effect of its object, as a mode of understanding it. One's experience of a building or a city may change as their conception of its changes. And as their experience changes, so does their taste. For Scruton, "changes in taste are thus continuous with, and indeed inseparable from, changes in one's whole outlook on the world, and that taste is as much a part of one's rational nature as are scientific judgements, social conventions and moral ideals" (1979, p. 106).

The city, as it concentrates a diversity of urban actors on a dense territory, generates change through the intensity of interactions. The cityscape and streetscape of the modern city is constantly changing, and this stands for the change of society's values too. The heterogeneity of the urban and architectural styles thus reflects the complexity of the urban space and social interactions. The point is that pleasurable aesthetic appreciation of the modern city depends on the acceptance of this plurality. The city is other than the sum of its parts, and consequently its beauty (as an emergent phenomenon of the city as a complex urban system) cannot be resumed to the sum of aesthetic appreciations of its separate parts.

The European Environmental Agency suggests that where unplanned, decentralised development dominates, sprawl will occur in a mechanistic way (Uhel 2006). This might be true but firstly it presupposes the inhabitants' desire to live in such an environment and this desire remains far from being a universally shared value. My intention was not to discuss advantages of one or another urban reality but rather to highlight the major role of 'small' actors in the process of structuration of urban space in which the aesthetic dimension plays a fundamental role. If the aesthetic experience and judgment assume such an importance, it is due to their potential to activate the agency of urban actors and orientate morally-informed actions concerning the inhabited environment. Inadequately accounting for this fact may come with a high cost.

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# Better Living Through Extensity



Jason Rebillot

A reduction of material production and consumption rates—and a related desire to challenge the economic growth paradigm—have once again become core values for radical urbanists concerned with pressing environmental matters including natural resource depletion and loss of biodiversity. Underlying these values is a critique that any hope of achieving an appropriate response vis-à-vis ‘sustainability’ is an exercise in futility: a game of cat-and-mouse lacking conceptual clarity and hopelessly devoted to a metaphysical state of harmonious balance. As a moving target, the ‘zero horizon’ (if even achievable) would either be surpassed or vacated the instant it was attained, owing to the dynamism of the phenomena involved. From a spatial perspective, these criticisms often turn their sights on the notion of ‘sustainable development’, which has been plagued for years with an unwavering devotion to the *city* as both a unit of study and a geographical space. The notion of ‘sustainable development’ was originally put forth by the UN through its publication *Our Common Future* (1987)—often referred to as the ‘Brundtland Commission Report’. Its core ethos was that society can remain committed to an economic growth model (‘development’), as long as we do so through the establishment of limits. Enforced through regulatory legislation, ‘limits’ quickly became spatialized as the ‘compact city’. Equally problematic is the persistent claim that an urban system’s ‘ecological footprint’ offers a definitive metric for performance, in turn recommending the ‘compact city’ as the ideal type-form for an environmentally responsible society. However, in both ideas- sustainable development and the compact city—the city is really no more than a red herring.

Much of this confusion has to do with two misguided beliefs. On the one hand, there is an implication that any model of urbanism not compact or clearly delimited in spatial extent is detrimental to the environment. On the other hand, in taking the metaphor of society’s ecological footprint quite literally, it implies the very

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opposite: that compact urban form and a heightened distinction between urban and rural are crucial elements for our survival. The crudity of these formulations belies the great complexity of territorial systems, and is open to significant interrogation. At the same time, it is out of step with maturing concepts in fields such as critical geography, including that of planetary urbanization. A clearer set of goals—no less radical, but freed from the burden of a phantom benchmark—lies within the agenda of *reduction*. Proponents of degrowth, post-growth, and other strategies of reduction have recently been articulating the transformations needed to foster this brave new world.<sup>1</sup> More than anything, it requires living differently; it means living better with less. This brief text argues that an extensive (rather than intensive) model of urbanism is best suited to foster a strategy of reduction. The central argument for an extensive urbanism builds on the work of thinkers in the fields of social theory, economics, and urban ecology, beginning at the moment in which the environmental movement gained traction in the early 1970s. Perhaps the most tractable thinking was that of social theorist Murray Bookchin and environmentalist Edward Goldsmith.

In *The Limits of the City* (1974), Bookchin set the tone by calling for a decentralism in the name of a radical socio-ecological project. In it, and in numerous later publications such as *Urbanization without Cities* (1992), Bookchin held to his central conviction that hierarchical societies are intimately linked to a Promethean domination of nature. Accordingly, Bookchin's eco-decentralism in spatial terms was framed as an eco-anarchism in social and governmental terms. He saw a system of limited government in which "the economy, society and ecology of an area are administered by the community as a whole" (Bookchin 1974). New models of decentralized agriculture, in this society, would offer not "a fanciful flight to a remote agrarian refuge, but of a systematic recolonization of the land along ecological lines" (Bookchin 1974). At roughly the same time, British environmentalist Edward Goldsmith outlined in his *A Blueprint for Survival* (1972) an ambitious plan to confront ecological crisis by cultivating a 'stable society'.<sup>2</sup> Significantly, this new paradigm necessitated a comprehensive urban restructuring that should have garnered a great deal more interest from the design disciplines than it did. In contrast to the dense, compact urban aggregations consistently advocated for in contemporary mainstream discourse, *A Blueprint for Survival* instead proposed to abandon the city as we know it and distribute human settlement across a much broader territory. The newly reconfigured system was to consist of a vast urban field of small, self-regulated communities. In this model, Goldsmith was advocating for a radical program of decentralization and deindustrialization as the most effective means of

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<sup>1</sup>For a valuable introduction, see political and economic theorist Serge Latouche's *Farewell to Growth* (2009).

<sup>2</sup>The book's primary author was Goldsmith, but it included important contributions from his editorial colleagues at UK-based journal *The Ecologist*, including Robert Allen, Michael Allaby, John Davoll, and Sam Lawrence. Goldsmith and Allen were the founding editors of the journal, which launched in January of 1972—devoting the entire inaugural issue to the very same text of *A Blueprint for Survival* published in book form later that year.

curbing the environmental damage caused by growth-oriented industrial societies. Simply put, when qualified, environmental scientists entered the debate, *their very first impulse was to decentralize*.

In the thinking of Bookchin and Goldsmith (and others since) there is a clear dismissal of the bounded city, and a commitment to extensive territorial systems. Yet extensity does not, in itself, guarantee a reduction of production and consumption rates.<sup>3</sup> What it *does* do is to allow the ‘small, self-regulated communities’ these thinkers were in favour of to thrive. Notably, the issue of scale was not about limiting the spatial footprint in a bid to avoid damage. The ambition was rather to introduce a new social structure that Goldsmith and Bookchin felt would operate most effectively at a smaller scale.<sup>4</sup> With Goldsmith’s work, for example, the proposed social structure was to theoretically have the capacity (owing to its smaller size and greater degree of self-regulation) to *internally reduce the need for material goods* and hence break the vicious cycle of production and consumption that was at the heart of *A Blueprint for Survival’s* critique.<sup>5,6</sup>

This narrative is significant when considering contemporary patterns of urbanization, which—owing to broad restructuring under post-Fordist economics—often present an equally decentralized morphology.<sup>7</sup> It is not much of a stretch, then, to imagine that the spatial ambition of 1970s radical environmental thinking is synchronous with the teleological path of post-Fordist economic restructuring and the effect it is having on urban morphology. In both instances, a common vector has emerged toward horizontality, devolution, and decentralization.<sup>8</sup> However, it remains thus far unrealized. And after the UN’s Brundtland Commission released its report in 1987 calling for ‘sustainable development’, any hope of a synergy between an eco-decentralism and mature (post) industrial urban systems has been shelved in favor of a traditionalist approach committed to the compact city. Against

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<sup>3</sup>Nor does it preclude density; in fact, to suggest that low-density (as an opposition to the high-density model of the compact city) is the key to sustainability perpetuates the belief that it is the built environment that is the problem.

<sup>4</sup>Recourse to a ‘small’ scale was a trope that permeated environmentalist thinking in the 1970s; likely the most notable contribution was economist E. F. Schumacher’s *Small is Beautiful* (1973).

<sup>5</sup>Goldsmith et al. encouraged sweeping reforms in society to accomplish this spatial restructuring—including the adoption of entirely new institutional and governmental structures to both initiate decentralization and to maintain it. They briefly considered the role of a central government before ultimately dismissing it as far too distant and coercive to be an effective partner in any significant urban and social restructuring.

<sup>6</sup>It should also be noted that any such ‘self-regulation’ marches hand-in-hand with the notion of autonomy. An extensive urban matrix supports the cultivation of autonomous social units, decoupled from the system we currently live in.

<sup>7</sup>Patrik Schumacher and Christian Rogner have described this as a “decentralizing anti-urbanism” brought about through the “re-application of Fordist principles of production on regional and national scales.”

<sup>8</sup>This is not to mention *lateral relations, flattened hierarchies, ad hoc coalitions*, and the like—conditions that can be read as socially progressive. Ironically, they also align conceptually with those very same economic forces that often preclude their emergence.

the backdrop of the intensive, compact city model so hegemonic today, it seems that there is ample room in the conversation to explore the urban alternative lying dormant in the scattered field we occupy. Foregrounding such a project for the design disciplines would suggest two strategic frameworks. First is the development of tools and practices (both spatial and material) for the evolution of *existing territories* that are best described as horizontal, diffuse, and extensive. In other words, places that have been empirically documented as such are halfway there (here we could imagine the Veneto, Atlanta, or Houston). They already have the seeds of a relevant spatial pattern. This model might therefore be seen as a kind of ‘ecological retrofit’. Second is the development of similar tools and practices for *new and emerging territorial systems*. China, for example, presents a scenario in which new ‘cities’ for millions of people are currently being schemed through initiatives like Beijing’s *National New-Type Urbanization Plan*. The plan’s ambition to increase the rate of urbanization in the country from 54 to 60% by 2020 recognizes, encouragingly, the social and environmental dimensions of the process.<sup>9</sup> In that sense, it serves as a useful framework to imagine a model of better living for a socio-ecological future. Ultimately, by fostering new social structures—themselves able to select a policy of reduction and a related attention to planetary health—an urbanism of extensity sees the horizontal metropolis as a radical *environmental project*.

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<sup>9</sup>This is in notable contrast to previous post-1978 urbanization patterns in China, the social and environmental record of which is troubling by any measure.



# Towards a *Desakota* Extended Metropolis? Growth and Spatiality of New (Peri-)Urbanism in Chinese Metropolitan Regions



George Lin

## Introduction

Despite the continuing debate over the exact meanings and significance of the concept of globalization, it is generally believed that the tendencies of a functional integration of economic activities at the global scale have had profound social, cultural, and spatial effects extending well beyond the economic sphere (Jessop 2000; Yeung 2002; Dicken 2003). Among the many social and spatial changes associated with globalization, the growth of new urbanism in different world regions has recently captured much scholarly attention (Knox and Taylor 1995; Dear and Flusty 1998; Nijman 1987; Smith 2002; Pannell 2002; Ma 2002; Lin and Wei 2002; Ma and Wu 2005). Whereas early interests in “urbanism as a way of life” were closely related to the school of modernization, the new intellectual trend is to see urbanism as a global phenomenon the growth and diffusion of which are greatly facilitated by such new forces as the triumphal expansion of Western capitalism, technological advancements in time-space compression, and popular political initiatives in neoliberalism.

In the Western capitalist world, increased spatial mobility of capital and labour is believed to have given rise to a concurrent rescaling process of a concentration of control functions in a few “world cities” or “global cities” and a decentralization of production functions on a greater geographic scale (Sassen 1991; Knox and Taylor 1995). The spatial outcome has been the (re)agglomeration of metropolitan centres on one hand and deepened segmentation and segregation of the intra-urban space in many “Revanchist cities” on the other hand (Smith 1996; Knox 1996; Dear and Flusty 1998; Soja 2000). Intensified global competition has also forced many nation-states to incorporate urbanism into the state neoliberal project of

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place-making, place-promotion, or “glurbanization” as a means to capture and “fix” mobile capital (Jessop 2000; Brenner and Theodore 2002; Smith 2002).

The seemingly irresistible and irreversible tide of globalization and “global metropolitanism” has also swept into the socialist world. For decades, cities under socialism had been known for their unique characteristics of “less urbanism” (i.e. smaller urban size, less urban diversity and density, standardization of housing, uniform neighbourhoods, and less urban marginality) and “under-urbanization” (i.e. the level of urbanization was limited and lower than that of industrialization) (Fisher 1962; French and Hamilton 1979; Ma 1976; Murray and Szelenyi 1984; Whyte and Parish 1984; Lo 1987; Lin 1998). Since the end of the cold war, increased exposure to global capitalism has brought about structural changes to the “cities after socialism” (Andrusz et al. 1996). Although under-urbanization continues to be reproduced in countries such as Hungary, Poland, and Czechoslovakia because of the expanding rural housing sector in the countryside (weak push) and limited employment opportunities in cities (weak pull), there are new signs of revitalized urbanism featured by greater ethnic diversity, growing commercial sectors, higher urban marginality, and emerging urban problems such as prostitution, homeless, and crime (Szelenyi 1996; Ma and Wu 2005). Moreover, suburbanization and inner urban decay, the two common trends of urban growth existing in the Western world for decades, are extending into the post-socialist world as the new rich are separating themselves from the poor (Szelenyi 1996; Zhou and Ma 2000).

The growth and diffusion of urbanism in both the capitalist and socialist worlds are therefore logically linked to the powerful and pervasive influence of global capitalism. In the extant literature of globalization and urban change, urbanism is often studied alongside with globalism and interpreted as a phenomenon either externally driven or globally oriented. If new urbanism is analysed in the context of the recently imagined system of “world cities” or “global cities”, then its growth and diffusion essentially take the top-down manner. Studies of the spatiality of urbanism have been conventionally based on the city where the urbanites conglomerate and where a distinct way of life can be identified to contrast unambiguously with that of the rural society. Until recently, comparison and evaluation of changes in urbanism in time and space had tended to be focused on some tangible and observable forms (i.e. size, density, heterogeneity, cityscape, etc.) with relatively less attention paid to the underlying processes which are intangible, complicated, historically contingent, and place-specific.

## Statement

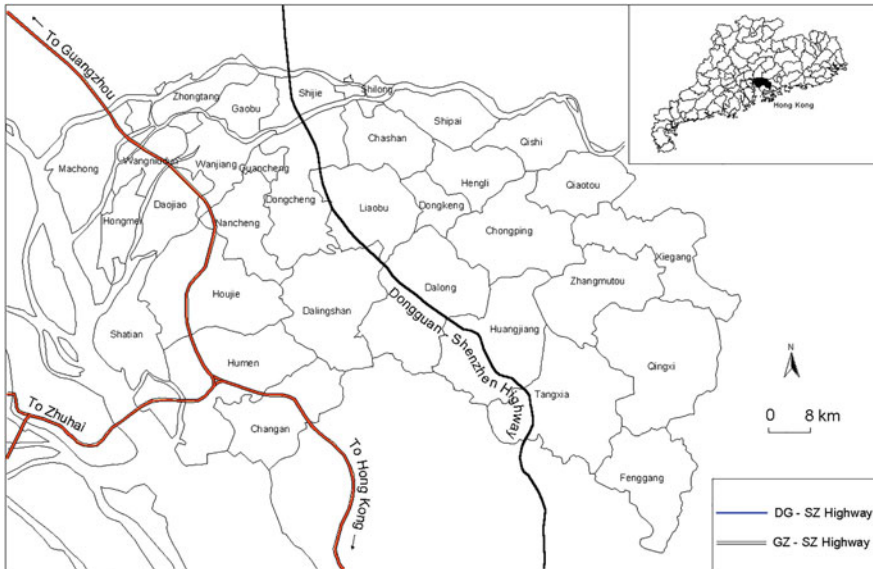
This study examines the growth and spatiality of urbanism in one of the most rapidly growing peri-urban regions in southern China where the influence of global capitalism and metropolitanism has been strongly felt. In contrast to conventional wisdom, the growth of urbanism has not been limited to some clearly demarcated

cities where the urbanites cluster to create an urban way of life distinct from the rural folks. Rather, urbanism has been able to take place in a peri-urban region where a favourable urbanizing environment was created by an entrepreneurial local government, a scattering location of numerous small-scale and labour intensive export-processing firms, influx of a huge migrant population that tripled the size of the local people, and a transitional socialist land disposition system. Despite the overwhelming influence of global metropolitanism coming primarily from Hong Kong across the border, the growth and spatiality of urbanism in this peri-urban region have shown distinct features that are deeply rooted in the earlier path of socialist collectivization and embedded in local social and geographic conditions. Emerging urbanism in the peri-urban region, or, peri-urbanism, is no less significant than what has been observed in the city and therefore should not be overlooked in the study of Chinese urbanism. Theoretically, the growth of peri-urbanism in contemporary China raises important questions to the conventional wisdom that tended to see urbanism as city-based, externally-driven, and exclusively affiliated with the urbanites. A new and innovative approach with local sensitivity and historical contingency is in order for a better understanding of urbanism within different regional contexts of the globalizing world.

## Presentation

The purposes of this study are threefold: to identify emerging forms of urbanism in a peri-urban region in southern China experiencing globalization, analyse the processes that have given rise to these forms, and evaluate the significance of the Chinese case against the existing theory of globalization and urban change. The grand hypothesis made and tested in the study is that, despite the seemingly irresistible influence of global capitalism, there existed special historical and geographic conditions in Chinese peri-urban regions enabling the growth and diffusion of urbanism in a spontaneous and bottom-up manner. The concept of urbanism has been defined and used in different manners in the existing sociological and geographic literature. As Wheatley (1971, p. 401) once commented, “definitions of urbanism became as numerous as authors”. In this study, I follow Wirth’s (1938) classic definition of “urbanism as a way of life” that can be measured in terms of the increase in population size, density, and heterogeneity. However, Wirth’s main concern was to contrast the city in an industrial society to the folk society in the pre-industrial era. He did not distinguish the ways of life in the city from those in other settlements within a modern society. Nor did he address the processes of the growth and spatiality of urbanism. While this study will follow Wirth’s sociological definition of urbanism, the main concern here will be to analyse the growth and spatial distribution of urbanism (urban population size, density, and heterogeneity) in a peri-urban region. Unlike urbanism, urbanization in this study refers only to the increase in the ratio of urban dwellers (i.e. population in cities and towns or *shizhen renkou* in the official Chinese definition) to the total population. In this study, the

term “peri-urban region” is used to refer to a region that is surrounding or in-between major metropolitan centres. In the Chinese context, a peri-urban region usually includes an urban center that was previously the county-seat and a number of towns that were formerly People’s Communes. The case chosen for scrutiny is the peri-urban region of Dongguan located in the immediate outskirts of and between the two large cities of Guangzhou and Shenzhen in southern China (Fig. 1; Table 1).



**Fig. 1** Location and administrative units of Dongguan, China

**Table 1** Basic economic indicators for Dongguan, 2013

	Dongguan	Dongguan as % of Guangdong	Dongguan as % of China
Total Population <sup>a</sup> (million)	8.32	7.81	0.61
Area (thousand km <sup>2</sup> )	2.46	1.39	0.02
GDP (billion Yuan)	549.00	8.83	0.97
Export (billion \$)	90.84	14.28	4.11
Utilized foreign investment (billion \$)	3.94	15.78	3.35

Source Dongguan Statistical Bureau (2014), p. 427

<sup>a</sup>Total population include 1.89 million local residents and 6.43 million migrant workers. The sixth national population census in 2010 revealed that Dongguan had a total population of 8.22 million in which 1.82 million held local household registration and the remaining 6.4 million were temporary population. This total population was 7.88% of the total population in Guangdong (104.41 million) in 2010

## The Changing Condition of Peri-urbanism in Globalizing China

In his classic and influential work of “urbanism as a way of life” published over half a century ago, Wirth identified three essential attributes of urbanism, namely, population size, density, and heterogeneity, from which distinct patterns of urban social interaction are derived. For population size, Wirth believed that “increase in the number of inhabitants of a community beyond a few hundred is bound to limit the possibility of each member of the community knowing all the others personally” (Wirth 1938, p. 53). Social interactions would therefore become impersonal, superficial, transitory, and highly dependent upon secondary rather than primary contacts. In a similar logical manner, Wirth reckoned that high population density would produce competition, high-pace living, aggrandizement, social friction and irritation, and loneliness. As for heterogeneity, an individual (e.g. a newly arrived migrant) usually finds it difficult if not impossible to obtain complete information of the entire community and therefore often acquires membership in widely divergent groups with reference to a single segment of his personality. The result is a community in which personas become segregated more by virtue of differences in race, language, income, and social status. In the case of contemporary China currently situating at a special historical juncture of transformation from state socialism toward a unknown destination, the three attributes of modern urbanism identified by Louis Wirth can be found not only in the cities with legitimate urban status but also in many of the peri-urban regions with rather ambiguous urban or rural identity.

In the era of state socialism under Mao, the growth and spatiality of Chinese urbanism were conditioned upon the ideological and strategic considerations of the state at the time.

First, the declared ideological commitment of Mao’s regime to the elimination of inequality, exploitation, and class stratification had found its way to shape the growth of urbanism in the city. For urban functions and economic diversity, service activities and consumption were considered to be “non-productive” and even “exploitative” because they simply appropriate the surplus value already yielded by the productive (industrial) capital and create no new wealth themselves for the society.<sup>1</sup> As such, urban commercial activities must be restrained and Chinese cities had to be transformed from “consumer cities” into “producer cities” (Ma 1976; Lo 1987; Pannell (1990a, b). For the layout of the city, residential segregation was unacceptable to the socialist regime and a neighbourhood concept was introduced to arrange the city into uniformly self-contained state units (*danwei*) in which the working class lived and worked (Ma 1979; Kwok 1981; Lo 1987). Housing was arranged and built in a standardized manner. There was no central business district and the city centre was to provide public space for the public gathering of political purposes. The result was a Chinese version of the socialist city with “less urbanism”

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<sup>1</sup>For a discussion of the ideological position toward urban commerce under Mao, see Dorothy Solinger (1985, p. 195).

as evidenced by the relative scarcity of urban services, lower inner-city urban density and diversity, as well as less residential segregation (Szelenyi 1996, pp. 300–303; Whyte and Parish 1984, p. 358; Ma and Wu 2005, p. 6).

The second important force that limited the growth and diffusion of urbanism not only in the city but also in the peri-urban region outside the city was the socialist practice of urban containment. For the strategic consideration of the needs of rapid industrialization, the state under Mao was believed to have adopted an approach that restricted both urban expansion and rural-urban migration on the keen understanding that uncontrolled urban growth might increase the burden on the state for the provision of “non-productive” urban services, absorb too much of the capital that should be reserved for industrial production, and therefore jeopardize the state’s ambition of rapid industrialization. The total population was divided into rural and urban or, more precisely “agricultural” and “non-agricultural” households by a household registration system (*hukou*) that was introduced in 1958 (Cheng and Selden 1994; Chan and Zhang 1999). Population mobility between the separated urban and rural settlements was restricted. There was little urban-rural interaction in the suburban and peri-urban region as Chinese cities were surrounded by some “invisible” yet effective institutional “walls” or “hard edges” that were set up by the state to concentrate economic opportunities in cities and then sharply limit access to such opportunities (Naughton 1995, p. 73; Chan 1992). Such a peculiar institutional setting made it extremely difficult for the growth of peri-urbanism outside the city.

The political and social conditions that contributed to less urbanism in the city and little peri-urbanism outside the city in the Mao era have since the 1980s undergone profound changes. Three important changes in the political economy of the country have been particularly relevant to understanding the growth of peri-urbanism in the post-Mao era.

First, the post-Mao regime has since the mid-1980s relaxed its control over population mobility in response to the new situation in which a large surplus rural labor force has emerged as a result of the substantial improvement in agricultural productivity. In 1984, the state allowed peasants to move into small towns nearby for non-agricultural engagements and settlements provided that they could look after their own needs for food, housing, medical care, and other urban services (*zili kouliang renkou*). In 1985, the state further relaxed its control over population mobility by permitting migrants to move to their chosen destinations on a short-term basis and register as “temporary residents” (*zanzhu renkou*). These new measures appeared to be the state’s pragmatic reaction to uneven regional development and the growing demand for a more flexible labour market. Although migration into cities for permanent settlements remains tightly controlled by the state, the movement of migrants to small towns and peri-urban regions outside major metropolitan centres has now been made much easier than before. The result has been the emergence of a huge “floating population” (*liudong renkou*) (defined as those who have resided out of their original places of household registration for six months or more) that had reached 145 million by the year 2000. Of the total floating population, 86 million were found in cities, 28 million in towns, and another 31 million in the countryside (Liang and Ma 2004, p. 477). In other words,

a total of 114 million migrants, however “floating” or “temporary” they might be, had moved into cities and towns by the year 2000. A large proportion of these floaters had ended up in some economically advanced regions on the eastern coast particularly in the peri-urban regions where employment opportunities can be found and living costs are lower than in the metropolitan centers (Fan 2002, 2003). Despite their mobile and transient nature, the influx of migrants into the peri-urban regions has significantly increased population size, density, and heterogeneity therein and contributed a great deal to the growth and new spatiality of peri-urbanism in post-Mao China.

The second important change occurred on the grassroots level of the Chinese political economy. It involved a rather spontaneous process of commercialization and industrialization of the rural economy. The introduction of an output-linked agricultural production responsibility system since 1978 has given both the rural collectives and individual farm-households greater autonomy to decide on their economic pursuits. This has given rise to a process of deepened division of labour and profound agricultural restructuring. In his early study of economic growth in monsoon Asia, Oshima (1987) a distinct employment process in which the agricultural labour force shifts its engagements between farm and non-farm activities in respond to the seasonal fluctuation in the demand for labour. Farm-households usually concentrate on farming during the peak seasons (i.e. planting and harvest) when the demand for agricultural labour is high. In the slack seasons when there is a labour surplus, farm-households shift to a variety of non-farm employment activities in order to maximize income, and this “contribute to higher annual incomes and an expanding domestic market for industries and services, eventually leading to a fully employed labour force” (Oshima 1987, p. 8). Such a flexible and seasonal division of labor was used by Oshima as the starting point to understand economic growth of many East Asian economies. It remains a topic for investigation as to whether or not this flexible division of labor existed in rural China in the Mao era. It appears quite certain that rural economic reforms since 1978 have greatly facilitated a more flexible division of the agricultural labour force leading to greater employment and higher income (Veeck and Pannell 1989; Lin 1997). Increasingly, Chinese peasants have shifted their attention away from the traditional sector of staple food production into other more profitable non-farm activities such as sideline business, trade, construction, transportation, and manufacturing. Building on the socialist legacy of the “five small industries” (*wu xiao gongye*) developed in the Mao era, rural collectives have endeavoured to dramatically expand and transform the former Commune and Brigade Enterprises into Township and Village Enterprises (TVEs) as a means to generate income and employment opportunities. By the year 2000, TVEs had generated over 30% of China’s GDP and employed 27% of the total rural labor force (Yeung and Lin 2003, p. 122). The bulk of the TVEs are located in the peri-urban regions outside major metropolitan centres partly because of the great accessibility to urban market, information, and technological expertise and partly because of the convenience to obtain land and labour at low cost. Moreover, the peri-urban regions are “the site of China’s quasi-legal ‘hidden economy’” where weak surveillance of economic activity intersects with

abundant economic opportunity and where things can get done cheaply and expeditiously (Naughton 1995, p. 83). For whatever reasons, the spontaneous flourishing of industrial and commercial activities in the peri-urban regions has provided a strong and diversified economic base for the growth of peri-urbanism.

Finally, the inflow of international capital, technology, and information has helped create a social environment conducive to the growth and diffusion of modern urbanism in the peri-urban regions. It has now been extensively documented that global capitalism has to seek shelter from some locally specific social conditions such as pre-existing kinship ties, interpersonal trust, and connections in order to take root in the socialist territory (Smart and Smart 1991; Leung 1993; Lin 1997; Hsing 1998). Geographically, these place-specific social conditions are found primarily in those locales that served as either "Treaty Ports" in the pre-socialist era or places of origin for the Chinese diasporas in Hong Kong, Taiwan, Southeast Asia, and western countries. The existence of these favourable social conditions is not limited to major cities or metropolitan centres, however. In many cases, peri-urban regions outside the city may contain pre-existing social relationships with overseas investors as rich as, if not richer than, those found in the metropolitan centres. The geographic unevenness of the social conditions the embedded global capitalism has been one of the important factors explaining the high concentration of foreign capital investment on the eastern coast particularly in the Pearl River Delta and the lower Yangtze delta regions. The uneven penetration of global capitalism has in turned contributed to the growth and diffusion of urbanism in the peri-urban regions. It should be noted, however, that urbanism is not simply a passive outcome of the intrusion of global capitalism. It could be and has actually been made an integral part of the local development strategy of place-making and place-promotion in order to lure and geographically fix global capital.

The changes of social and political conditions described above suggest that the processes underlining the growth and spatiality of peri-urbanism remain historically contingent and place-specific even though the forms and patterns recently emerged may bear certain resemblance to what has been observed in the West. Unlike free population mobility in the West and in the former Soviet bloc after socialism, the relaxation of state control over population mobility in contemporary China has been selective and partial, and this has provided a special institutional environment for the increase in population size, density, and heterogeneity in the peri-urban regions. The spontaneous and dramatic commercialization and industrialization of the rural economy on the grassroots level have contributed to the growth of peri-urbanism in a locally driven and bottom-up manner. The fact that global capitalism has to be embedded by pre-existing social relations also distinguished Chinese peri-urbanism from the conventional wisdom that tended to emphasize the transformative power of globalism. The remainder of this paper examines the empirical case of Dongguan in order to better understand the new forms and processes of peri-urbanism evolving in a globalizing regional economy after state socialism.



## Growth and Spatiality of Peri-urbanism in Dongguan: A Case Study

Among the many cities and city-regions in China, Dongguan is illustrative of how a peri-urban region is profoundly transformed to experience urbanism as a consequence of changes in the social and political conditions described in the foregoing section. Situated on the east wing of the Pearl River Delta, Dongguan was originally an agrarian socialist economy with a level of development lower than its neighbours in the heart of the delta region (e.g. Nanhai, Panyu, and Shunde) where soil quality is higher and the tradition of market farming is better established. On the eve of economic reforms and opening up, over 71% of Dongguan's labour force was engaged in primary economic activities (Dongguan Statistical Bureau 1998, p. 239). Rural per capita income was only 149 *yuan* which was below the level of other places in the central delta region. It was estimated that one in every five young people ran the risk of a death penalty and managed to escape to the capitalist enclave of Hong Kong across the border (Vogel 1989, p. 176). However, Dongguan was not a hopeless place without its own comparative advantages. As a peri-urban region, Dongguan enjoys easy accessibility to both Guangzhou in the north and Hong Kong in the south. Moreover, Dongguan is one of the most important places of origins for the Chinese diasporas in Hong Kong, Southeast Asia and other countries overseas. A systematic survey conducted in 1997 found out that Dongguan had about 654,000 of its people living in Hong Kong and Macao and another 218,000 living overseas (Dongguan Yearbook Editorial Committee 2001, p. 185). Compared with other cities and counties in the delta region, Dongguan has been endowed with a favourable location and pre-existing social capital for export production. Such geographic and social endowments had not brought any benefits to Dongguan in the Mao era, however. It was only after the opening up of the socialist economy that a favourable environment has been created to enable Dongguan to utilize its geographic and social assets and embark on a new path of genuine development.

Given Dongguan's geographic proximity to and extensive social connections with Hong Kong, the growth and transformation of the regional economy in this peri-urban have owed a great deal to the capital, technology, and information that come primarily from Hong Kong. Prior to the mid-1990s, an overwhelming majority of foreign investment in Dongguan was obtained from Hong Kong where Dongguan enjoyed favourable geographic closeness and extensive social ties. This was also a period of time when most of the foreign investment came in the form of "three supplies and one compensation" (*sanlai yibu*).<sup>2</sup> It was estimated by local officials that

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<sup>2</sup>The term "*sanlai yibu*", literally "three supplies and one compensation", refers to a flexible contractual arrangement made between Hong Kong investors and their Dongguan partners, under which the Hong Kong investor supply raw materials, equipment, and models for what is to be manufactured while the Dongguan partner provide labor, land, and other logistics necessary for manufacturing. At the end of the year, the Hong Kong investor will pay a processing fee to the

about half of the contracts they had signed during the 1980s were with their country-fellows in Hong Kong, many of whom former Dongguan residents who fled their native villages to Hong Kong during the disastrous years of the Cultural Revolution (Vogel 1989, p. 176). Since the mid-1990s, however, significant changes have taken place in the origins of foreign investment. Although Hong Kong remains the single most important source of capital overseas, its share has reduced from 84% in 1996 to less than 50% in 2002, and the balance has been picked up by countries and regions elsewhere such as Taiwan, Japan, Singapore, the US, and South Korea. In addition to the provision of capital, Hong Kong has also served as a main source of technology, information, and lifestyle for the people in Dongguan. It has long been recognized that in Dongguan the influence of Hong Kong is felt stronger than that of Beijing ever since the opening up in 1979.<sup>3</sup> The intrusion of global capitalism via Hong Kong has been one of the most important forces facilitating the growth of urbanism in this peri-urban region.

The intrusion of forces of global capitalism into Dongguan has been conditioned and modified by local initiatives, however. The role played by the local governments of various levels (i.e. municipal, township, and villages) has been crucial to the transformation of the local economy and the growth of urbanism in the peri-urban region. Apart from making flexible arrangements with foreign investors for export processing, the municipal government in Dongguan has invested heavily in the local transportation and telecommunication infrastructure. It was reported that a total of 105.76 billion yuan was invested in fixed assets and economic infrastructure during 1978–2002 (Dongguan Statistical Bureau 2003, p. 206). Unlike the previous situation under Mao when state budgetary allocation dominated capital formation, the bulk of capital has been mobilized by local governments of the municipal, township, and even village levels from different channels including bank loans, foreign investors, and self-fund-raising.

## **Export-Led Industrialization and the Growth of Peri-urbanism**

The impacts of global forces on the transformation of Dongguan's economy and society have been profound and pervasive, some of which can be identified statistically and others cannot. The most noticeable effect of economic globalization has been a distinct process of export-led industrialization fueled primarily by the capital, technology, and employment brought into Dongguan by the industrial firms relocated from Hong Kong, Taiwan, and other countries overseas. Available

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Dongguan partner as a compensation to all the costs involved in the manufacturing process. See Lin (1997, p. 173).

<sup>3</sup>For detailed discussions of the social influence of Hong Kong on Dongguan, see Vogel (1989), and Lin (1997).

statistics suggest that by the end 2002 a total of 10,035 compensational export processing firms were put in place and another 5428 joint ventures, cooperative ventures, and wholly foreign own ventures were established. These export-oriented industrial establishments have brought into Dongguan a total utilized foreign capital of US\$17.3 billion and imported modern machinery that worth US\$12.51 billion (Dongguan Statistical Bureau 2003, pp. 278–279). Over 1.43 million workers were employed directly by the compensational processing firms and another 1.08 million by foreign ventures in 2002. This means that the total number of workers (2.5 million) directly employed by export processing firms and foreign ventures exceeded the total local population (1.56 million). The result is an influx of a huge number of migrant workers three times of the local population to fill the gap, and this influx of outside population has profoundly reconstituted the local economy, society, and space. In addition, the taxes and processing fees paid by foreign ventures and export processing firms have become one of the most important sources of local revenue. On top of the various taxes collected from foreign ventures, local governments of various levels collected a total of US\$1.74 billion processing fees from compensational processing firms in 2002 along. While the collection and distribution of taxes are subject to central taxation regulations, the processing fees are usually remitted to local governments at the village and township levels for their own consumption. With the inflow of an extraordinary amount of processing fees, coupled with the decentralization of the power of decision making, the towns and villages in Dongguan are financially and politically in a stronger position to strive out industrialization and urbanization in its own way. Official statistics indicated that government fiscal income rose from only 5% of GDP in 1990 to 23% in 2002 and the total fixed asset capital investment increased from 12% of GDP to 29% for the same period (Dongguan Statistical Bureau 2003, p. 64). Much of the fixed asset capital investment was directed toward industrial and urban development as well as the improvement of the local transportation infrastructure. The result has been an expansion of manufacturing and widespread growth of peri-urbanism.

The scale and speed of export-led industrialization and peri-urbanism taking place in Dongguan over the past two decades have been astonishing. Table 2 lists some of the key demographic and economic indicators to illustrate the transformation of the local economy and space. Over the last two decades, Dongguan has been transformed dramatically from an agrarian economy into a rapidly expanding peri-urban region with growing concentration of foreign capital, industrial activities, and population. While the local population grew slightly from 1.1 to 1.5 million in 22 years due to the population control policy, nonagricultural population as a proxy of urban population grew from only 17% of the total population to 36%. More significant is the influx of migrant population from 660 thousand in 1990 to over 4 million in 2002. When the migrant population are taken into account, population density increased by fourth times in twelve years, rising from 800 to 2400 persons per square kilometres. Equally significant is the transition of the economy from one dominated by the primary sector into one led by manufacturing and services. In the twelve years of 1978–2002, employment in the primary sector dropped

**Table 2** Dongguan's demographic, economic and social change, 1978–2013

	1978	1980	1990	1995	2000	2005	2010	2013
Population (million)	1.11	1.12	1.32	1.44	1.53	1.66	1.82	1.89
Nonagricultural (%)	16.62	17.6	23.41	24.63	25.96	39.75	50.66	51.52
Migrant population (million)			0.66	1.42	2.55	4.90	6.40	6.43
Population density (person/km <sup>2</sup> )			712	1365	2616	2662	3343	3381
Employment (%)	100	100	100	100	100	100	100	100
Primary	71.6	64.1	36.2	23.3	19.4	8.6	4.7	–
Secondary	16.8	24.6	40.6	46.9	48.2	45.6	39.5	–
Tertiary	11.6	11.3	23.2	29.7	32.4	45.9	55.9	–
Cultivated land (thousand ha)	78.92	78.49	58.84	47.24	44.22	33.53	38.46	37.62 <sup>a</sup>
Urban built-up area (thousand ha)		2.39		8.25	14.77	62.03	79.85	90.30
GDP (billion Yuan)	0.61	0.70	8.04	29.63	82.03	218.32	424.65	549.00
Per Capita GDP (Yuan/person) (including migrants)			4063	10,360	20,105	33,280	51,661	65,986
Highway density (km/100km <sup>2</sup> )		49.7	53.75	94.4	102.15	116.47	193.13	203.33
Mobile phone users (million)					1.24	10.16	16.08	18.50
Urban resident disposable income (Yuan/person)			2508	9588	14,142	22,882	35,690	46,594
Rural Per Capita Income (Yuan/person)	149	266	1542	4769	8484	13,076	20,486	27,214

Source Dongguan Statistical Bureau (2011), pp. 50–55, (2014), pp. 54–60

<sup>a</sup>37.62 thousand ha was the area of cultivated land in the year 2012. This indicator was no longer released since 2013

substantially from 72% to 15 while the secondary and tertiary sectors expanded their share from only 28% to a dominant position of 85%. While the growth of the secondary sector is primarily a result of export-led industrialization, the accelerated growth of jobs in the tertiary sector since 1990 has been a direct consequence of the inflow of migrant population most of whom are factory workers creating high market demands for services. The industrial sector has also gone through a process of restructuring as a consequence of the inflow of foreign investment and growth of exports.

The process of demographic and economic restructuring has found its manifestations over space. As foreign ventures and export processing firms built their factories and transportation facilities often on the grounds that were previously farmland, a huge amount of farmland was taken over and converted into industrial,

transport, and commercial developments. Cultivated land shrank dramatically from 79 to 33.38 thousand ha during 1980–2002 while urban built-up area expanded from 2.3 to nearly 19 thousand hectare. For an efficient transportation of goods in and out of Dongguan, the local highway network has been substantially extended and upgraded so that highway length extended by more than two times from 1259 to 2641 km during 1978–2002. By 2000, Dongguan had been ranked first among all Chinese prefectural municipalities in terms of its highway density (102 km per 100 km<sup>2</sup>). Dongguan was also among the first where mobile phones enjoyed great popularity with over 4 million users in 2002, which exceeded its total local population by a large margin. Finally, labour productivity as measured by per capita GDP showed a steady growth and per capita income soared for both urban and rural residents (Table 2). Taken together, the process of demographic, economic, and spatial changes identified here, characterized by growing urbanization, increased population density and heterogeneity, the growth of industry and services, and the conversion of farmland for industrial, transport, and urban developments, suggests that some of the salient features of modern urbanism as observed historically in the West and recently in other socialist transitional economies have been emerging in Dongguan. This process is unprecedented in Dongguan and it has firmly set the local economy apart from the earlier practice of self-isolation, collectivization, and controlled urbanization in the Mao's era of utopian socialism.

The growth of peri-urbanism in Dongguan as evident in the growth of population size, density, and heterogeneity has had several distinct attributes. First, unlike the situation in the West where the growth of urbanism has been closely intertwined with the transition of the economy and society from industrialism to post-industrialism, the growth of peri-urbanism in Dongguan has occurred alongside the transition from an agrarian society into an export-led industrializing economy. Although there have been real estate developments in selected towns (e.g. *Zhangmutou*) to attract Hong Kong residents, the main driving force for urban development here has been export-led industrialization. An overwhelming majority of utilized foreign investment, ranging from 87 to 99%, has been placed in the industrial sector. Industry has taken the lead in the employment composition of the local labour force, accounting for over one-third of the total. For migrant workers, the dominant position held by the industrial sector is even more striking—over 80% of all. The dominant role played by industrialization in Dongguan's space economy could also be seen from its land use pattern. An analysis of Dongguan's land use in the year 2000<sup>4</sup> reveals that its industrial land use accounted for 11% of the total land area, which exceeds the averages of the province (1.5%) and the nation (0.3%) by a large margin. Among the 97 cities and counties in the province, Dongguan has the second highest proportion of land used for industry, next only to Nanhai. The dominance of industry in capital, labour, and land suggests that whatever observed in Dongguan must be closely associated with the growth of externally fuelled and

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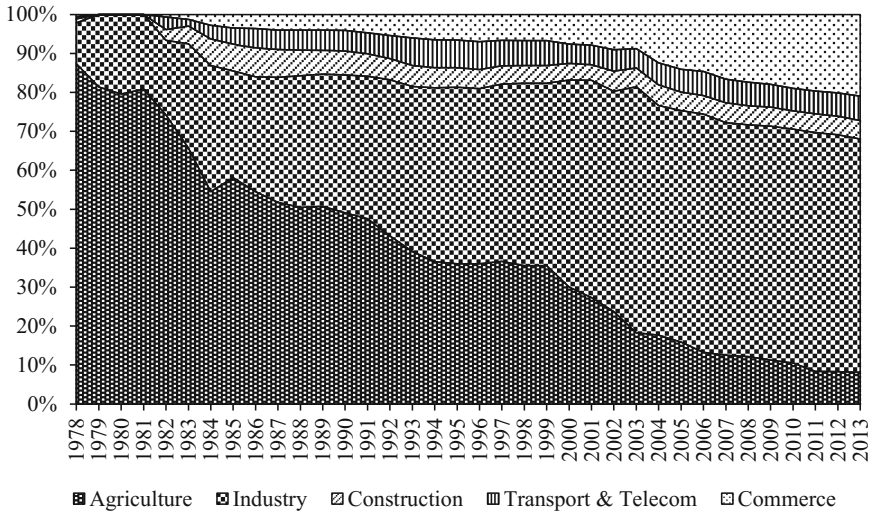
<sup>4</sup>Based on: Guangdong Provincial Government, 2001, Tabulation of the area of land use in Guangdong Province by cities in the year 2000; Guangzhou, Guangdong: Internal digital database

export-oriented industrialization. The local trajectory of global metropolitanism is based upon a transition from an agrarian to industrial economy which is distinct from the Western experience of urbanism.

Second, the export-led industrialization process in Dongguan has taken a widespread spatial pattern and has been located primarily at the village level. At the eve of the opening up, industries owned and run by the municipal and township governments took the lion's share (86%) of the total industrial production. In the following 14 years, industries located and operated at the village level continued to expand so that their share of the total industrial production increased from only 14% in 1978 to 46%. By 2002, village industries had become the leading component. This pattern suggests that what has been taking place in Dongguan involves more an industrialization of the countryside at the village level than anything based on the urban centres. The fact that industrial development is widely scattered among many villages without any concentration in the urban centre has been described by the local people as "a spread of numerous stars in the sky without a large shining moon in the centre" (*mantian xingdou qeshao yilun mingyue*). This process of rural industrialization and the spread of peri-urbanism stands in sharp contrast with what has been observed in the West where the growth of urbanism has been based on cities especially some leading metropolises. If the diffusion of urbanism in the West could be understood as a top-down and city-driven process, then what Dongguan has shown is one characterized by a bottom-up, dispersed, and rural-based process of growing popularity of the urban way of life.

Thirdly, in close relation to the distinct processes identified above, there is intensive interception of industrial and urban activities into the agricultural economies or the pursuits of the rural households. Because industrialization and urbanization are taking place on the grassroots level, many of the agricultural population are diversifying their occupations and shifting away from farming into more profitable non-agricultural activities in a manner envisaged by the economist Oshima (1987). Such a diversification is made possible by a spontaneous and flexible division of labour for the maximization of profits. For a typical farm household, farm cultivation is either subcontracted to migrant workers or looked after by the housewife or elderly, whose task is to ensure fulfilment of the farming quota set by the state. The husband, son, and daughter may engage in more lucrative non-agricultural activities such as manufacturing, trade, transportation, services, or construction. A similar division of labour also takes place on a seasonal basis. Often peasants will concentrate on agricultural production during the planting and harvest seasons when the demand for labor on the farm is high. They will then shift to non-agricultural pursuits for the rest of the year, thus raising income and maximizing profits. The result of this flexible division of labor on both family and seasonal basis has been a remarkable mix or interception of agricultural and non-agricultural, urban and rural activities, which makes it increasingly difficult to delineate agricultural and non-agricultural population or urban and rural settlements.

Many of the local population wearing an "agricultural" or "rural" hat are actually involved in a variety of non-agricultural or urban activities. Figure 2 shows the



**Fig. 2** Occupational structure of Dongguan's rural labour force, 1978–2013

changing occupational structure of Dongguan's rural labour force. When economic reforms were initiated in 1978, an overwhelmingly large majority of the rural labour force was affiliated with agricultural pursuits. Since then, agricultural pursuits as a share of the total occupations of the rural labour force have declined steadily and substantially from 84% to only 20%. By 2002, the majority of the rural labour force had shifted occupations into non-agricultural sectors such as industry, commerce, transport and telecommunication, and construction. This rural labor force is considered "rural" because it is found in rural settlements. In other words, those who live in rural settlements are now pursuing a wide range of activities associated more with an urban society. The intense mixture of industry and agriculture or urban and rural activities, envisaged by McGee (1991) and Ginsburg (1990), appears to be emerging in Dongguan.

## Conclusion and Discussion

Ever since the publication of Louis Wirth's classic work on urbanism, the growth and spatiality of urbanism in different geo-political contexts have never ceased to intrigue urban specialists. Earlier studies tended to link the growth of urbanism with modernization and contrast it unambiguously with what was found in the rural society. The recent obsession with the concept of globalization has renewed scholarly interests in urbanism and raised theoretical questions concerning not only the interrelation between globalism and urbanism but also the possibility of a global convergence. Despite their significant differences, the two discourses of

modernization and globalization share a common tendency to see urbanism as essentially city-based, globally diffused from top down, and exclusively affiliated with the urbanites. The spatial variation of urbanism in different world regions and its relationship with local political and social conditions remain the subjects for further investigations.

This study moves beyond the conventional approach whereby urbanism is evaluated on the basis of changes in cities and examines the growth of urbanism in a peri-urban region experiencing profound structural and spatial changes in the recent decade. The ongoing transformation of the Chinese socialist political economy appears to have reached a historical moment in which a distinct environment has been created facilitating the growth of peri-urbanism in some of the rapidly urbanizing regions on the eastern coast. A partial relaxation of state control over population mobility has helped channelled the movement and concentration of population into the peri-urban regions where employment opportunities are plenty and living costs are relatively manageable to the migrant workers. The spontaneous and explosive growth of rural industries, including export processing industries, has created an economic base strong and diversified enough to sustain a large, dense, and heterogeneous population and enable urbanism to take place outside the metropolitan centres. The intrusion of global capitalism based on pre-existing social connections has further strengthened the urbanizing environment. It remains to be seen how long these political and social conditions can continue to sustain the growth of peri-urbanism. For this particular historical moment at least, the growth of urbanism in contemporary China appears to be taking place in regions even outside major metropolitan centres and in a bottom-up manner.

The case of Dongguan has demonstrated the complexity of the growth of peri-urbanism in relation to the negotiation, contesting, and reconciliation between the forces of global capitalism and local political and social conditions. The intrusion of the forces of economic globalization has no doubt facilitated an export-led industrialization of the local economy and contributed to the increase in population density and mobility, personal income, economic diversification, and social as well as spatial heterogeneity. The inflow of international capital from Hong Kong, Taiwan, and other countries overseas has been based on locally specific social relations, however. Geographically, towns and villages have been the major loci where the industrial establishments financed by overseas capital got landed and sprout, and this distinct geography of foreign investment has contributed to the growth and diffusion of urbanism from below. This geography of foreign investment, coupled with the flexible and deepened division of labour that described by Oshima (1987), has led to an intensive interception of industrial and urban activities into the agricultural economy and rural households. Institutionally, local governments at the municipal, township, and village levels have functioned as both decision-makers and investors directly involved in urban development. These processes have blended the persistent legacy of earlier state socialism and collectivization with the new elements of market reforms, export-industrialization, and global capitalism. As a result, the earlier space of an agrarian society has been transformed and reconstituted into multiple spaces of representation (space of



local-global negotiation, space of rural-urban interaction, and space of local-outsider contesting, etc.) in which new peri-urbanism finds its room. The case of Dongguan has thus demonstrated the hybrid, path-dependent, and locally sensitive nature of peri-urbanism in China undergoing structural transformation. Despite the seemingly irresistible and irreversible tendency of globalization, the growth and diffusion of urbanism has not been devoid of the effect of past state ideologies, practices, institution and locally specific cultural conditions. Geographically, the emergence of new spaces of urbanism has not totally replaced the “old” spaces of urbanism under state socialism. Instead, it is the co-existence and overlapping of the new and the old that have made new Chinese urbanism so complex, heterogeneous, and intensively mixed that its exact nature can be elusive, obscure, and easily confused.

Obviously, the patterns and processes of change in peri-urbanism identified in Dongguan are place-specific and therefore cannot be used to make theoretical (over) generalizations applicable to the entire country. Nevertheless, the importance of peri-urban regions in the growth and diffusion of urbanism warrants further investigation and serious theoretical evaluation. Until recently, existing studies of “the New Chinese City” have been based primarily on the growth and transformation of officially recognized cities and towns. With its marginal status both administratively and geographically, the transformation of the peri-urban region and the role it has played in Chinese urbanism have rarely been addressed. The case of Dongguan has shown a distinct process in which the growth and diffusion of urbanism takes place on the grassroots level and in a widespread manner. To foreign investors, the peri-urban region is particularly attractive because land and labor can be obtained at a price lower than the city whereas its accessibility is no far behind that of the city. To municipal governments, the peri-urban region serves as the locale for many new land development projects including building up new housing estates to accommodate the urban new rich and setting up “development zones” (*kaifaqu*) either to attract foreign investment or to house the old industries relocated from the city centre. To the migrant workers, the peri-urban region is probably the only place they could afford to live and work. To the peasant folks, the peri-urban region appears to be an ideal locale for industrial, commercial, and urban developments because of its proximity to the urban market. The peri-urban region is therefore one of the most dynamic and interesting places for studying how the forms and processes of Chinese urbanism have changed in the context of a socialist political economy undergoing profound transformation. It remains to be seen whether or not the process of urbanism from below in Dongguan can also be found in vary degree elsewhere in the country. It appears certain, however, that there is urgent need to move beyond the traditionally city-centered approach and take the seemingly marginal peri-urban region more seriously than what it has been treated. If the processes of urbanism are no less significant than the urban forms, then it will not be possible to fully understand Chinese urbanism without careful studies of what has been taking place in many of the rapidly growing quasi-legal peri-urban regions where things can get done relatively easily, cheaply, and expeditiously.

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# Urban-Rural Systems in Asia: A Research Agenda



Stephen Cairns

These brief notes outline a research agenda for hybrid urban-rural regions in Asia. It emerges from work being undertaken by the Urban-Rural Systems team at the ETH Zürich's Future Cities Laboratory in Singapore.

All cities have their hinterlands of one kind or another. We are interested in the hinterlands of cities surrounded by tropical, wet-rice agriculture. Such hinterlands are typical of many parts of Asia, and they have very specific ecological, economic and demographic characteristics, which mean they interact with nearby urban centres in distinctive ways. Most notably, wet-rice agriculture supports relatively high population densities with fine-grained plot patterns. When urbanisation processes interact with such areas, the rural does not immediately give way to the urban and instead a hybrid rural-urban typology emerges. Sometimes dubbed *desakota* landscapes (Indonesian for 'village' and 'city'), they are neither strictly urban nor rural in character, but a mixture of both.

Scholars have suggested this is a distinctly Asian settlement type. And, in sheer quantitative terms such urban-rural regions already represent one of the world's dominant forms of settlement. Despite this, we have little up-to-date information on the extent of this settlement type in Asia or its current characteristics. Furthermore, it is unclear what planning approaches, urban design strategies, and material and technological interventions might ameliorate the most damaging, and enhance the positive characteristics about such settlement types in the future. Even more speculatively, what might such regions suggest for alternative visions of settlement elsewhere? Could it be that contemporary urban-rural regions of Asia contain the seeds for sustainable pathways to urbanisation? Could such hybrid regions offer insights into ameliorating the interconnected threats of urban population growth, the deteriorating quality of urban environments, and declining productivity of agricultural regions in general?

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To answer these questions, it is necessary to look more closely at the idea of urbanisation. The current conceptual vocabulary and theoretical framework for understanding the relationship between urbanisation and urban development are predominantly drawn from much older European and North American experiences. They tend to emphasize a city-centric view of urbanisation. Demographer Kingsley Davis (1965) defined urbanisation as ‘the proportion of the total population concentrated in urban settlements, or else the rise in this proportion’ (Davis 1965, p. 41). The OECD follows Davis’ early definition, describing it as an ‘increase in the proportion of a population living in urban areas’, and the ‘process by which a large number of people becomes permanently concentrated in relatively small areas, forming cities’ (OECD 2012). More sociological definitions de-emphasise the spatial aspect of urbanisation, describing it as ‘a social process, which refers to the changes of behaviour and social relationships that occur in social dimensions as a result of people living in towns and cities’ (Bhatta 2010).

The city-centric view of urbanisation was given renewed urgency in the early years of the twenty-first century. The widely reported urbanisation ‘tipping point’ of 2007—when the world’s population shifted statistically from being predominantly rural to predominantly urban—was accompanied by startling evidence of accelerated forms of urbanisation taking place in Africa and Asia. Furthermore, the UN predicted that these were the regions where most urban growth would be focussed in the coming century. This heralded a structural and long-term shift in urban development focus. The flurry of indepth newspaper reports, special issue academic journals, substantial books and prestigious exhibitions confirmed it. This had the effect of giving greater urgency and drama to the older, academic definitions of urbanisation. Now urbanisation was cast as ‘a world-historic shift in human habitat’ (Breman 2006, p. 141), ‘the biggest migration in human history’ (Miller 2012, p. 32), and ‘the final buildout of humanity’ (Davis 2006, p. 2).

The renewed urgency around urbanisation focused attention on the threats that it posed. Now urbanisation connoted rapid growth of megacities and their associated ills, and a hollowing out of the countryside and productive landscapes through mass rural-urban migration. Growing urban populations threatened to overwhelm capacities of city infrastructure and services to adequately support them, leading to a host of urban problems such as slums, social inequality, congestion, flooding, ill-health, pollution, social unrest and heightened vulnerability (UN 2014). Urbanisation also saw the enlarging of physical and ecological footprints of cities (Angel et al. 2005, 2011), which threatened to consume an increasing and unsustainable share of finite natural resources. Urbanisation also threatened productivity of agricultural land, reducing the capacity of hinterlands to support growing urban populations (Bruinsma 2009; Jiang et al. 2015).

The privileging of a narrow view of the city in urbanisation discussion did not go unchallenged. Ongoing research on ‘urban bias’ (Lipton 1977; Henderson 2010; Jedwab et al. 2014), and recent work on ‘planetary urbanisation’ (Brenner and Schmid 2012, 2014) have articulated important alternatives to the normative view. Nonetheless, the new enthusiasm for urbanisation overwhelmingly privileged the city. It was a privilege that was built primarily on western experiences of

urbanisation in the nineteenth and twentieth centuries. And, while it did not command the same popular or academic attention, the countryside retained its long-standing, residualised place in a normative urban-rural dichotomy (UN DESA 2014, p. 4). Human migration, in this dichotomised framework, was regarded as a permanent, one-way, rural-to-urban movement.

For all of its richness and diversity, a theory of urban development grounded in western experiences of urbanisation necessarily remains inadequate for Asia. Hybrid urban-rural regions in Asia have a number of characteristics that demand alternatives to established concepts such as density, agglomeration and sprawl, for example. First, they support large populations at relatively high densities (1000+ people/km<sup>2</sup>), have extended physical footprints (over 10,000 km<sup>2</sup>), and are characterised by hybrid economies, and land use patterns featuring agricultural and non-agricultural activities. Second, they are typologically distinctive in comparison to cities and urban regions in Europe or North America. In part, this is due to the fluctuating character of Asian urban-rural regions resulting from the persistence of an agricultural economy, with its seasonal growing cycles and shifting (shuttling) labour demands, supporting urban-rural linkages and gradients, as well as uneven investment patterns resulting from relative proximity to large cities and access to international transport networks (Friedman 2007). Finally, many such urban-rural regions have developed through highly localised planning and design initiatives, usually with little interaction with formal city or national government planning systems (Douglass 1995).

Hybrid, urban-rural regions in Asia not only challenge normative conceptions of urbanisation. They also contain seeds of their own viable development. Urban-rural regions, through their integration with networks of material and immaterial flows, do not necessarily forgo the benefits of density, clustering, knowledge exchange and specialisation, or the creative capital and 'relational assets' (Dunning 2003; Krätke 2012, 3) that were historically regarded as exclusively effects of city living. It follows that policy, planning and design responses to urbanisation in normative terms are inadequate. Empirical conditions in and around Asian cities today challenge us to understand the dynamics of urbanisation in more nuanced ways. This involves at least three research tasks. The first is descriptive, and concerns the spatial extent, rates of change, socio-economic character and ecological systems in Asian urban-rural regions. The second is more theoretical, focusing on the demographic, economic and ecological interdependencies of such regions. Finally, as architects and urban planners, we are interested in a range of urban design approaches and processes, typological models and technologies suited to development of urban-rural regions in Asia.

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# Horizontal Metropolis: A Tool for a New Kind of Territoriality?



Bénédicte Grosjean

The EPFL Latsis Congress demonstrates that the notion of Horizontal Metropolis, which Paola Viganò first put forward in the context of Brussels2040 (Secchi and Viganò 2012), then theorized by a retroactive genealogy based on Gloeden's cellular model (Viganò 2013), also raises many echoes in other quite diversified disciplines. It would thus have the potential to become a way for reconceiving contemporary spatial changes in a multidisciplinary way (with economics, ecology, philosophy, politics, engineering, architecture, urban planning and landscape). As a result, it could also become a collective construction, which the success of the congress sketches out. My contribution to this joint elaboration could start with a reflection on what that notion should *not* be, to then discuss what it could allow us to think in another way.

First of all, it seems to me that building the Horizontal Metropolis (HM) should not lead us to the "generic city". This is a risk when working collectively on the emergence of a new phenomenon: we tend to highlight similarities rather than differences. This is what happened to the *città diffusa*, as everyone recognized it everywhere: from the French *périurbain* to the *Zwischenstadt*, from a simple allotment to the whole of Johannesburg, it has thus become sometimes synonymous with *Generic City*... (Koolhaas 1995) whereas the notion had been proposed to define a specific territory (Indovina 1990), with specific characteristics working on different scales.

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Here the seminar has indeed brought out several ways to consider horizontality, which complement each other (Grosjean 2017): it is sometimes isotropy, with grids and patchworks (G. Lin), for their quality of hybridization; sometimes new network techniques that are no longer “tree-shaped” (O. Coutard)<sup>1</sup>; sometimes a kind of steady system reproducibility, sought by metabolists (P. Baccini); it can also refer to a totally different designer attitude (C. Waldheim), with projectual methods that are neither bottom-up nor top-down; but also to a locus for local communities, that favor osmotic relations with the environment or self-organization (J. Rebillot); or even to other types of citizenship, which are neither related to a state nor to a municipalism (M. Dehaene).

The second risk that I see in the notion of Horizontal Metropolis is that isotropy could lead one to believe in its homogeneity, or that horizontality would inevitably induce stability. We must not only remain attentive to the specificity of territories, but we should also not deny or smooth out internal differences. These actually have the potential to generate two types of dynamics that, it seems to me, are true characteristics of these territories: 1. the important flows that run through them (people, goods, information); and 2. a form of instability over time, an organizational malleability. The first can be read in the foreword to the congress, which places the importance of relationships, systems and communications in the very definition of HM. The second, according to geographer Roger Brunet (1994), is closely linked to the first one. Brunet indeed opposes two types of territories: those that build their prosperity on the accumulation of goods (large productive area, drained by a powerful city), as in France; and those who thrive rather on flows and exchanges.

The European “dorsal” (former Lotharingia, from Randstad to Veneto, passing through Flanders, Ruhr, Switzerland, etc.) is, according to him, representative of the second, combining three characteristics: a large number of small towns of similar importance; a high density of networks and trade routes since the Middle Ages; and sharply divided, narrow and unstable territories, with ever shifting and uncertain boundaries. This institutional instability, where the decision-making power is constantly reconfiguring, has also been mentioned as a mode of constitution, or at least a factor leading to the *città diffusa*, whether it is considered as “laissez-faire”, subsidiarity or bottom-up.

Finally, we must still avoid an implicit parallel, between horizontal forms of territory (meshed, isotropic) and horizontal decision-making policies. Spatially decentralized forms can result from very top-down policies (we’ve seen some here, for example in China or Latin America). Conversely, bottom-up processes do not necessarily result in dispersed urbanization, as I was able to show in the case of the Belgian worker-owners, at the beginning of the 20th century: although they could build their house “as they wished, where they wished”, according to the law, it did

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<sup>1</sup>Olivier Coutard (ENPC, Paris), “Territorial-infrastructurel reconfigurations: heating the Horizontal Metropolis”, presentation at Latsis Symposium, October 2015, EPFL.

not mean that they massively urbanized rural lands, as they kept on densifying existing villages (Grosjean 2010).

If we can admit therefore that the situations of Horizontal Metropolis are part of a double paradigm, of important exchange flows and incremental additions, rather than accumulation, anchoring and state (or hierarchical) consolidation, several lines of thought follow from this.

First, it should be noted that these territories are conceptualized nowadays in parallel with other similar developments: for example, the horizontality in the organization of internet, with a widespread accessibility to a non-hierarchical, unordered knowledge; or the upheaval of the economy with peer-to-peer systems, and all the new practices that today can do without a physical property (Coriat 2015). It is about music, flats, cars, but also territorial resources: many reflections are now on the possibility of new land rights inspired by the commons, implemented by groups of people cooperating to organize the sharing of externalities (Ostrom 2010).

Then the HM seems to me interesting not only as a form of territory, but also as a sign of a new territoriality: the need for another kind of relationship with the land, and another process of developing this relationship, appears today (Brenner 2014). In the HM, the processes seem to be less “top-down” or “bottom-up” than multi-directional and fluctuating, in an intermediate layer in terms of level of action. As for example illustrated at the congress by Joachim Declercq, who “flattens” all the relations between various economic, political and social actors, and seeks to organize exchanges, virtuous loops, and even land right transfers, in this plan. Before that, the Crimson (1999) had already theorized the “org-ware”, an intermediary organizational level (between the ‘software’ of the inhabitants and the ‘hardware’ of the physical territory), which they suggest we could also “design”. In a completely different context, the importance of this intermediate level also appears in a proto-urbanization situation like the Calais jungle, where the associative milieu plays a primordial role, between the public authorities and the migrants.

A last family of territories could, in my opinion, be part today of this same type of paradigm, with an addition of juxtaposed identities and with rather horizontal decision-making modalities, coming from their intertwining: the cross-border territories (Grosjean 2018).

Indeed, their mainspring or *raison-d'être* lies precisely in the dynamics of internal exchanges, therefore in the existence of potential differences, of places of fracture, within the territory itself. It is the internal limits that create flows and attractiveness, it is there that the major activity develops, like in the “ecotones” of the ecologists. By becoming backbones of those territories, these lines could replace the centralities (and their sempiternal hierarchical organization) as a new structure, more specific to these spatial situations. In this context, the HM could even become a territory that opens to the possibility of plural identities, just as to the visionary “identity-relation” defined by Glissant (2009).

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**Part II**  
**Horizontal Metropolis: Spatial, Social and**  
**Natural Capital**

# Horizontal Metropolis: Spatial, Social and Natural Capital: Introduction



**Brian McGrath and Martina Barcelloni Corte**

As hydrologist Andrea Rinaldo reminds us<sup>1</sup>, there is a natural power law covering the 3000 years of human city building, and this is a mark of self-organization. Nature has a geometrical signature and its hydrological pathways historically directed agricultural production and human engineered urban settlements, a sacred commons over-lorded by kings and priests. However, the last 400 years witnessed the introduction of an engineered regime of coal and oil powered industrialization, governed by bourgeois private property rights and world trade. Globally, the rise of colonial empires and a regime of market economies, resulted in a European hegemonic world system, developed and directed from metropolitan centres of capital accumulation and based on natural resource extraction and the backs of cheap labour in the peripheries. The metropolitan system was characterized by the concentration of power, the “great metropolis”, with a rigid divide between urban and rural, both lands and people.<sup>2</sup>

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<sup>1</sup>We refer to Andrea Rinaldo’s keynote speech during the Latsis Symposium 2015 held in Lausanne, from which this book originates.

<sup>2</sup>McGrath B., Shane D. G., 2012. “Metropolis, Megalopolis, Metacity” in: Crysler G., Cairns S., Heynen H., 2015. *The Sage Handbook of Architectural Theory*. London: SAGE

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The last four decades have seen, on the contrary, a dispersed and accelerated post-metropolitan urbanization, globally accompanied by new forms of renewable energy, mobility networks and digital communication.<sup>3</sup> According to Christophe Girot<sup>4</sup>, we have lost the cardinal principle of cognitive orientation in the age of GPS and we need to regain the common ground of the city in the age of social media. Fragmentation, land use and accelerated mobility has perhaps disturbed Rinaldo's natural power law, with settlements distributed according to thermal comfort and water and food supply. A violent nature demands a topology of horizontal resilience and repair of natural integration at the urban seams, what Girot describes as an "anti-model (anti-metropolitan?) of Central Park". Can the goods and spatial orientation of the metropolis be dispersed horizontally?

Ecologist Mary Cadenasso<sup>5</sup> has developed a tool for the design of horizontal urban landscapes in her patch-based High Ecological Resolution Classification for Urban Landscapes and Environmental Systems (HERCULES).<sup>6</sup> Developed for the Gwynns Falls regional watershed in the county and city of Baltimore, Maryland, HERCULES integrates natural and built form to understand urban ecological processes within the patchy "geometrical signature and hydrological pathways" of an urban territory bisecting the sprawling Northeast U.S. megalopolis. Rinaldo's 3000-year history of urban culture has been dominated by architecture as the source of orientation and order and the physical inscription of political power. If Aldo Rossi identified the more collective production of the architecture *of* rather than *in* the city five decades ago, more recently ecologist Steward Pickett<sup>7</sup> has identified the need to develop an ecology *of* rather than *in* the city. Is ecology, now, Girot's cardinal principle of cognitive orientation?

Pickett's essay may signal the shift of ecology from not just a scientific discipline to being a way of defining a common culture goal for the Horizontal Metropolis. What would our cities look like if ecological as well as architectural principles shaped them? According to Cadenasso, this would not simply entail a layered geographical mapping of landscapes but a deeper understanding of how atmospheric and terrestrial systems are linked and how flows move through systems both horizontally and vertically.

A more integrated and trans-disciplinary understanding of the territory is crucial for the Horizontal Metropolis hypothesis that, beyond the construction of an

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<sup>3</sup>McGrath B., 2015. "An Archaeology of the Metacity", in Ding W., Lu A., 2015, *Cities in Transition*. Rotterdam: NAI010

<sup>4</sup>First chapter of this part

<sup>5</sup>We refer to Mary Cadenasso's presentation during the Latsis Symposium 2015 held in Lausanne, from which this book originates.

<sup>6</sup>Cadenasso, M.L., S.T.A. Pickett, and K. Schwarz. 2007. Spatial heterogeneity in urban ecosystems: reconceptualizing land cover and a framework for classification. *Frontiers in Ecology and the Environment* 5:80–88.

<sup>7</sup>Pickett, S. T. A., 2012. "The ecology of the city: A perspective from science". In McGrath, B. (ed.), *Urban Design Ecologies*. London: John Wiley & Sons.

interpretative concept, aims to explore design strategies able to capitalize on the city-territory's existing and too often overlooked infrastructural support (natural and artificial), as a whole. Such a “palimpsest”<sup>8</sup>, made of deeply embedded logics, could in fact represent a fundamental resource to accommodate urban growth and to reorient the form it could take in the future.

The contributions contained in the second part of this book reflect precisely in this direction, critically analysing different types of territorial rationalities as, for example, those related to water management and its paradoxes (Toselli), to extremely fragmented and dynamic productive landscapes (Rivera-Munoz) or to different forms of social (Testori) and infrastructural (Bruggeman; Pagnacco) accessibility. These analyses remind us that a renewed approach to the city-territory entails not only a fundamental shift in how we conceive our inhabited landscapes (Verbakel), but also the unavoidable introduction of radically new descriptive tools and protocols (Zhang), able to build integrated and “deep” representations of the territory; “thick mapping” (Rojas), which aim to describe a less visible but still extremely effective “fixed capital”.

If, as Panos Marziaras reminds us, the Horizontal Metropolis is not only about extension but also (and mainly) about “stabilisation and deepening”, about erasing, rewriting and scratching its “palimpsest”, the careful description of such a support seems to be a fundamental operation to be performed if we are to consider space not only as the resource<sup>9</sup> but also the “capital”<sup>10</sup> upon which our future should be re-imagined.

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<sup>8</sup>We refer to the term as introduced by André Corboz in: Corboz, A., 1983, “Le territoire comme palimpseste”, in *Diogenè* 121 (January-March), pp. 14–35

<sup>9</sup>Light, J. S., 2009. *The Nature of Cities*. Baltimore: John Hopkins University Press

<sup>10</sup>Calafati, A.G., 2000. “Il capitale come paesaggio”. *Foedus. Culture, economie e territori* n.1; Lévy, J., Lussault, M., 2003. *Dictionnaire de la géographie et de l'espace des sociétés*. Paris: Belin



# Horizontal Metropolis: Spatial, Social and Natural Capital Statements



Christophe Girot

One should consider the potential for a new kind of urban ecology, when speaking of spatial and natural capital in the horizontal metropolis. This could become a radical landscape project for the contemporary city, capable of embracing cultural and topological complexities, as well as placing biodiversity, energy and resilience at the forefront of societal concerns. But are we actually capable of casting such an ambitious project in today's diffused and confused cities? Michel Foucault saw the 19th century as a period obsessed with its history and the fossilization of time in architecture, whereas the late 20th century he understood as an epoch of simultaneity, juxtaposition and dispersion where the world was seen less as something set over time, and rather as a network of connecting points intersecting with its own skein (Foucault 1967). What if the role of temporality in the 19th century and of spatiality in the 20th century were presently superseded by a phenomenal change in nature? If that were the case, what would the underpinnings and rules driving the natural capital of this new biologically and climatically driven world be?<sup>1</sup>

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<sup>1</sup>We have grown accustomed to a definition of the “production of space” through the post modernist writings of Henri Lefebvre further interpreted by Edward Soja with his notion of trialectics. The definition of the “production of space” rooted in 19th century Marxist theory further refined through Michel Foucaults concept of heterotopia dates from a pre-ecological age. One must imagine how this field of theory can adapt to the changing climatic circumstances of the present; indeed one asks—can the production of space come to play an effective role in the face of environmental adversity? (Lefebvre 1991; Soja 1996).

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## Cardinal Principle?

### *Topos and Logos as the foundations of contemporary spatial projection*

What does “horizontal” actually mean in terms of spatial organization? As a man-made artefact, landscape remains profoundly cultural and rooted in the history of the tract. The rules and metrics pertaining to its deployment are cardinal in determining a place (*topos*) and its language (*logos*). Hence, topology defines a continuous horizontal surface through specific methodologies that help produce spatial capital while enhancing the natural capital of a place.

### *Spatial referents understood as the diachronic constituents of cognitive space*

How can similar spatial rules be adapted to urban settings so fundamentally different from one another? Each culture produces a particular spatial intelligence of place, which is immanent. The specific features of that place act as strong spatial referents, that can be thought-of, and worked-out as constituent elements of cognition at different scales and time. Roland Barthes’s celebrated text on the Eiffel Tower shows how such a spatial referent contributes to the emblematic representation of place (Barthes 1983). Therefore, the reading of an urban landscape remains necessarily diachronic, subjective and complex, and its spatial referents are precisely what gives a place meaning through different levels of reading and differentiation.

### *Spatial Dyslexia: orientation versus disorientation in the age of GPS*

The widespread spatial dyslexia that afflicts the inhabitants of the horizontal metropolis is a product of our age. But why has such a general disorientation been engineered to such an extent? A strong cardinal principle is lacking in the layout of the contemporary city. We could all benefit from a new order, one that would re-establish “natural” orientation through a common language of bearings, where precise topological rules and spatial constructs would be recognized anew. But spatial dyslexia is still growing, supported by the widespread use of GPS navigation, which tends to disconnect users from a more concrete and immediate apprehension of the environment. Can cognitive coherence in the horizontal metropolis simply be replaced by GPS navigation on a handset? (Fig. 1)<sup>2</sup>

## Common Ground?

### *Collective space as the structural archetype of urban space in an age of social media*

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<sup>2</sup>Since 2010 Dr. Veronique Bohbot a researchers at the McConnell Brain Imaging Centre at McGill University has presented evidence suggesting that GPS navigation may have a negative effect on brain function, especially on the hippocampus, which is the seat of cognitive mapping and spatial memory (Bohbot et al. 2011).



**Fig. 1** Mapping with GPS has changed our way of experiencing the city. Younger generations now apprehend a city through a smartphone rather than with their naked eye

Following the prophecies of Michel Foucault, we have experienced the gradual dissolution of collective space in our cities; this has been replaced by other forms of venues through the virtual field of social media (Foucault 1982). What is our conception of collective space today, and what measure's up to the social needs of our age? In other words, should we rely on existing cultural examples of collective space, or should we invent other forms of common ground capable of expressing a sense of the collective anew?<sup>3</sup>

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<sup>3</sup>Taking Marc Augé's seminal book on "non places", (non lieux) where he speaks of the destruction of the public realm through architecture and engineering, are we able to conceive a new kind of public space in tune with our age. Or are we simply, as Pau Virilio suggest an era of medial dissolution? (Augé 1992; Virilio 1996).

### *Public and private domains versus the sacred and profane*

The distinction between the public and private realms has become fuzzy. A lot of the places of “enjoyment” we experience in public space such as streets, plazas and squares, have become much more commercial in recent years. If a clear distinction between the sacred and the profane still prevails, the same cannot be said of the public and private realms that have tended to merge together into a single commercial whole (Augé 1992).

### *Societal space as the locus and form of representative assembly*

Can urban sprawl, with its diffuse settlements set within a web of infrastructural entanglements, still embody values of representative assembly? Where are the common grounds to be found in today’s horizontal metropolis? How are they identified and used as places of representative assembly? Has the sports field replaced the village green? If societal space needs such places of representative assembly, how can they be thought of anew? (Fig. 2)<sup>4</sup>

## **Natural Continuity?**

### *Natural figuration in an age of hyper fragmentation and accelerated mobility*

What are the guiding principles of natural figuration in the horizontal metropolis?

The rules that have been set in place to facilitate mobility, have led to the fragmentation of urban space to the detriment of a more natural kind of continuity. But, there now exist new examples of liminal projects that have helped cities heal naturally at their seams, these landscapes have also become a source of new comfort and inspiration for the horizontal metropolis.<sup>5</sup>

### *Balancing the rate of natural concentration and natural diffusion in urban systems*

New landscape principles, better adapted to the given spatial conditions of the horizontal metropolis should be developed. By articulating principles of natural concentration such as parks and waterfronts with more fragmented features such as

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<sup>4</sup>We live at an epoch where the figures of representative assembly are hard to distinguish, as if the relationship between individual and milieu had become confused. This in turn affects the production of space in our cities. In her seminal essay with the title: “Mapping in the Age of Electronic Shadows”, Alessandra Ponte, following the precepts of Simondon, notes that *individual* and *milieu* are not separate but rather the result of each other (Ponte 2007).

<sup>5</sup>The office of Kate Orff, Scape has come up with a method approaching urban ecology in a different way, dealing with complex issues like the coastal protection of the Staten Island sea front, it has created the possibility of establishing an entirely new relationship between coastal communities and the ocean (Orff 2016).



**Fig. 2** Creating new fun venues like this car free day on the Boulevards in Paris is creating an entirely different reading and experience of public space in the city

single trees and small allotments and roof gardens, each piece could contribute significantly to a greater natural patchwork in the metropolis.<sup>6</sup>

*Expansion and concentration: towards an ecology of land use and soil quality*

By balancing principles of urban expansion and concentration: the horizontal metropolis can work its way back gradually towards an ecology of land use and soil preservation that can be both, pleasing, culturally congruent responding to goals of resilience and sustainability.<sup>7</sup>

*The urban landscape as thermal comfort*

With the advent of accelerated climate change, new phenomena such as urban heat islands have appeared. These may effectively be dampened through integrated landscape design and ecology. The ecological service of vegetation canopies and environmental corridors can now be measured and evaluated, bringing much

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<sup>6</sup>In this respect the work of Nicholas de Monchaux comes to mind, his approach is quite different than the conventional garden city approach of Raymond Unwin and his followers. What he proposes is an agglomeration of haphazard pieces of urban nature brought together in a stochastic mode (De Monchaux 2016).

<sup>7</sup>In a recent essay Kristina Hill exposes brilliantly the dilemma facing biodiversity strategies in an age of urbanization and climate change (Hill 2017).



**Fig. 3** A proposed cross-section of an urban garden along the Ciliwung River in the slums of Kampung Melayu in Jakarta done by the ETH Future Cities Laboratory

needed thermal comfort to overcrowded and overheated areas of the horizontal metropolis.<sup>8</sup>

## Natural Disturbance?

### *Violent Nature: redefining a topology of resilience and repair*

The threat of cataclysmic natural events impacting coastal and riverine cities is rapidly increasing. New measures are needed to repair extensively existing situations and to conceive more resilient urban environments. This calls for a new approach to landscape topology and urban form capable of coping with resilience at a larger scale. Such an endeavor will only succeed through an intensified working relationship with established engineering and architectural and landscape architectural practices (Fig. 3).<sup>9</sup>

<sup>8</sup>Current research at the ETH Future Cities Laboratory under the direction of Professor Peter Edwards is studying the possible benefits of a systematic approach to urban planting that would help reduce the urban heat island effect in Singapore. By combining plant physiological research with applied landscape design and modelling it hopes to present an ecological service method capable of improving significantly thermal comfort at the heart of the South East Asian metropolis.

<sup>9</sup>Examples of strong cross-disciplinary collaborations are showing the way towards solutions for some of the most environmentally disturbed cities in the world. The experiment developed by the ETH Future Cities Laboratory along the Ciliwung River in Jakarta Indonesia (2010–2015), points towards a new interdisciplinary mode of operation in the city (Vollmer et al. 2015).

*New forms of natural integration at the urban seams*

Our understanding of nature has changed drastically in recent decades and with it our acceptance of new forms of landscapes to come. Many of our coastlines may end-up being protected by a combination of levees and breakers that will require new landscape design skills. This up and coming landscape revolution will recover the city at its seams, and will integrate many of the principles of continuity and diversity that are meant for a resilient city.

*Reticulate natural space as a manifold of diversity and urban integration*

The best way to cope with natural disturbance will be to play on the manifold possibilities of reticulate landscape design. Through its specific surface topology it will offer greater potential for balanced diversity and a better integration of nature at the heart of the horizontal metropolis.

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# The Art of Horizontal Urbanization: The Urban Questions of Engineer August Mennes in the Antwerp Agglomeration



Tom Broes

The Belgian territory has repeatedly been described as a notorious case of distributed urbanization. Municipal autonomy, dispersed housing policies and extended transportation networks have led to the emergence of a dispersed urban realm. Belgium, in the words of Grosjean is the product of a process of ‘urbanization without urbanism’ (Grosjean 2010). Avoiding the negative externalities of industrial congestion and high concentrations, a policy of ‘urbanization without cities’ (Bookchin 1992) gave rise to a predominantly sub-urban lifeworld-beyond the country’s historical and mercantile cities. However pertinent this reading, it would be insufficient to restrict narratives on Belgium’s urbanization to dispersion policies alone. A noteworthy episode on ‘urbanizing the greater agglomerations’ for instance, marked the first decades of the twentieth century (Holvoet 1937; UVCB 1925). What did it mean to ‘urbanize the agglomerations’ in a context where density, concentration and citification were generally avoided? Looking into the history of ‘urbanizing the Antwerp Agglomeration’ (Geyselynck 1929), the contours of this practice and its legacy are recollected.

## From Extension Planning to Horizontal Urbanization

In 1907, one year after the royal decree to tear down the old ramparts around the city of Antwerp, the study committee for the development of the Antwerp Agglomeration (S.C.A.A.) was installed. In 1910 this committee launched an international competition in a quest for ideas to expand the historical city on top of the former fortification areas (Ministerie 1911). However, the Belgian state never transferred the property rights of the demilitarized grounds to the local administrations (Geyselynck 1929). This may be regarded as exemplary for the state’s

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reluctance towards true urbanity. As a consequence, hardly anything was realized of Henri Prost's winning schemes that aimed to expand the 'vertical core' [Fig. 1]. Instead the S.C.A.A. relied on more horizontal practices in order to urbanize the agglomeration. A set of pertinent and trans-class urban questions structured a program of horizontal urbanization and the urban territories rapidly expanded beyond what was at first imagined. A motley collection of old rural villages was forged to engage in a new metropolitan alliance. For decades, the territory of this *sub-urbs* would serve as a laboratory for the development of intercommunal techniques of urbanization. Through a series of interlocked urban questions the paper argues how this instance of territorial rescaling at the turn of the 20th century coproduced the features of today's horizontal metropolis.

## Waste Water Disposal and Fresh Water Supply

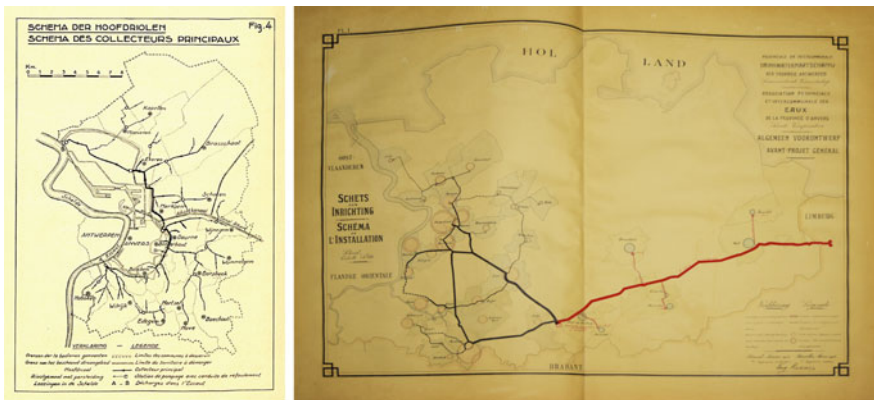
Before the S.C.A.A. was installed, every suburb dealt with its own wastewater. The sewerage system in the agglomeration was little more than a set of primitive structures. De facto, the network of regional waterways had gradually been turned into an open gutter, causing disease among the proletariat and devaluing noble



**Fig. 1** Left: Prost's winning competition scheme (expanding the 'vertical core'). Right: Prost's scheme compared to the S.C.A.A.'s actual working territory (urbanizing an 'horizontal agglomeration').

*Source* Wedstrijd voor het benuttigen der beschikbare gronden ten gevolge de slechting der versterkte omheining van Antwerpen. (Ministerie van Landbouw en Openbare Werken 1911) and drawing by author

and aristocratic estates. These primitive structures were ill-suited to cope with the unfolding urbanization of the *sub-urbs* and continuing to work with them would also exacerbate all problems downstream, within the historical city where most of the agglomeration’s waterways meet the river Scheldt (Provincie Antwerpen 1939). Only the design of a sewerage system at the scale of the entire agglomeration would solve this double crisis. Under the impetus of the S.C.A.A. an engineer was appointed that worked for more than 2 years on an impressive and multi-layered plan that included 22 municipalities in the Antwerp Agglomeration. This plan was much more than remedial measure. Apart from serving the existing villages, it also addressed the noble estates and rural lands lying in-between. About that same period, a similar plan was made to provide the agglomeration with drinking water. In 1918 an hydraulic engineer was commissioned to design a plan that would supply 35 provincial towns with clean water (Mennes 1923). Sanitary engineering (Claude 1989) became a driver of urbanization in the Antwerp agglomeration. Both plans equipped a pre-urban environment for urban development, collective consumption and urban appropriation (Castells 1975 *La Question Urbaine...*; Rémy 1974 *La ville et l’urbanisation...*). These plans redefined the mental map of the region: the entire territory suddenly became enlisted within a new framework that anticipated the contours of a horizontal metropolis in the making [Fig. 2].



**Fig. 2** Sanitary engineering undergirding urbanization in the Antwerp agglomeration. Urban questions beyond the city. Left: Sewerage System for 22 municipalities. Right: Water Supply for 35 municipalities.

Source Left: International Water Exhibition in Liège (Provincie Antwerpen 1939). Source Right: Antwerp City Archives, file n°534#11

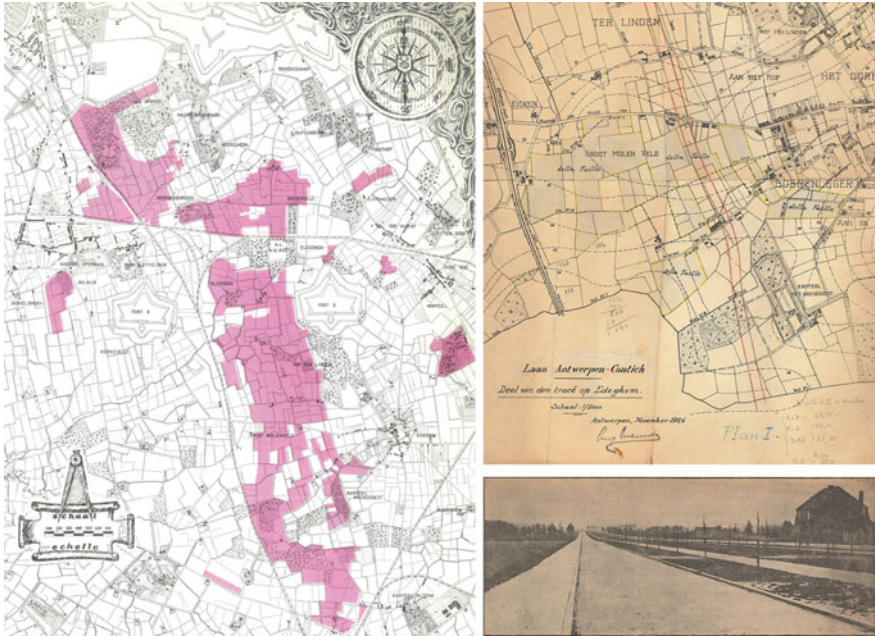
## Financing Public Parks and Metropolitan Roads with Tract Development Schemes

At the turn of the 20th century, the city of Antwerp lacked green areas and parks. “The situation in Antwerp on that matter is far worse than in any other city of the same importance, both in Belgium and abroad.” (Schobbens 1924). Targeting some of the old noble estates around the city, the horizontal practices of the S.C.A.A. offered unique opportunities to develop sufficient public parks for the agglomeration. In order to make these costly transformations from private estates to public parks feasible, and to safeguard them from complete development, deals were closed with some of the aristocratic landowners. It all started with the 1910 *Convention della Faille* which allowed a noble family to develop parts of their estates as park living area of high standard in return for reduced purchase prices for future public parks (Extensa 1960). With this early experiment in mind, the family *della Faille* soon understood that in an era of horizontal urbanization, the commodification of ground became the ultimate strategy for the further accumulation of their age-old capital. The family founded *Extensa (Extensions et Entreprises Anversoises)*. From 1910 onwards, it started to buy up strategic lots and to incorporate numerous smaller *Sociétés Immobilières* that had been founded ever since the royal decree of 1906 had caused a fierce land speculation. As such, *Extensa* and the S.C.A.A. applied similar tactics to develop the Boelaerpark, Boekenberghpark,



**Fig. 3** Rather than being part of a peri-urban belt, the new parks complemented the network of public squares in the historical city. From bourgeois to proletarian appropriation: public parks expressing the right to the city in the making.

Source Left: *Les Parcs Publics dans l'Agglomération Anversoise* (Schobbens 1924), Source Right: *Waardevolle bijkomstigheden, stedelijk groen in beleid en beleving, Antwerpen 1859–1973* (Tritsmans 2014)



**Fig. 4** Left: Extensa multiplies its estates. Right: Projection of Prins-Boudewijnlaan opening up the Extensa estates.  
 Source Private Archives Extensa n.v

Peerdsbos etc. (Schobbens 1924) [Fig. 3]. In a similar logic, Extensa also financed the development of the *Prins Boudewijnlaan* with private capital. This new avenue, designed by a private engineer, not only opened up the firm’s estates, it also established a new metropolitan alliance between the municipalities of *Kontich*, *Berchem*, *Edegem* and the Antwerp core [Fig. 4]. Aristocratic property and capital were solicited to develop urban fortunes such as public parks and roads for the benefit of all.

### Socializing and Equipping a Metropolitan Grid Through Property Development

One of the main tasks of the S.C.A.A. was to develop a metropolitan road grid for the agglomeration (Delbeke 1912). This would accommodate economic transport and allow workers to access the harbour more easily. This new grid recollected the old (rural) town centres, new living parks and public parks into a new metropolitan composition. Moreover, its scale proved to be well suited to host all kinds of cultural programs and large-scale public services, such as hospitals, leisure domes,

sports programs, the airport, and events such as the 1930 world exhibition and the 1920 Olympics. Originally, these intercommunal boulevards surfaced in a series of interwar alignment plans. Later, they were often consolidated in post-war legal zoning plans. One single engineer drew most of these plans almost single-handedly. Gradually a metropolitan road system surfaced as the sum of multiple initiatives. For decades, these boulevards became the playing ground for a rising scene of property tycoons. First building for a bourgeoisie in the 1920s, these tycoons ended up building housing schemes for the greatest numbers involving the middle and social classes from the late 1950s onwards. In some cases, the scale of these real estate operations enabled public-private deals that provided enough private capital to develop infrastructure, all kinds of services and even semi-public parks (Götzfried 1980). The construction of public transport and the rise of a broad range of commercial services that served large parts of the suburbs emerged as positive externalities of this highly commercial and dense housing schemes. From the onset, this metropolitan grid provided local authorities with multiple opportunities for ‘horizontal metropolisation’ (Leloutre 2013) [Fig. 5].

## Engineer August Mennes: The Master of Horizontal Urbanization

Consolidated extension planning and expanding the ‘vertical core’ was never really an option for the S.C.A.A. Instead, juxtaposed urban questions shaped the contours of a more horizontal program of urbanization. Today, the segmentation and increasing privatization of these urban questions, territorially spreading out, consolidating speculative capital flows, leading to social and environmental destruction and attenuating the mode of production of the urban, all lie at the roots of a pertinent critique of urbanization (Brenner 2017). In an attempt to interlock these



**Fig. 5** Road grid stimulating ‘horizontal metropolisation’ in the Antwerp Sub-Urbs. *Source* left image: Exposition de la Commission d’Etudes pour L’Aménagement du Grand-Anvers (P. Deheem, L’Emulation, 1932). *Source* right image: De fruithoofaan, een monument (Götzfried 1980) and Antwerp City Archives



**Fig. 6** Urbanisation comme Urbanisme instead of Urbanisation sans Urbanisme? Building a milieu métropolitain that could be shared by many.

*Source* L'urbanisation de l'Agglomération Anversoise (Geyselynck 1929)

urban questions, the S.C.A.A. was nevertheless trying to hold together what was increasingly disintegrating. However eclectic these urban questions may seem, they all have at least one thing in common: one single private engineer, August Mennes, authored all plans discussed above. Although Mennes and the S.C.A.A. were never really able nor in the position to develop a strong pre-configured urban project for the agglomeration, their provisional morality nevertheless enabled them at times to derive collective benefits from the urbanization process [Fig. 6]. Urbanization here must not be understood as a parasitical process of dispersion. Rather, Mennes and the S.C.A.A. practiced urbanization as a particular kind of urbanism that generated positive agglomeration effects and a certain urbanity well beyond the historical city. An alternative perspective that seems rather forceful in today's context of generalized urbanization and the Horizontal Metropolis.

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# Taking Care of the Residual Fraction: The Provincial Projects for the Electrification of Belgium in a Perspective of Urbanisation



Dieter Bruggeman

## Introduction: From Industrialisation to Urbanisation

The nebular city—the dispersal of people, activities and functions throughout the Belgian territory—can be interpreted as the consequence of a policy which in answering questions of reproduction was trying to avoid an urban crisis that had struck industrial cities such as London, Paris or Manchester. From the outset the Belgian elite looked for a solution to the housing question and the needed reproduction of labour outside the city (Smets 1977; Goossens 1982). The construction of an elaborate rail and tramway network made it possible to both locate industrial development outside the cities and to recruit industrial labour in the rural areas by subsidising the cost of commuting (De Block and Polasky 2011; Grosjean 2010). Both the issues of housing and mobility are intimately related to questions of industrial reproduction. They organise and articulated the relationship between labour and capital by firmly embedding the territorial conditions in which industrial activities can take place. To circumvent the unhealthy and overpopulated quarters as well as the possible threat of an urban proletariat that had formed in these cities, Belgian politics intervened by literally spreading out the problem. By mobilising the capacities of the historically densely settled rural areas, the countryside was incorporated within the territory of the industrial economy.

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Yet these motives of industrialisation can only explain what set in motion the long history of the policy of dispersal. Summing things up, the avoidance of typical urban arrangements to deal with questions of reproduction, such as the construction of urban mass housing, produced its own problems of reproduction. To enable the benefits of a modern lifestyle in a context of dispersal necessitated the continuous investment in infrastructures that were able to spread amenities normally reserved to the urban areas. Hence, what started from a particular economic rationale—avoiding the social cost of industrialisation—in the long run produced its own project of urbanisation in which the need for services of the growing communities living within this logic of dispersal had to be catered for.

This text discusses the history of the Belgian electricity distribution as one of these services. From the outset, the electricity network and its necessary balance between production and consumption created conditions in which industrial and urban motives intersected. The light and inexpensive infrastructure needed for this utility makes it an interesting subject to study how the Belgian state dealt with questions of reproduction by accumulation over an extended territory rather than through the organisation of typically compact agglomeration economies.

In the beginning of the 1920s, the electricity sector was dominated by a number of private, regional companies. These had come to prevail over public municipal companies and small-scale community initiatives (Kurgan-van Hentenryk 1987). The economic rationale of the private regional companies did not automatically produce the electrification of the entire territory. In order to cover the economically less interesting regions, the province developed targeted initiatives. The provinces operated on a level in between the municipalities and the national government, and their scale came closest to that of the private electricity companies.

The project for the electrification of the province of East Flanders will be discussed at length, while two projects within other provinces (Antwerp and Limburg) will put this kind of efforts in perspective. At first glance, many differences can be discerned in the approach of the different projects. Nevertheless, they share a common point of view concerning the organisation of the territory which provides new insights into the emergence of the nebular city.

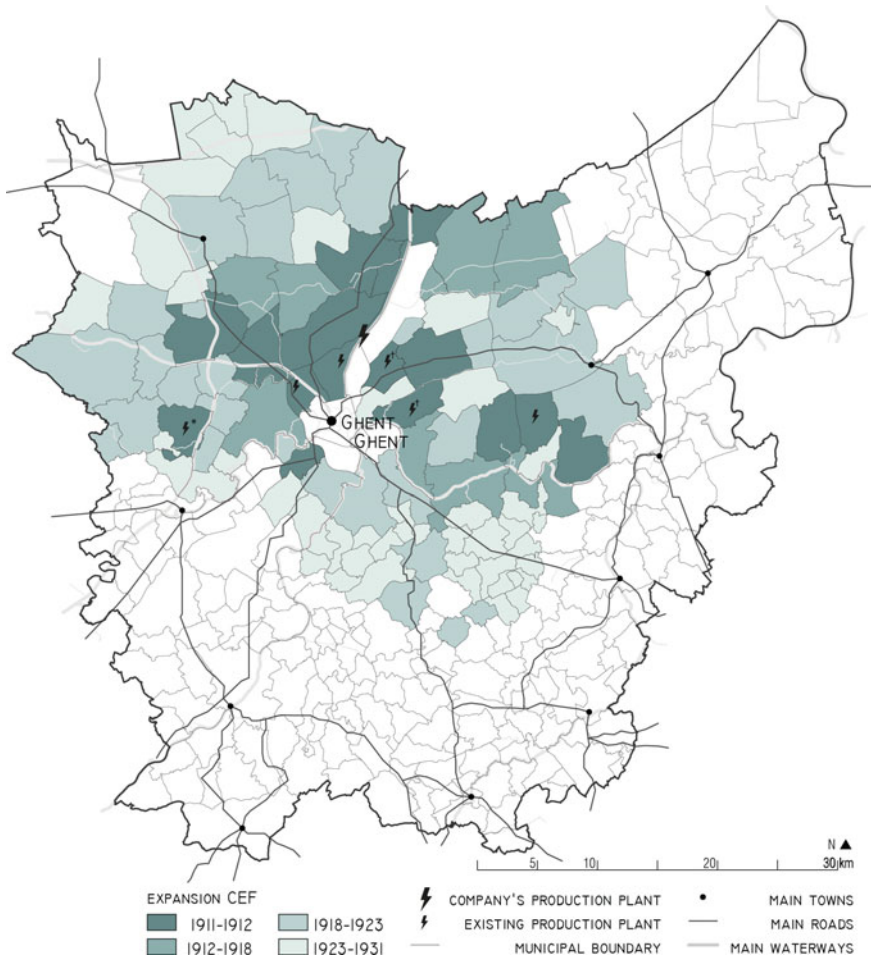
## **The Patches of East Flanders**

A main factor in the history of the electricity distribution of East Flanders is the influence of the dense network of medieval merchant towns. This urban network is present throughout Belgium, but very prominent in East Flanders. Since the Middle Ages, overland trading routes and waterways had connected the early industrialised provincial capital Ghent to an array of smaller towns, each located about 20 km from each other. Rural villages could be found in-between and along the trading routes that in time turned into national thoroughfares.

The private electricity companies active in East Flanders made advantageous use of the densities that were created along these major roads. Usually, they tried to

obtain a concession of one or more centres and enlarged their sphere of action by following these main lines of communication [Fig. 1]. Only when a more distant or less populous area looked advantageous, did the companies attempt to include it in their territory. This could be the case, for example, when there was a large factory; when a village was already electrified and taking over its installation could raise the company's production capacity; or when a certain area could provide access to a new and interesting market.

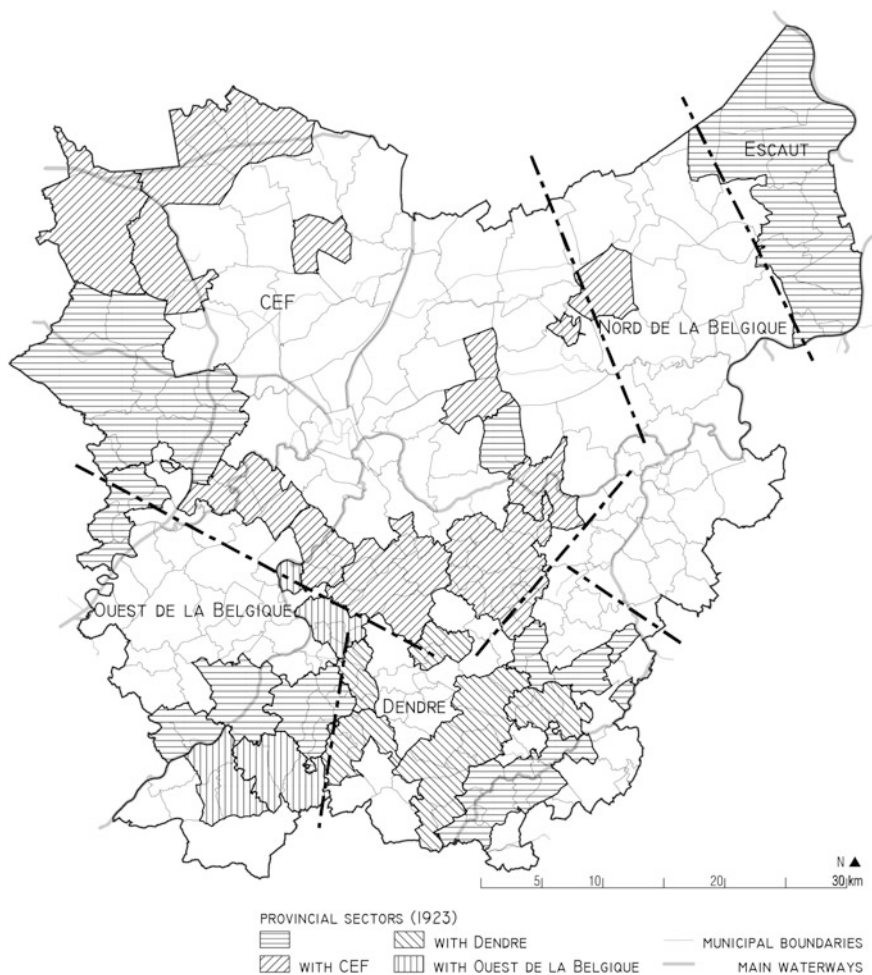
East Flanders was one of the provinces in which the electrification evolved the furthest without public initiatives (Maes 1967). As can be understood from the strategies of the private companies, most of the non-electrified areas were places



**Fig. 1** Expansion of the CEF, a major private electricity company, in relation to historical trading routes, industrial areas and existing installations. († electrified by predecessor CEF; \* indications of prior electrification). *Source* Dieter Bruggeman

that fell between the mazes of the roads, that were sparsely populated or that had only little industrial activity. In some cases, however, these areas were just located too far from those places where the electricity companies had emerged.

Right after the First World War, the provincial administration started to deal with these villages. Together with a consulting firm it developed a strategy to electrify the entire province and established a special committee to assure its implementation (Commission pour l'Electrification 1923, 1924). In its strategy, the province did not electrify the places itself directly, but tried to make them more interesting for the private companies. The strategy entailed dividing the non-electrified areas into different zones [Fig. 2] and convening the mayors of each of these zones to a



**Fig. 2** The provincial sectors in East Flanders and the zones of influence of the private electricity companies. *Source* Dieter Bruggeman

special meeting. The mayors of each zone could then more or less simultaneously grant a concession to a single electricity company and this under similar conditions. Both the economies of scale of these package deals and the uniformity of the concessions served the commercial interests of the companies, while the villages could become electrified more easily. In addition, the province would subsidise certain of these extensions and started campaigns to harmonise the contractual arrangements in villages that had been electrified prior to the provincial intervention (CEF 1924).

The strategy of the province of East Flanders proved to be successful. In 1930 every population centre on its territory was at least partially electrified, making it the first of the Belgian provinces to bring electricity to all its municipalities. Despite this achievement, some comments can be made on the provincial policy. Smaller municipalities that were electrified prior to the provincial actions complained that the sudden and extensive expansion of the companies compromised the further development of their grids.<sup>1</sup> The companies, indeed, seemed to give priority to the extension of their area of operation in a race to ensure themselves the biggest possible market instead of strengthening their existing networks. Furthermore the choice of the province to assign only one electricity company to each zone, put these actors in a very favourable position, a move that only went on to reinforce the already existing enterprises.

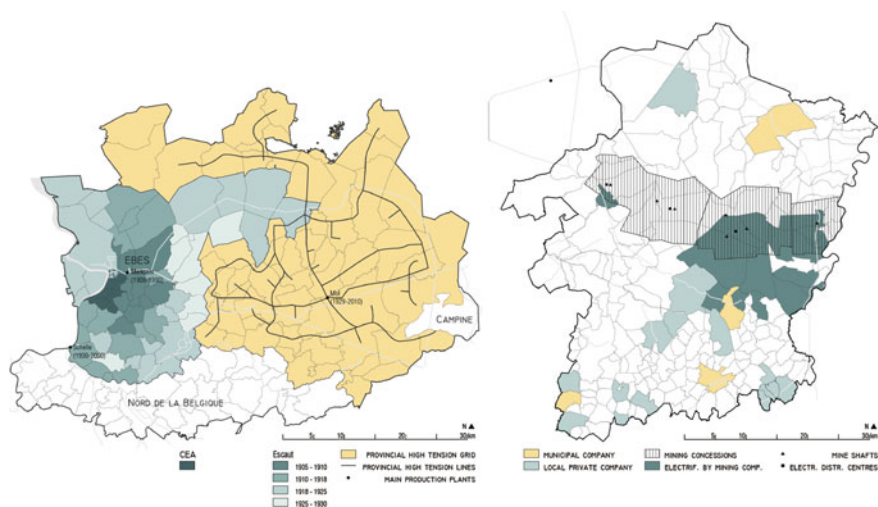
## Dispersal as Cheap Urbanisation

In other provinces the situation differed [Fig. 3]. In the province of Antwerp, for example, the electricity distribution had radially spread out from its eponymous capital and had been accommodated in line with the general structure of the metropolitan area. Large parts, mainly in the east of the province, were still without electricity, urging the administration to construct its own transmission grid to which municipal distribution grids could connect (Provinciebestuur Antwerpen 1974). In Limburg as well, the province started to build its own high-voltage lines. In contrast to Antwerp, however, there was no dominant pre-existing network to expand. The half-hearted approach of the few electricity companies in the province and the small-scale of the municipal companies had brought little structure to the province's process of electrification, forcing the administration to develop a structuring network of electricity transmission and distribution (Interelectra 1990).

Although the electricity supply has been territorialised in different ways in each province, all provinces intervened in order to provide the more remote or economically less important regions with electricity. Just as the spatio-historical context in which their electrification processes took place differed, so did the policies

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<sup>1</sup>As can be seen, for example, in the minutes of the Overmere municipality council meetings.



**Fig. 3** (left) A provincial high-voltage grid extends from the privately electrified metropolitan area in the province of Antwerp; (right) the structureless condition of the electricity service in Limburg forced the provincial administration to organise the electricity distribution by itself. *Source* Dieter Bruggeman

they developed. However, all shared the willingness to take care of the remaining fraction, and push the dispersion of services to the point of full territorial inclusion.

This might have engendered new industrial activities, but it impacted the local communities as well: the initiatives' contribution to safer roads, better equipped home industries and the rise of modern lifestyles of consumption cannot be simply reduced to a policy of industrialisation. Moreover, by taking care of the residual fraction the provinces avoided the rise of a cleavage between the service level in the towns and cities and that in the country. The maintenance of this territorial equality was central to keeping the necessary support for the government's preferred model of a distributed national economy. To sustain the policies of dispersal on which this model rested, the general electrification can be seen as part of an attempt to rebalance, or even to shift the relation between town and country.

Belgium's policy of distribution maintained the socio-political structure of its territory. By doing so it also preserved the capacity of local administrations and communities to organise the provision of certain services. This enabled the national government to largely avoid investments in large-scale, collective arrangements that would become necessary with the emergence of urban centres and agglomerations.<sup>2</sup> In this light, the policy of dispersal can come to be seen as an economic operation.

<sup>2</sup>It is interesting to compare this strategy with the discussion of 'collective consumption' by Castells (1972) and the debates that are currently resurfacing concerning that concept (e.g. Merrifield 2014).

Dispersal is presented as the distribution of the benefits of modernisation over the entire national territory. At the same time, however, dispersal also distributes the costs of these benefits, passing them on to the local and regional levels. In the long run, this policy of dispersal deprived the Belgian population of the classical benefits that could be derived from more dense and intensive logics of urbanisation, presenting the country with the accumulated cost of relatively inefficient and elaborate infrastructural systems of which the cost of reproduction presents a major future challenge.

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# Mobility Scenarios in Veneto Metropolitan Area: Learning from the Pre-car Era



Alvise Pagnacco

The automotive industry is undergoing a revolution. Elon Musk<sup>1</sup>, the sector's undisputed prophet, declared during the TED conference in 2017: "There will be a shared autonomy fleet where you buy your car and you can choose to use that car exclusively. You can choose to have it used only by friends and family... or other drivers who are rated five stars. You can choose to share it sometimes but not other times. That's 100% what will occur. It's just a question of when."

This raises a crucial question: what will be the future of public transport? Will it become obsolete, or disappear completely?

This question is the rationale behind this paper, which treats central Veneto as a case study, using the past in order to imagine the future of public transport in the *città diffusa*.

The first and the most important part, which I call "pre-car," is a historic overview of the mechanism behind the construction of the rail and tram network; it attempts to retrace how people moved around in this urban region before cars made their appearance. The aim in this section is, on the one hand, to investigate the collective value of pre-car infrastructure, and, on the other, to demonstrate how it was possible at the time to live and work across a vast and diffuse territory, even without a car. The second part, based on ongoing projects, outlines possible future trajectories for the public transport system.

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PhD 2016: "Mobilità e città diffusa, tra pre/car e post/car nel Veneto centrale (Mobility and città diffusa, between pre/car and post/car in Veneto region)". Supervisor: Paola Viganò

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<sup>1</sup>Elon Musk is the CEO and product architect of Tesla Motors and the CEO/CTO of Space Exploration Technologies (SpaceX).

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In a polycentric urban environment such as central Veneto, it appears that the society and its politics have lost their imagination in infrastructural planning, resigning themselves to considering the car the only means capable of making the metropolis habitable. In other words, one of the most drastic issues that has still found no solution in areas of settlement dispersion lies in how the public transport system is organized, primarily because the public imagination is blocked by a prevailing dichotomy between “buses and trains” and “cars.” To a large degree, public transport is that which makes us feel that we are in a metropolis. Isn’t it perhaps the possibility of reaching any point in Paris, Berlin or London that makes these cities feel like metropolises? Doesn’t having a public transport station close at hand enable us to leave the car at home, or live without one entirely? This is the central Veneto resident’s deepest fear.

However, the same difficulties present themselves when one tries to imagine a territory, one whose residents cannot even agree on a name for it,<sup>2</sup> managing to organize an integrated public transport network. The regional government of Veneto has been trying to implement a metropolitan rail system for the region,<sup>3</sup> modelled on France’s RER. However, as a regional government project, it is not scaled to the needs of Pa.Tre.Ve (Padua, Treviso and Venice), but rather to those of the Veneto region as a whole.

## The Railways in Pre-car Veneto

Mobility and industrialization have always been closely linked. Even today, automotive production is a strategic indicator in a national economy. In the mid-20th century—but perhaps to this day even—a nation’s car industry or lack thereof represented a telling clue as to the strength of its economy (Ross 1995). I wish to show how, one hundred years ago, the steel and railroad sectors played just as vital a role.

Clearly we are considering two world’s that cannot be fairly compared. The pre-car world was one that was predominantly agricultural, and one which, not having experienced industrialization, Fordism and postwar modernization, accepted lower standards of living. The story of Antonio Ricci<sup>4</sup> is one of the many examples of the difficulties of the pre-car age which Italian Neorealism has left us with (Fig. 1).

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<sup>2</sup>How to call this area between Padua, Venice and Treviso has long been a subject of debate. Terms referring more specifically to smaller localities within the three provinces have tended to prevail. Currently, in spite of the opportunities offered by law 56/2014, there is no common administrative entity comprising this territory. The term “Pa.Tre.Ve” currently refers only to the de facto city-region.

<sup>3</sup>*Servizio Ferroviario Metropolitan Regionale*, a project started in the late 1970s (Centro di ricerca Battelle Ginevra 1976) and still incomplete to this day. Many strengths of the project were abandoned, such as the integration of rail and bus lines.

<sup>4</sup>The protagonist of Vittorio De Sica’s 1948 “Bicycle Thieves.” Set in Rome shortly after WWII, the story follows Antonio Ricci, an unemployed man, as he finds work posting advertising bills



The main goal of this section is to demonstrate that a territory (central Veneto), even though today its very existence is considered the result of people possessing cars<sup>5</sup>, in actuality at one time had an extensive public transport system. Provincial governments, often banding together in consortia, entrusted certain lines to private industry, which made it possible to build railways even in sparsely populated areas, implementing an economical railway administration system with standard gauge lines. Today, by contrast, the trend is to convert these now-aging minor railroads, those which Mauro Moretti<sup>6</sup> referred to as “dry branches” (ISFORT 2004), into bike paths. This practice should be questioned, since it impoverishes the infrastructural fabric of a territory.

Transport is a crucial factor for imagining a more sustainable future. Looking back to the pre-car era helps us to imagine a future in which reliance on cars is overcome thanks to a sort of idyllic, even nostalgic, return, to public transport as a fundamental value for a community.

This chapter looks at central Veneto at a specific moment in history: 1933, the high point of Veneto’s railway system. I observe the mechanisms that allowed the rail system’s construction. I observe how mobility in the region was organized by the framework transport system, consisting in regional trains and urban trams, but also by a complementary system based on bicycles and boats.

What I wish to show is that, for a brief moment in history, trams and trains satisfied an extensive array of mobility needs, while at the same time creating a sophisticated industrial system based on steel.

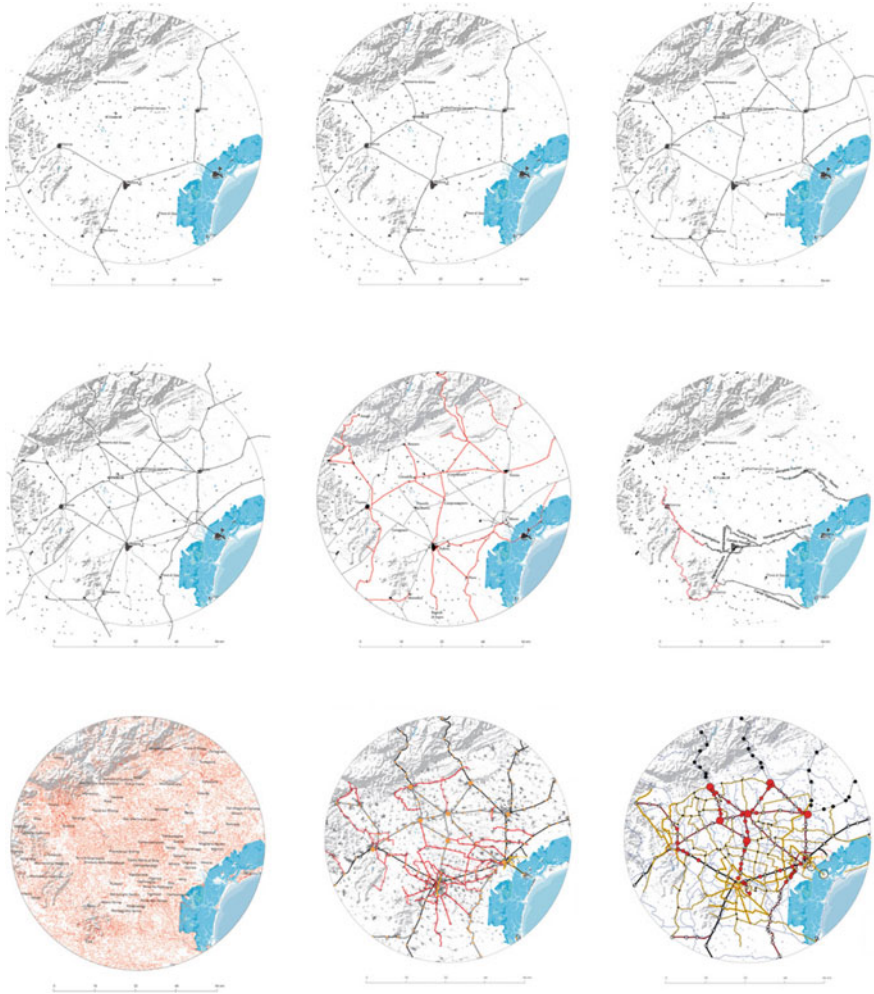
The *Società veneta per imprese e costruzioni pubbliche* (SV) was the main instigator behind the intensive development of trains and trams in Veneto during the first twenty years following the unification of Italy. Engineer Gabelli called this period “acute railitis.” Vincenzo Stefano Breda, the founder of SV, combined business acumen, political astuteness and technical knowledge. He was guided by a clear strategic vision for industrial, and thus economic and infrastructural development in Veneto (his birthplace), but even more so for the rest of the Kingdom of Italy. Breda is a key figure in the rise of the *città diffusa*, because the close network of railways he manages to create are the result of an exciting early period of administrative integration among several Veneto provinces (Padua, Treviso, Vicenza). Breda based his approach to industrial management of railway services on the figure of the managing engineer (Zola 1986), which becomes both a steward of the contractual norms of the rail transport business and a guarantor of its efficient functioning, blending technical competence, decision-making authority and administrative acumen.

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around the city. However, in order to work he must have a bicycle, and his is pawned. His wife pawns their bedsheets in order to get it back, but on his first day on the job, his bike is stolen while he is trying to put up a movie poster.

<sup>5</sup>“In the absence of development of mobility by private means, the diffuse city could not have arisen. It comes into being and lives insofar as it is a city of cars.” (Indovina 1990: 32)

<sup>6</sup>Mauro Moretti, CEO of Ferrovie dello Stato italiane from 2006 to 2014, is the person who revolutionized the Italian railway system, fighting against the lossmaking stretches, which he in fact called “dry branches”.



**Fig. 1** The nine images above show (left to right, top to bottom); evolution of the railway and tram network: 1866, 1879, 1906, 1941; map of rail and tram lines built by the Società Veneta (in red); map of navigable waterways; map of the dirt roads; tram-train scenario; BRT Scenario (images elaborated by the author)

The railroad sector becomes the main arena in which Breda is able to test his method. Far from limiting himself to the role of planning technician, he helps establish new relations between the state and private industry. Breda considered national independence only achievable through autonomy of economic production, and within this framework, the state's role is seen as that of a regulating authority in the interest of progress and development, in contrast to the liberal view of the state as a promoter. He focused his parliamentary efforts on the promotion of a fiscal policy that disincentivizes unproductive sectors. Starting in 1867, his goal is to

inject private initiative into state-funded programs in order to develop industries connected to steel production. In '71, he declares: "Property owners' faith in a state increases as the latter increases its efforts in the direction of economic progress, increasing its ability to ward off any attack."

This is the context in which SV finds its role. Not long after its foundation, the company was awarded (it would be more accurate to say it laid the groundwork for) the contract to build the previously mentioned Padua-Bassano del Grappa train line, as well as the one linking Vicenza and Treviso. This infrastructural cross, which still exists today but is underused, effectively became the skeleton of the *città diffusa*. Breda took up the longstanding aspirations of the provinces of Vicenza, Padua and Treviso to overcome the historic dominance of Venice, assuming responsibility for the two construction projects with the local public entities, planning them himself, providing blueprints free of charge and, significantly, supporting Veneto's members of parliament, and Gabelli in particular (his partner at SV), which would play a decisive role in the approval of the special law on Veneto railways of 1873. Breda applied an industrial logic in this public works context: it is the provincial governments which will sustain the cost of building the lines, by issuing bonds or taking on other forms of debt. Nonetheless, the promotional efforts of the provinces go beyond the limits imposed by the liberal logic and intervene directly in economic management of the endeavour.<sup>7</sup>

Breda's goal was the creation of a system of secondary railways to be built and operated according to standard criteria. Indeed, the Breda projects all present the same characteristics as "lowland railroads, not immune from challenges posed by natural obstacles such as rivers, but built almost entirely on a level plane, the cost of which is significantly more manageable than that of building railroads in mountainous regions".

More generally, we can observe that Breda attempted to introduce an industrial logic to the matter of operating railroads, in light of his awareness that the crux of the problem lied in establishing clear lines of demarcation between public and private.

It is important to bear in mind that, until 1878, Italy did not enjoy autonomous production of railway materials, which were imported instead, mainly from Belgium, France and England. At the time, Italian industry only satisfied 5% of the demand for locomotives.

While, on one hand, Breda sought to influence parliament in order to prevent legal incentives for more economical secondary lines, on the other, he allowed newly built lines to participate in the industrial and commercial development alongside the major lines of the Alta Italia company, thereby forming a full-fledged regional system capable of accommodating the same trains on all tracks. Breda therefore offered an economic management system in opposition to an economic building system (Fig. 2).

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<sup>7</sup>Previous to the foundation of SV, provincial governments contacted a number of Austrian banks to finance the railways. Among the Italian banks that financed the work on the two lines through issuance of bonds, the most important role was played by the Banca Veneta di Padova e Venezia, which was also involved in the foundation of SV.

In addition to standard gauge lines, Breda also promoted the construction of a number of regional trams, including one from Padua to Fusina, where a primitive multimodal station provided connections to boats headed to Venice.

Breda's project in railroads, trams and the steel industry changed the face of infrastructure in many parts of Italy in the late nineteenth century, including central Veneto with the proto-standardization of the infrastructure building process, setting uniform criteria for both construction and operation.

## Complementary Mobility in Pre-car Veneto: Water and Bicycles

Having described the train and tram network, it is important not to forget two complementary but fundamental forms of mobility: boats and bicycles.

As far as concerns transit by water, the date of 17 April 1345 is especially important. This is the date on which the Republic of Venice's Great Council ended a law that until then had prohibited citizens from buying land on the mainland, shifting the Veneto nobility's economic interests away from commerce and to the inland regions along the shores of the Brenta.

The possibility of intensifying cultivation of lands held on the mainland posed the problem of how to control production from a close proximity.

One of the region's most vital infrastructures is the Brenta waterway. "The shores on either side of this river are full of palaces and the exquisite residences of nobles and prosperous citizens, with gardens, parks and well-populated villages, to such an extent that whoever navigates it feels as if he is traveling through a city along 16 miles that comprise an extended village uniting the metropolis of that state with the city of Padua".<sup>8</sup>

The Brenta waterway or Brenta Vecchia is a minor tributary (27.37 km) of the Brenta that begins in Stra and flows into the Venetian Lagoon near Fusina. It has been the primary waterway linking the Venetian Lagoon and Padua for many centuries.

The Brenta waterway is part of a network of rivers and canals that since antiquity have linked the cities of Veneto with one another and with the Venetian Lagoon. Goods travelled by means of this network, flowing from the hinterland to the Republic of Venice, including construction materials like wood, marble, stones from the Vicentine Hills and trachyte from the Euganean Hills, as well as corns and other agricultural products. They were carried on barges known as "*burchi*," dragged along the river by horses on the shore.

The waterway was also navigated by vessels carrying mail or passengers. Wealthy Venetians made use of "*burchielli*," luxurious vessels with an ample cabin and three or four balconies.

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<sup>8</sup>Coronelli (1697)



**Fig. 2** The above image shows the different layers of the infrastructural palimpsest along the Riviera del Brenta (image elaborated by the author)

The wealthiest nobles spent their vacations here, not far from the city. Their boats went up the Brenta navigable canal. Starting at San Marco, they were pushed by oars across the lagoon to Fusina, then pulled by horses as far as Padua, along the Riviera del Brenta.

During the 18th century, there was a veritable fleet of unique vessels, from the *burchiello* for wealthy passengers to the “Padua boat” for poorer travellers, as well as other types.

Many different kinds of vessels travelled the river network between Padua and Venice. “*Barche da vin*” (21 m) specialized in transporting wine, while the Padua boat (19 m) travelled the Brenta waterway at night, and large covered *burchi* (24 m) were used for transporting hay, merchandise and salt.

About 150 years ago, this aquatic infrastructure was joined by a new invention: the bicycle. Veneto has a grand tradition of building and using bicycles due to the suitability of the territory for this means of transport.<sup>9</sup>

Bicycles take up little space. Up to 18 can fit into one car parking space. A group of 30 bikes can travel in the same space devoured by a single car. In order to move 40,000 people across a bridge in one hour, 12 lanes would be required using cars, but just two if all those people were cycling (Illich 1974).

It’s important to bear in mind that, before the invention of the automobile, a large number of artisans and service workers in both the compact and in the diffuse city navigated the territory on their bicycles, going door to door. The dirt roads of

<sup>9</sup>The predominantly flat terrain is ideal for getting around by bike.

Veneto in the early 1900s were traversed by bicycle-mounted knife-sharpener, barbers,<sup>10</sup> fishmongers, mechanics, storytellers,<sup>11</sup> roasted chestnut hawkers, newspaper sellers, milk sellers and others.

In addition to these “special vehicles”, the bicycle served anybody who could afford one to travel between their home and the train station. In fact, the phenomenon of commuting to work already existed in the late 19th century, when trains already guaranteed arrival times similar to those of today.

## Possible Futures for Public Transit in Central Veneto

“The SFMR or Regional Metropolitan Railway System should have and could have been an icon of efficiency, serving all of Pa.Tre.Ve. On the contrary, today it represents the failure to integrate vectors, the failure to create an actual system, relegated as it is to mere infrastructure (and an incomplete one at that)” (Romano 2014).

The scenarios which I explore here are not to be understood as exhaustive, as they do not account for every available option. I intend, rather, to evaluate how certain solutions relying on certain technologies and a certain system of functioning have the potential to become a support for mobility in the *città diffusa*. The *città diffusa* calls for a specific project, not the engineering fixes devised for the compact metropolis. I propose two alternate scenarios:

- the first scenario involves the elimination of intermediate reloading<sup>12</sup> through the introduction of tram-trains as per the Karlsruhe model.<sup>13</sup> The tram-train, comparable in size to an urban lightrail, would travel out from the main urban

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<sup>10</sup>Their bicycles were especially elegant and had custom fittings like water basins, towels, mirrors, and compartments for soaps, lotions, razors and talcum powder.

<sup>11</sup>“*Cantastorie*” toured villages and festivals on tricycles with a flat board in front of the handlebars, on which they placed a street organ or other musical instruments. The platform, usually made of wood planks, could even serve as a small stage on which the storyteller would sit with his instrument and the traditional array of pictures behind, which he would point to as he told his story.

<sup>12</sup>In surveys on passenger satisfaction with railway services, intermediate reloading has proven one of the main factors leading passengers to opt out of public transport.

<sup>13</sup>On 25 September 1992, the world’s first real tram-train system went into operation in Karlsruhe, in southwestern Germany, connecting the region of Baden-Württemberg through a combination of bimodal urban trams and regional/commuter trains sharing the same tracks. This has led to a revolution in suburban transport planning. Just three days after going into operation, the new Bretten line, which until then had struggled to maintain 1000 passengers per day, surpassed the threshold of 10,000 travelers. In order to meet exploding local demand, the network continued to expand progressively before extending all the way to Forchbach, 80 km away in the heart of the Black Forest.

Today the regional network extends over 400 km and logs over 5 million train-km per year. While the rest of Germany and Europe are seeing a worrisome trend of stagnation in train usage,

hubs of Padua, Venice, Treviso and Mestre using existing rail lines. Following the creation of special sidings, the tram-trains could leave the railway lines to continue on newly installed rails traveling alongside the roads of the *città diffusa*.

- The second scenario involves intensive integration of existing rail lines<sup>14</sup> and the creation of a new BRT system with coaches linking the entirety of the territory between Padua, Venice and Treviso.

These scenarios make it possible to calculate how many residents would be covered by the new service. The first scenario would cover 1.8 million, while the second would accommodate 2.5 million.

Another issue worth considering is the possibility of identifying those localities whose urban density (and thus the density of the urban fabric) could be increased thanks to the new accessibility offered by the new infrastructures imagined in the scenarios. Both scenarios explore spaces that could be revitalized by introducing these new transport networks, thereby improving the quality of urban life in the region.

## Conclusions

The main concern of this paper is the infrastructural project understood as an administrative, bureaucratic, engineering, social, economic and political process, but above all as a spatial process. I have chosen to focus on a particular type of inhabited space—*la città diffusa*—in light of the lack of political will and necessary tools to combat the car dependency. It's important not to forget that the role of the automobile is and will remain to be central to space in the city, but only by means of adequate planning can cars be assigned the right space and the right role in the city. This is why I have used this means of transport as the lynchpin for constructing my narrative. I have also relied on methodical mapping in order to create, compare and superimpose geographies of mobility which, in my view, are able to delineate the necessary ingredients for a successful public mobility project.

By looking back at a moment in history during which images and imaginations relating to public transport still connoted positive values, we can help a society marked by urban sprawl to reconceptualize its mobility habits, overcoming that which I have identified as the cause of a stagnant situation: infrastructural inertia.<sup>15</sup>

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the number of passengers in the Karlsruhe area continues to grow at a surprising rate, from 100 million in 1995 to 150 million in 2001, while maintaining excellent economic performance.

<sup>14</sup>In this case the SFMR project would be recycled.

<sup>15</sup>By infrastructural inertia, I mean the incapacity for reconceptualizing existing infrastructure. The Karlsruhe tram-train represents a model example of infrastructure being adapted in response to changing conditions.

Consideration of what the future may bring has proven equally important, bearing in mind the concept of disruption, a term that indicates any innovation able to create a new market and ultimately overtake existing ones. Great innovators, often operating outside the commercial sphere that they are innovating, are those that manage to shatter, conceptually speaking, a product and recompose its fragments into something new. It appears that Google, not some large car company, will revolutionize the auto market. Through this perspective, we can imagine that there may already be actors set to disrupt (Christensen 1997) the public transport market, and that they may not even be working in the field of mobility infrastructure, but on smartphone apps.

Finally, *ceci n'est pas un projet*, but rather a catalogue of strategies and spaces, the groundwork for a grand project yet to be designed.

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# Retracing Water Flows. Diffuse Infrastructure in the Apulian Territory



Irene Toselli

Water has become one of the fundamental elements that reveal the changing significance of technological networks in urbanization processes (Gandy 2004). Modern water management has progressively expanded from the nineteenth century city to comprise resource planning as well as rural development and the production of energy at the scale of the region (Swyngedow 1999). The Apulian peninsula, here proposed as a case study, has seen, over the last century, a complete re-engineering of its hydrology in the attempt to rationalize nature. As hydraulic infrastructures centralized supplies and linearized flows to provide drinking water and facilitate irrigation, water consumption intensified greatly. Today, Puglia is facing new challenges in terms of water availability. The paper will reflect upon the role of water infrastructures, representing these devices and the processes they activate across scales, describing their measures and material qualities on the ground and retracing water flows through the city-territory. Rather than discussing centralized infrastructure in terms of its ability to restructure, connect and rebalance territories, the work excavates how its construction has been entangled with the re-emergence of diffuse infrastructures.

## Big Plans

The Apulian territory has historically been supported by a diffused layer of small-scale infrastructures linked to agricultural practices and, especially in the southernmost part of the peninsula, to a long tradition of urban diffusion. It has thus

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been conceptualized as a sponge, a fine grain porous territory, imagining it as a “territory of a new modernity” (Viganò 2001). But the implementation of large-scale water infrastructure, which started in 1906 with the construction of the aqueduct, and the concurrent land reforms, followed a different infrastructural rationality. The completion of the Canale Principale in 1939 coincided with the assessment by the Board that the Aqueduct was no longer sufficient to satisfy the needs of a growing population (Masella 1995), perpetuating a cyclical discourse of self-sufficiency, water abundance and scarcity, which has accompanied the expansion of the infrastructure and its resource base until today.<sup>1</sup>

In the 1950s four large water systems were planned to expand irrigation in Puglia (Fortore, Ofanto, Ionico-Sinni, Basento-Bradano-Ofanto),<sup>2</sup> funded by the Cassa per il Mezzogiorno or CasMez (Fund for the South), which would be fed by dams for the most part located outside regional boundaries. The projects of the CasMez period followed an idea of radical transformation and invented, through water accumulation and the exploration of groundwater, a new territory where irrigation was almost tripled (EIPLI 1988). However, the construction of the aqueducts has paradoxically laid the basis for future conditions of water scarcity.

Transitioning from a diffused system of traditional water collection and storage to a 19th century model of centralized distribution dependent on far-flung resources, this semi-arid territory has seen the emergence of a new decentralized system of water extraction, with very different premises and effects. Their repercussions are superimposed and amplified, as centralized infrastructures for irrigation are underutilized, while most irrigated crops in the region are sustained by private wells. As a consequence, Puglia is traversed by the flows of two waters: it is dependent on flows originating ‘elsewhere’ and it is exhausting waters that saturate the aquifers.

## Territorial Transformations

In southern Italy the plains had to be literally invented (Bevilacqua and Rossi-Doria 1984). Water was the starting point of a modernization process that involved soil, energy, water and waste (Corvaglia and Scionti 1985).

These transformations were supported by a narrative that saw the ephemeral character of surface waters as the cause for underdevelopment and sustained the idea that nature had to be thoroughly redesigned by the production of new “technonatures”, through which water flows were constructed and controlled (Swyngedow 2007).

But the completion of this massive infrastructure has established other forms of “crises”, such as the dependency on water collected in adjacent regions, conflicts

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<sup>1</sup>Before the Acquedotto Pugliese was constructed, water allocation per capita was estimated at 15–20 L, reduced to only 5 L during the summer, while today it has increased to 250–300 L (Perretta 2001)

<sup>2</sup>See “Piano Generale dell’Irrigazione in Puglia e Lucania, Ente per lo Sviluppo dell’Irrigazione e la Trasformazione Fondiaria in Puglia, Lucania, Irpinia” (EIPLI), 1950.

over competing land uses at sites of extraction, frequent service interruptions due to maintenance, conflicts around wastewater treatment and discharge, preoccupations linked specifically to water quality and safety, as shown by the discussion around toxicity of cyanobacteria blooms in constructed basins, such as the spectacular *Planktothrix rubescens* bloom that turned the Occhito reservoir red in 2008 and 2011.

## Constructed Flows

Water infrastructure in these territories is very complex. Even if one looks at drinking water only, the overlay of water supply systems with different rationalities, centralized and diffused, becomes evident. If one considers irrigation, a high degree of interconnection between different networks is apparent. In fact, the majority of dams, aqueducts and pumping stations have been designed for multiple uses. As a result of these interventions, today Puglia imports over 590 Mm<sup>3</sup> of water per year from adjacent regions (AdB Appennino Meridionale 2010). However, surface water satisfies only about 40% of the yearly demand<sup>3</sup> (Fig. 1).

Although most irrigation networks in the region are managed by consortia,<sup>4</sup> over 75% of irrigated agriculture in Puglia is sustained by private wells (AdB Nazionale dei fiumi LiriGarigliano Volturno 2010) (Fig. 2).

As land reforms and the *bonifica* made new settlements possible, the number of wells increased to satisfy an increasing water demand for domestic use as well as for irrigation. In the Ionian coastal plain, following the completion of dams from the 1960s to the 1980s, the wells were almost completely substituted by surface water supplied by the new aqueducts. But since the 1980s frequent dry spells have periodically lowered the level of artificial basins and have reduced groundwater recharge, leading to the construction of new wells and the reactivation of old ones (Polemio et al. 2003).

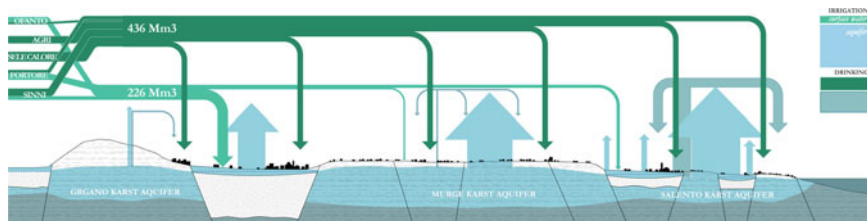
Moreover, increased efficiency and reduced dimensions of pumping systems have decreased drilling costs,<sup>5</sup> making greater depths easier to reach. Hence this territory has recently witnessed a new season of unauthorized drilling.

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<sup>3</sup>Figure calculation based on: Studio di fattibilità 'Bilancio Idrico Potabile', Autorità di Bacino della Puglia e Regione Puglia 2011.

<sup>4</sup>Consortia provide services for land protection and water resources management, for soil conservation, for irrigation, for the preservation of the natural environment and for ensuring an adequate technical and administrative assistance to farmers. A few additional networks are managed by ARIF, Regional Agency for Irrigation and Forestry.

<sup>5</sup>Well costs in Murge can amount to 50,000 € for drilling and 15,000 € to purchase the pumping systems due to the considerable depth of the aquifer. In parts of Salento drilling costs vary between 3000 and 8000 €, while pumps are estimated to cost less than 10,000 €. Pumping costs vary a maximum of 0.35–0.55 €/m<sup>3</sup> in Murgia to a minimum of 0–0.02 €/m<sup>3</sup> in coastal areas of Salento. The average lifespan of a drilled well is 30 years (IRSA-CNR 2010).



**Fig. 1** Puglia, constructed water flows. *Source* Elaborated by the author, from: AdBP, 2011; Maggiore e Pagliarulo, 2004; Regione Puglia DTM 2008

Paradoxically, technological advancements<sup>6</sup> and optimization have led to an increase in water consumption. The wells, estimated at around 800 public wells and over 200.000 private wells, have lowered the water table and increased salinity levels through aquifer overdraft, while strengthening the water-energy nexus. In particular, in the Salento peninsula groundwater demand has caused the progressive salinization of karst aquifers. In fact, hydrogeologists indicate that, since the groundwater stress of the 1990s, “the aquifer has undergone a critical transition” and it will not be able to return to the previous state in terms of water quality, since current anthropogenic drivers are not expected to decline (Fidelibus 2014).

## Fragile Territories

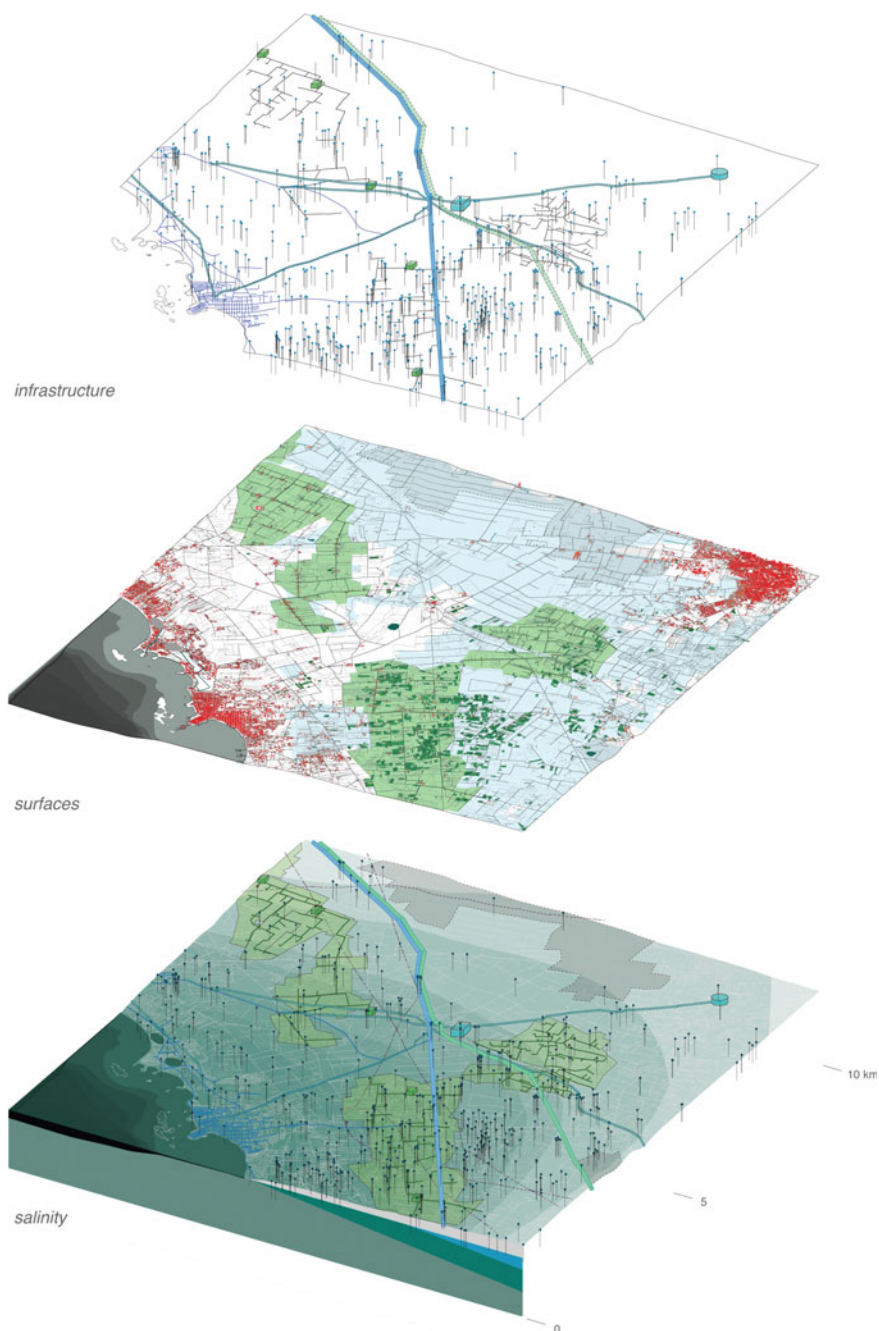
In this context, climate change presents urgent and pressing questions (IPCC 2013), which will have to be addressed both in hydrological and in spatial terms.<sup>7</sup> In the face of the projected decrease in available water, the wells, the aqueduct and its attendant infrastructures emerge as a site of conflict.

Technological fixes that aim to maintain current practices and minimize impacts appear to be insufficient to significantly reduce water consumption and vulnerability to drought. In fact, irrigation systems in the region are already relatively efficient.<sup>8</sup> As a consequence of climate change, hydrant failures in pressurized irrigation systems are projected to more than double by 2050 (Daccache and Lamaddalena 2010). In addition, if water available to collective irrigation systems decreases in response to low levels of precipitation, more farmers will probably go back to groundwater for irrigation.

<sup>6</sup>Such as nucleus destruction drilling.

<sup>7</sup>Approximately 71% of the region is occupied by agriculture. Olive trees and vineyards dominate the central and southern parts of the region, where irrigated crops rely almost entirely on groundwater.

<sup>8</sup>Specifically, 60–80% efficiency for sprinkler irrigation and 75–90% for dripping irrigation (Daccache and Lamaddalena 2010).



**Fig. 2** Porto Cesareo: infrastructure, surfaces, salinity. *Source* Elaborated by the author, from: Regione Puglia, CTR 2008, PPTR 2013, DTM 2008, PTA 2005; Acquedotto Pugliese; Consorzio di Bonifica Arneo Piano di Classifica 2012; ARIF 2015; Sicolo 2006; AdBP Carta Idrogeomorfologica 2007

According to IAMB<sup>9</sup> projections, irrigation requirements are expected to increase in response to climate change for crops to maintain current levels of productivity, and irrigated land will have to shrink to 2/3 of its current extent. So far, public administration has not been able to effectively counterbalance increasing water consumption, as top down strategies have been difficult to tailor to daily practices. In 2009 the Regional Authority developed the Regional Water Resource Protection Plan which called for severe constraints on groundwater exploitation. However, its implementation was marked by conflicts between the Regional Authority and farmers affected by the plan, limiting its efficacy. Similarly, the attempts of irrigation consortia to limit water use through volumetric rates<sup>10</sup> have induced farmers to withdraw more groundwater from private wells, which are not controlled.

The attempt to increase the reuse of treated effluent represents a possible solution for the discharge of wastewater treatment plants, since the construction of marine outfalls has often been controversial,<sup>11</sup> but if wastewater reuse could be a way to decrease groundwater withdrawals and increase recharge,<sup>12</sup> it also raises the question of whether it could just become an additional water source, if land use and agricultural practices remain unchanged.

Thus, both current dynamics and projected scenarios pose serious questions in terms of the future of these fragile territories, which will have to be re-imagined, raising issues of profound social, environmental and political relevance. Under these terms, reduced rainfall, the degradation of groundwater resources and the future increase in disputes over water will put into question existing measures and vocabularies that make up the discourse on water scarcity.

## Situating Flows

If dams and aqueducts are more often described and represented, the vast diffuse infrastructure of wells that serves these territories is difficult to see. Similarly, invisibility depoliticizes groundwater, which resurfaces only during crises, often related to scarcity, disposal and toxicity. A provisional selection of sites situates the elements of infrastructure within the water flows that move through them, not only focusing on the material flows but also explicitly on their spatial repercussions.

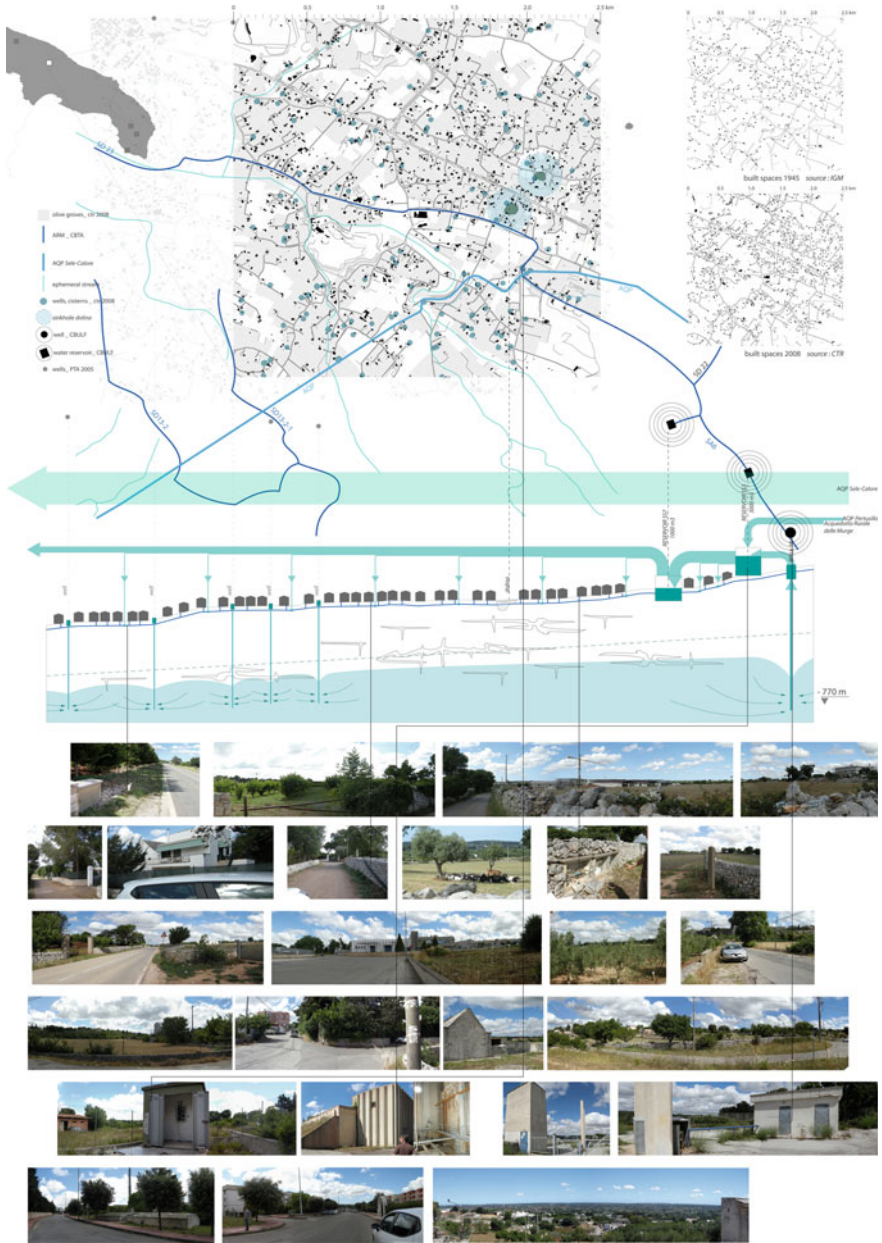
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<sup>9</sup>Istituto Agronomico Mediterraneo di Bari, part of the International Centre for Advanced Mediterranean Agronomic Studies, CIHEAM.

<sup>10</sup>Volumetric water rates are applied by block, and the lowest average net irrigation requirements have the lowest tariffs.

<sup>11</sup>With reference for instance to the recent opposition to the wastewater treatment plant in Manduria (TA) and to the discharge of treated effluent from the Carovigno treatment plant in the marine reserve of Torre Guaceto (BR).

<sup>12</sup>Current national regulations do not allow treated wastewater to be used directly for groundwater recharge, see DLgs.n.152/99.



**Fig. 3** Sites: Putignano, CBTA. *Source* Elaborated by the author, from: Regione Puglia, CTR 2008, PPTR 2013, DTM 2008, PTA 2005; Acquedotto Pugliese; Consorzio di Bonifica Terre d'Apulia Piano di Classifica 2012; IAMB 2008; AdBP Carta Idrogeomorfologica 2007; site visit 06/2015; Google Earth 2015; IGM 1945



Each site, selected according to local hydrologies and types of engineering intervention constructed by consortia, identifies a section type which describes, through diagramming and photography, water flows, the devices that enable them and the territory they support, investigating the relationship between infrastructure and landscape across scales (Fig. 3).

While drawings begin to represent the paradoxical superimposition of networked and discrete water infrastructure in territories of urban dispersion, the research does not seek to give an exact image of diffuse wells, as a base for control on which to implement more efficient and restrictive policies, but rather to provide a “thick description of things” (Latour 2007), and to render them as a part of a territorial project.

## Conclusion

Histories of the aqueducts have described in detail their construction in relation to centers of consumption, but less attention has been given to the transformations that this process has facilitated in sites of extraction. The projects behind these extensive transformations have externalized sites of water accumulation in distant places. In fact, the invisibility of servant territories has obscured the dynamics sustained by hydraulic infrastructures. In the same way, the invisibility of groundwater has obscured the direct interrelationship that exists between sites that, although not contiguous, are materially linked through hydrological processes and through the process of water commodification enabled by pipes and wells.

The research thus attempts to reconstruct the conflicts around water infrastructure and water resources, and to represent water sites and systems, above and below ground, in order to be able to collectively discuss the future of these territories, beyond the paradigms of scarcity and optimization.

The case study shows a process that radically transformed the territory through constructed flows of water, building a new landscape via large-scale infrastructure. But the promise of abundant water held by networks of pipelines supported the diffusion of discrete devices throughout the city-territory. These projects have linearized flows and displaced externalities, disregarding the hydrocomplexity and timescales of the aquifers. But beyond watershed boundaries, the sites connected through these constructed flows need to be reconsidered simultaneously.

Moving away from arguments of water scarcity and related technological fixes, the analysis of hydrological networks has the potential to redirect attention towards biophysical processes that underpin cities and territories, discussing the spatial and material aspects of the transformations facilitated by infrastructures, through histories and social practices, theories and ideologies (Secchi 2014). The representation of water sites and systems, of processes and measures that are for the most part difficult to see and deferred in time and space, might therefore be the first step towards re-thinking and re-designing these flows, constructing alternative hydrologic imaginaries.

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# Abundance of Interplays Delivered by Scattered Patterns of Occupation. San Joaquin in Cuenca, a Case of Study in the Southern Highlands of Ecuador



Monica Rivera-Muñoz

## Introduction

The problematizing of *sprawl* or generic dispersion as a general evil of growing cities, has led to a too-easy diagnosis with the same ‘illness’ to ‘partly urban-partly rural’ or *in-between* territories surrounding and under the influence of middle size cities in the central and southern Ecuadorian Andes. Development plans for these proto-urban territories show a widespread tendency to propose densification as an antidote to battle dispersion, without developing strategies that consider the rationalities behind those rural lands sprinkled with emerging urbanity, or their complementary roles in the broader context of their territory.

San Joaquin’s patchy morphology is the expression and the ‘practico-material’ base of abundant and multilayered interplays, whose scrutiny delivers the too frequently disregarded—but essential—narrative of the periphery (Fig. 1). The all-too-familiar trajectory of unequal relations between city centre and periphery is here complemented by a narrative about the high interdependency between these two apparently dichotomous spaces, which unveils the role of peripheral spaces in the conformation of Cuenca as a constellation of centralities of diverse character and specialization.

The *bricolage* mode of spatial production is inherent to *in-between* territories, as are the ways in which their population maximize the use of their limited resources. In the context of *in-between* territories increasing urbanization, these strategies can offer important lessons to urban designers. Existing social and spatial structures can become resources to be accounted in for the future city. Their identification, description and discussion are therefore essential to elucidate ways in which such structures could develop and intermingle with urbanization transformations. Although

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**Fig. 1** Cuenca is located at the centre of Paute river watershed. *Source* Elaborated by the author, from GIS information by Senplades (Ecuadorian National Secretary of Planning) and Google Earth. Aerial photography by Fausto Cardoso

the ongoing urbanization at *in-between* territories is perceived as marginal, in the studied context this perception doesn't derive from its illegality as in *squatting* urbanization cases, but from its spontaneous nature and the social status—peasant and indigenous population—of those who produce this '*in-between*' urbanization.

## The *Ejido*<sup>1</sup> Lands: A Multidimensional and Long Term Condition of *In-Betweenness*

Two thirds of Cuenca's about 500,000 inhabitants live in its urban core, while the remainder are dispersed in the *in-between* territories of the 21 parish centres that surround the city, and whose space of occupation often dates back to pre-colonial times. Cuenca, the Spanish city, was superimposed over the ruins of Tomebamba, a ceremonial Inca city which was, in turn, built on Guapondelig, the centre of a Cañari *cacicazgo*.<sup>2</sup>

<sup>1</sup>Land reserved for common and shared use. *Ejido* lands were property of the city, and managed by the city council. Usually they were rented on the basis of long-term contracts that could be renewed from one to the following generation.

<sup>2</sup>In pre-colonial times, the southern Ecuador was occupied by the *Cañari* culture, who conformed a kind of horizontal system of autonomous *Cacicazgos* which held commercial and political interactions between them. The *Cacicazgo* was a regional unit of socio-political organization in the Andes. It was comprised by several family based units (Ayllus). Ayllus were grouped around a Llajta, which was a symbolic nucleus where the ethnic authority had seat, and worked as a center of cohesion and organization. During population reorganization by the Spanish in the early

San Joaquin is one of the twenty-one rural parishes that surround Cuenca, but differently to the others, its emergence is not related to early-colonial processes of population segregation exercised by the Spanish authorities, but rather to the logics of *mestizaje*<sup>3</sup> that resulted from spontaneous processes of population movement during the late-colonial era.

The higher tributes that the members of indigenous communities had to pay in relation to the ones who had decided to abandon them triggered intensive migratory movements of indigenous population across the whole territory during late 18th century (Achig Subía 2009; Chacón Zhapán 1990; Poloni-Simard 1997). Lands in the peripheries meant a huge asset for *indio* fugitives<sup>4</sup> escaping from their burdens, but also for poor whites with no chances of buying land in the city. It could be said that this was the place of the outcasts. With relatively little or no restrictions, the peripheries became very dynamic places of rich cultural blending, where diverse population interacted and mixed.

Located in the *ejidos* between the Yanuncay and Tomebamba rivers, the San Joaquin area came to be known as the land of *indios libres*.<sup>5</sup> It was close to medium sized states—as sources of seasonal work; to communal lands of indigenous occupation—for having seasonal workers; and to the city—the place where opportunities could be exploited to obtain income (Fig. 2).

Seen from the upper terrace of Cuenca, El Ejido looks fascinating, both for its extension and perpetual greenery, as much as because it resembles a second city, divided into numerous quarters with houses, gardens, orchards and beautiful groves which makes for a charming combination. [...] This wonderful plain is watered by numerous rivers, which provide a huge number of irrigation channels for the *ejidos*, *quintas* and the plains. (Villavicencio 1858, p. 428)<sup>6</sup>

The fragment by Villavicencio, written around the time San Joaquin appears as a rural centrality, probably well describes its condition: privileged by its flat topography and abundance of water, intensive division of land, houses, gardens, orchards and groves.

The dynamic space that emerged on the other side of the Tomebamba, was populated by a very diverse stratum of people, that can be conceptualized as peripheral in several senses. Previous accounts (de Merisalde y Santisteban [1765], 1894) allude to the population's simultaneous condition of immediacy and remoteness to what was considered to be 'good': city and religion. Located 5 km away from the colonial core, San Joaquin was not under the strict control of the city, because it lay outside it, but it was also sufficiently far from the *pueblos de*

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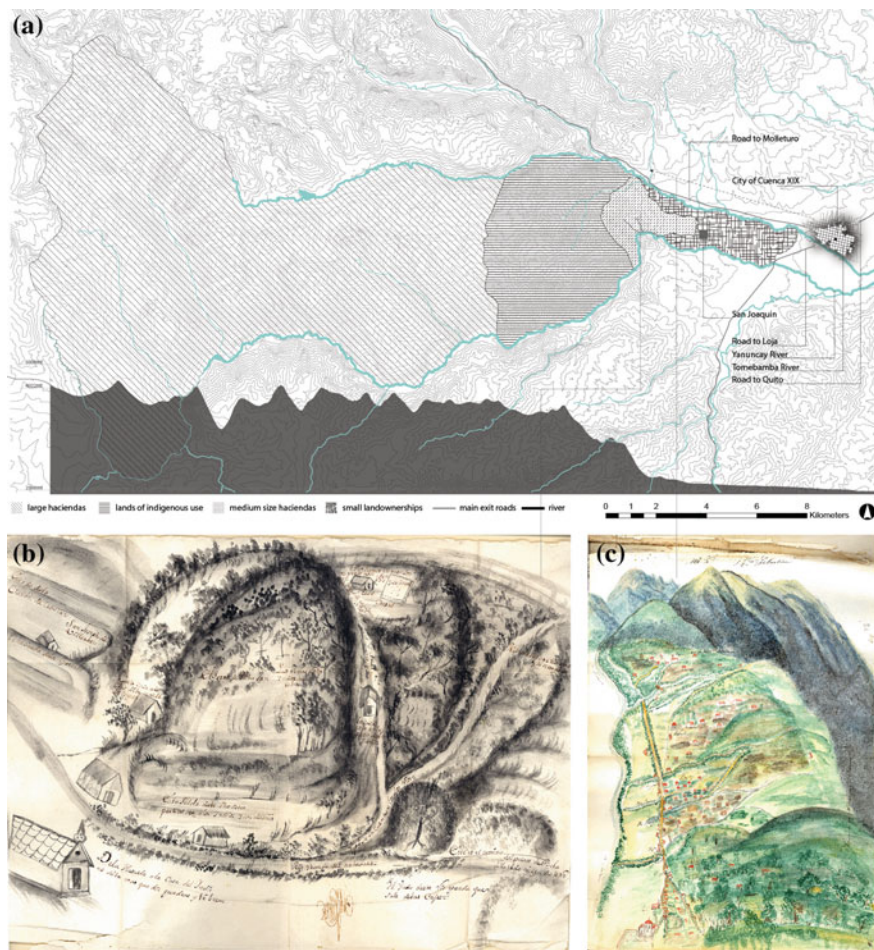
colonial period, several *llajtas* were established as centers of the ecclesiastical Parishes which functioned as both administrative and political centers of territorial control.

<sup>3</sup>Cultural and racial mixing between *white* and indigenous population.

<sup>4</sup>They were called *forasteros*, which means *foreign*, *stranger*. Belonging to a community was essential to the identity of indigenous peoples, the decision to abandon their communities implied the uprooting of their identity, to stop being.

<sup>5</sup>*Indios libres* translation to English is "free natives".

<sup>6</sup>Translation by the author.



**Fig. 2** a The condition of land tenure around mid XIX century in San Joaquin parish. *Source* Elaborated by the author, from GIS information, Senplades and Juan Loyola (2012). b “Plan of Indios of Sayausi”, 1761. *Source* National Archive of Ecuador (ANE), Quito. c “San Sebastian”, 1857. *Source* National Historical Archive, Azuay

*Indios* not to fall under their rule. This indeterminate status, this ‘gap’, lead us to think of it as a sort of a no-man’s land of freedom and opportunity that allowed their population more liberty—though not necessarily legitimacy—to define their space.

The heyday of exportations of the *toquilla* hat during 19th century, increased artisanal activity in the peripheries. Its population regularly visited the city, either for buying raw material, or for selling finished hats (Chacon et al. 1982; Palomeque 1990). It was out of this “*on the move*” condition that Cuenca and its parishes built their identity, from a strong interplay and coexistence of its urban and rural

practices, its creole, indigenous and peasant population; but also from its attachment to traditions and simultaneous aspirations for modernization.

## Dynamic Interplays in the Territory

San Joaquin exemplifies several issues common to the parishes' dispersed ways of occupying the territory: the mostly small and medium size of landholdings, their persistent reliance on land as an economic resource, the diversification of population's activities, in short, the *in-between* condition of a people that merges challenges and advantages to shape their own territory.

San Joaquin profits from an advantageous *in-betweenness* that shapes its territory and population: its double nature as agricultural and urbanized land; its overlapping patterns of settlement as compact, scattered and linear; its people's activities as peasants, artisans, merchants, labourers or as professionals that work in the city. The practices of its population are simultaneously urban and rural, dependent and nondependent, fixed and flexible. The cycles of their activities continuously alternate between those activities that rely on land, and those that have to be accomplished far from it.

## Markets and Informality

It may seem odd to start a description of a territory by addressing 'markets', something that largely happens outside of it. However, 'markets and informality' touches on the origin and the status of the activity that most decisively shapes the spatial development of this territory (Fig. 3). The decline in the exportations of *toquilla* hats during the first half of twentieth century, was followed by important migratory movements from the highlands towards the country's coast, where export-oriented agricultural production needed a high quantity of labor workers (Acosta et al. 2006). Interregional networks built by seasonal work migration to the coast, were partially transformed or complemented with commercial ones,<sup>7</sup> when during the fifties the construction of a national road system finally connected Cuenca to fast-growing cities such as Guayaquil and Machala. Initially used for commercializing traditional products such as flowers, vegetables and basketry on a small scale, the new road infrastructure boosted agricultural production to a commercial scale, transforming the productive landscape of San Joaquin. Small and medium landholders progressively turned their traditional crops into vegetable

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<sup>7</sup>Commerce with the coast had been practiced since pre-colonial times, through routes intermittently reactivated during the colony and in a more continuous manner during the heyday of *toquilla* hats exportation.





**Fig. 3** San Joaquin's main flows of products. Most of San Joaquin's production is sold at the wholesale market in the city, where sales start at 3am. Interregional sales are preferred by monoculture producers, while small-scale producers—with diversified crops—continue to struggle with informal sales in different markets in the city. Sales to local supermarkets and to restaurants are also an important niche, although these sales are restricted to very few producers. Agro-ecological products are sold in a specialized market on Saturdays, or by in situ harvest, a modality with potential for development in the parish

ones, while they built, branched and expanded systems of irrigation into their lands (Loyola 2012; Villacis 2015).

The temporal character of the farmers commercial activities has never been thoroughly understood as essential within the productive cycle. The complementary role of the multiplicity of small-scale productions and their contribution to the city also remains unqualified. Instead, farmers' small-scale commercialization is demonized because of its 'informality' and it is perceived as an urban problem (Fig. 4). 'Informality' is indeed just another dimension of the *in-between* condition that indigenous and peasant population has faced and still faces in performing their activities, their presence in the city always being simultaneously required and contested. *In-betweenness* is not an exception but the very condition in which indigenous and peasant population have forged their own worlds, and the 'informality' to which we refer today, is only reproducing this long-term condition.



**Fig. 4** The trajectory of people and land is not monolithic. While for some land continues to be the base of their economy, for others it is only complimentary, and still for others land is a commodity signaling a social status or a long-term investment. *Source* Elaborated by author. Aerial photography provided by IGM (Geographic Military Institute)

## *Agriculture as Family-Based [Re]Production*

Agriculture production in San Joaquin can still be understood as family-based production. The participation of the members of the household and the multiple roles they perform, are crucial in the construction of their local and regional networks of commercialization, and in the retention of their claimed spaces in the city.

The degree of involvement of the family members in the chores of labour and commercialization is diverse. Variables such as the structure of the family, levels of formal education, aspirations of its youngest members, in combination with the impact of agricultural activities on the family economy are fundamental in defining the intensity of their participation in the productive cycle. Eventually, the interplay of these variables will define the continuity of the agricultural activity or not in a family group.

Growing predominance of money driven economy diminishes solidarity-based family economies. The trend among landowners in San Joaquin moves towards the single family as the unit of production, and rapidly towards the adults being the only ones working the land. Some land will remain uncultivated as a consequence of migration, old age, lack of time or simply lack of interest due to other higher sources of income. A uncultivated plot, however, constitutes an opportunity for others still farming or willing to do so, as we will see next.

## *Transitional Economies*

Some farmers in San Joaquin don't even own land. Many come from faraway parishes because San Joaquin offers jobs in agriculture to unskilled workers, who often also become providers of a whole palette of agriculture-related services such as: ploughing and preparation of soil, weeding, harvest and post-harvest services (Villacis 2015). They are mostly young families, who rent rooms in under-occupied houses in the town or close to the vegetable gardens they cultivate. Over time and as they become familiar to the logics of their new places, these families also diversify their incomes. They make incursions into agriculture-related ventures like their own production in rented land and selling vegetables in the city markets; or they learn new trades, very often in construction-related jobs.

San Joaquin fragmented landscape of vegetable gardens, stone hedges, pathways, and interconnected water ditches accommodates this kind of economies in transition, offering to young families—according to several women interviewed during fieldwork—(Pindo 2015; Chabla 2015; Barros 2015; Wishco 2015), the flexibility for raising their small children.

## ***Non-agricultural Income***

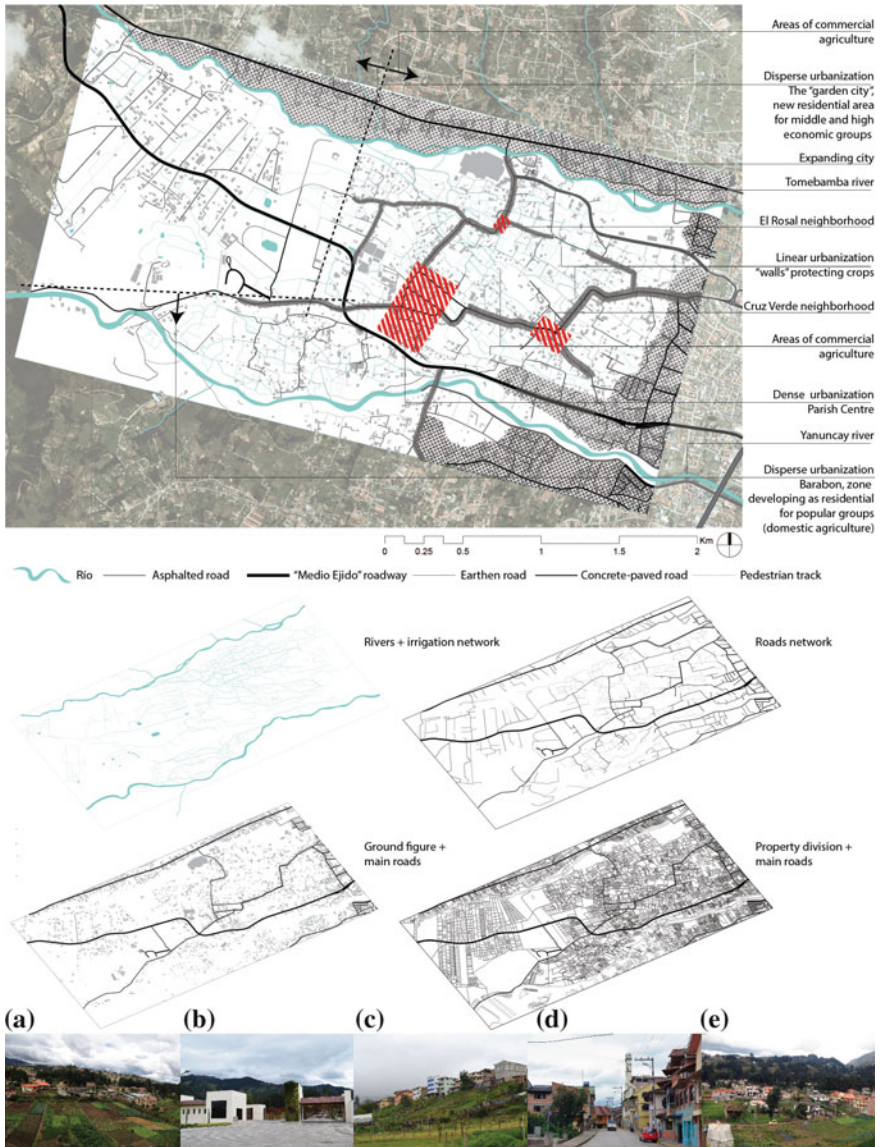
Skills and education define employability, however, landownership can determine the outcome: laborer, transnational migrant or independent worker. A plot of land is very often mortgaged to endorse the purchase of a vehicle for taxi or transportation services, an activity very much appreciated and with a certain status between men in the parishes. Also very commonly, land will be pawned to get fast-cash loans for paying human smugglers into to the United States. The outcomes of transnational remittances can work in diverse directions, however, ending the familiar practice of agriculture—perhaps counter-intuitively—has been proved not to be a frequent outcome (Gray and Bilsborrow 2014; Jokisch 2002). What is common is the construction of big houses in the middle of agricultural plots, which very often remain uninhabited or underused until the return—if they return at all—of their owners.

## ***Overlapping Logics of Urbanization***

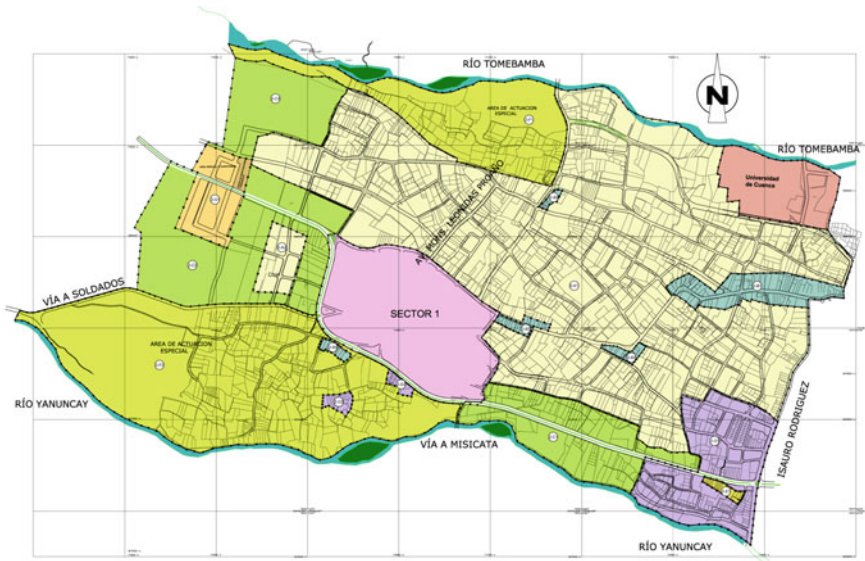
Despite their high fertility, most of the flat lands of San Joaquin are not actively productive. While the plots under intensive production are largely small landholdings, the large landholdings are in the hands of few wealthy urban families whose interest in landownership is related to social and economic status and not to land productivity.

In despite of strong opposition from farmers—generally small and medium landowners, in 1995, the *Medio Ejido* motorway was built, crossing the productive lands of San Joaquin, and bordering the large properties. A special land regulation (Municipalidad de Cuenca 2001) was enacted in 2001 in order to prevent San Joaquin from being urbanized. The ordinance established low densities of occupation as a method to prevent urbanization, but at the same time, it incorporated lands of intense agricultural use inside the urban demarcation of the city. Lands of rural use and urban demarcation are especially sought after by developers. The raising of property taxes on urban land reduces the already low profitability of agriculture, hardening the economic situation of farmers, who often end up selling their properties (Fig. 5).

A land-use reform in 2010 (Municipalidad de Cuenca 2010; Municipalidad de Cuenca and Secretaria de Planificacion 2011) reduced the minimum size of the plots, laying out a grid of streets that basically follows the pattern of *cercos* in areas of agricultural production (Fig. 6). That is the ordinance currently at work and the one guiding the opening of roads in agricultural lands. Incongruously, among the listed reasons and motivations to reform the previous ordinance were the recognition of the contribution of agricultural activities to food self-sufficiency of the city and to the parish economy; the necessity of supporting the local initiative for



**Fig. 5** a Area of commercial agriculture, lower area of Balzay. b Gated communities. c Linear urbanization. d Parish centre. e "Barabon" urbanization + domestic agriculture. *Source* Elaborated by author. Partially based on information provided by Senplades (Ecuadorian National Secretary of Planning) and the Municipality of Cuenca



**Fig. 6** Spatial planning for the lower area of Balzay by the Municipality of Cuenca. While recognizing the existence and importance of agriculture in the sector, the Plan of Territorial Development of San Joaquin proposes to “frame” the agricultural lands by means of roads. Sector 1 corresponds to the head of the Parish, the most urban consolidated sector. *Source* Annex 2, proposal for the Ordinance Plan for the Sectors 1& 2 of San Joaquin Parish, Segeplan (General Secretary of Planning), Municipality of Cuenca, 2010, presented to the Cantonal Council of Cuenca in March 31st, 2010

undertaking agro-ecological practices, and the acknowledgement of the landscape qualities of the sector and the importance of its protection.

A profusion of minor roads and dispersed urbanization is the result, partially encouraged by the very ordinance. The areas of medium and large landownership’s consolidate as high income neighborhoods and gated communities are already under construction next to the exclusive “Cuenca Tennis and Golf Club” in the western lands. At the same time, the last pockets of agriculture remain productive in a highly fragmented land laying behind ‘walls’ of urbanization along the access roads to San Joaquin.

## Final Thoughts

In the Ecuadorian context, roads are ideologically very related to the idea of ‘progress’ and ‘modernization’, then that they are the preferred way to prove effectiveness by local authorities. Despite the increasingly dominant role that road infrastructure has today in the transformation of the landscape of San Joaquin, the

structuring elements that shape this unique landscape are still present. They can be read as a collective creation, a system composed of natural and cultural elements.

Jackson (1986) has powerfully defined landscape not as a natural feature of the environment but as a synthetic space. Landscape is, “a man-made system of spaces superimposed on the face of the land, functioning and evolving not according to natural laws but to serve a community—for the collective character of the landscape is one thing that all generations and all points of view have agreed upon” (Jackson 1986). Defined in this manner, San Joaquin’s fragmented landscape stresses the incremental capacity of building networks hosted by inhabited landscapes, what should be considered as an available resource to be accounted for in envisioning a more sustainable and inclusive future.

Differently than territories of sprawl—mono functional and homogeneous—the trajectory of San Joaquin’s landscape shows a process of complexification. Departing from a panorama of large and small landholdings and mestizo population primarily living out of agriculture; market opportunities, subdivision of landholdings, as much as personal opportunities have transformed this landscape into a collection of heterogeneous spaces, population, activities, and abundant interplays.

While conventional spatial planning—as the one proposed by the Municipality of Cuenca, based on roads and control of what is understood as a chaotic development—could trigger gentrification and homogenization of this landscape of bricolage, new perspectives that profit from the complex available system of this landscape are needed. The lessons of this landscape amalgamation shouldn’t be underestimated by urban designers, since it expresses the complexification of a proto-urban territory developing rightly: multiplicity of activities, polyvalence of their infrastructures and diversity of its social tissue.

Scattered patterns of occupation can also be sustainable ways of inhabiting the territory, due to qualities of complementarity and a multitude of interplays delivered in the pattern. Under this light, San Joaquin’s disperse occupation, which echoes the rest of surrounding parishes of Cuenca, should not be battled, but firstly qualified, and the elements of their landscape, which comprises the physical and the cultural, understood as a primary territorial resource. It is necessary and possible to structure the undergoing processes of urbanization in San Joaquin, allowing for gradual transition and a certain degree of flexibility, that prevents gentrification and the continuation of colonial and capitalistic practices of socio-spatial segregation, which should be considered as pathologies that attack the future social and spatial quality of the city.

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# Elements in Desakota



Qinyi Zhang

This paper has two parts. The first part attempts to present a process of different types of urbanization in the Yangtze River Delta and a tradition of in-situ urbanization in China. The second part observes the vast space in-between big cities in the Yangtze River Delta that has been densely built through this urbanization process, a space with a mixed character of both urban and rural, a space mixed by agricultural and non-agricultural activities therefore described by McGee as desakota (McGee in *The emergence of desakota regions in Asia: expanding a hypothesis*. University of Hawaii Press, Honolulu, 1991). Here it attempts to examine this space from an elementary point of view, as a starting point to imagining a fundamental transformation of the territory.

## Part I

### *The Agricultural Economy*

In his *Oriental Despotism: A Comparative Study of Total Power* Karl Wittfogel describes Chinese society as a combination of state apparatus, agricultural economy, an insignificant business—and craftsman class and, different from other hydraulic empires, a huge peasant class where each household owns very small piece of land. The Yangtze River Delta is an extreme case of regions with this agricultural economy. Fei explains the mechanism as a mixture between a type of agriculture—rice fields—and dense settlements and their space with a specific case study on Kaixiangong village in the nineteen-thirties (Fei 1939). The intensive

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collective water management led to an incredibly dense network of villages twenty minutes walking-distance from each other, and an extremely fine water network for drainage and transport. The saturated land productivity leaves the redundant labour—women, children, and men in the yearly 3-month vacation—with no choice other than to face the constant struggle of looking for other sources of income to survive. The dense and growing population offsets the high productivity of the land. This reality has never been fundamentally reformed,<sup>1</sup> and has urged and brought on a mixture of agricultural and non-agricultural activities right from the very beginning. Philip Huang defines this situation as “involution”,<sup>2</sup> a fundamental challenge through the history of China: to relocate the enormous surplus labour in agriculture (Huang 1992). This “endogenous”<sup>3</sup> motivation found its outlet in the subsequent process of industrialization and urbanization.

### *Forms of Urbanization*

Three stages of urbanization can be recognized, going from a continuous and dispersed urbanization in the countryside, on to the mind-boggling urbanization in Chinese cities.

Firstly, a radical land reform took place in the beginning of the fifties. Mao perceived and was excited by the “endogenous” power in the countryside. He stated:

If the redundant rural population rush into the city and over-inflate the urban population, this will be no good thing ... To avoid this, the life standard in the countryside has to be the same as that in the city, or better. This problem could be solved with the commune. Every commune would have an economic centre, and greatly develop industry according to a combined plan, to transform peasants to workers in situ. The communes would have their universities and cultivate the intellectuals they need. If this were the case, the rural population would cease to blindly flow into the cities. (Mao 1959–1960, pp. 389–390)

According to Meisner (1977), this direction was basically implemented during the Cultural Revolution, despite the many constraints. Although typical urbanization appeared to decline in numbers,<sup>4</sup> the growing rural industries employed more than 20 million rural labourers and established many communes as the centre of

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<sup>1</sup>The arable land in China was 0.21 ha/capita around 1900s, 0.2 ha/capita in 1930s, 0.25 ha/capita in 1950s, 0.1 ha/capita in 2013, which is less than half of the world average. In 1999, the arable land per laborer was 0.29 ha in China, while it was 1.1 ha in Japan, 17 ha in France, and 52.7 in the United States. Source: Wen 2009, page 26–32

<sup>2</sup>It is a term originally used by Clifford Geertz applied to Indonesia as a situation in which the income per laborer drops as more laborers are invested, leading to a growth without development.

<sup>3</sup>John Friedmann explains the urbanization process of China: instead of globalization...it involves an evolutionary process that is driven from within, as a form of endogenous development.” (Friedmann 2005, p. XVI)

<sup>4</sup>During the Maoist era, the rate of urbanization went up to 19.75% in 1960, and declined to 17.55% in 1977.

knowledge and technology. The industries, infrastructure, medical services, schools and other facilities were developed rapidly in the countryside. Together they founded the base of future urbanization and industrialization in China. Today many traces from that time can be recognized: roads lined by tall trees, the first schools built in the countryside, and recently privatized factories built in the communes.

Mao's idea of agricultural communes coincided with the utopian thinking of the time. With the underlying similarity between his *Agropolitan District* and Mao's commune, Friedmann puts Mao in the same group as Kropotkin, Howard, Mumford, and Wright.

The Economic Reform that started in 1978 paved the way for rural-industrialization in its second stage. Enterprises owned collectively by the towns and villages began to mushroom, especially in the rural area of the deltas. Small cities and towns started to grow rapidly, while the growth in the cities was intentionally limited. The town and village enterprises were absorbing huge numbers of local surplus laborers from the agricultural sector—most of the employees of those enterprises were from nearby. Instead of being a spin-off, this rural urbanization is a parallel development to the growth of the cities. Although the pace of growth of rural industry slowed down after the nineties, it still plays a significant role in the economy of China today.

From the nineties onwards, the development policy turned to being city-centred, together with the introduction of the industrial parks to house private companies. In the Yangtze River Delta, large infrastructures, usually in the form of a regular grid, were often imposed on top of the existing field pattern. Vast concentrated industrial campuses together with multi-level residential neighbourhoods expanded in rural areas adjacent to central cities and towns. The labourers were often from the less developed parts of China, having relocated to villages surrounding the industrial parks. This “city-making movement” model, despite the great economic growth it brought, raised many challenges: rising unemployment in the cities<sup>5</sup>; massive waste of space and severe pollution; social conflicts brought by the huge influx of new incomers and the widening gap between the urban and the rural.

### ***A Turning Point and a Need for a New Paradigm***

In 2014, The National Plan of New Type of Urbanization (2014–2020) presented a clear shift in the focus of development from large towns and cities to smaller population centres. However, it introduced a new system of cities extending to the hinterland of China—an obsolete tool for the new challenge. It reflects the mainstream idea in China, which centres on the role of towns and cities as “engines of

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<sup>5</sup>According to the research by Feng, Hu and Moffitt, the rate averaged 3.9% in 1988–1995, but rose sharply during the period of mass layoffs from 1995–2002, reaching an average of 10.9% in the sub period from 2002 to 2009. Source: Shuaizhang Feng, Yingyao Hu, Robert Moffitt, NBER Working Paper No. 21460, Issued in August 2015, NBER Program(s): PE.

growth” and leaves the countryside out of scope. At the same time, another group of studies, the “rural construction movement”, focused on emerging challenges in rural area. Those researches and projects often concentrated on specific villages where the rural character is present and qualitative, seeking new types of program such as restaurants, home hotels, and nursing homes, and imagine the rural area as the complementary part of the urban. Both the two paradigms neglect the long process of in situ urbanization taking place in the heavily built, industrialized and populated countryside, and fail to recognize the urgency and potential for new transformation.

The third group of researches recognizes the extensive area as having a mixed character of rural and urban. The most significant one is the concept of *desakota* by McGee (1991), who recognizes several types of spaces on the territory: the major cities, the peri-urban, the *desakota*, the densely populated rural areas, and the sparsely populated frontier. His thesis has been followed and also challenged by comparable concepts by both Western and Chinese scholars, for instance “interlocking regions” by Zhou (1991), “peri-urbanization” by Webster (2002) among many others. Those researches represent another paradigm, which discover a territory beyond the rural-urban dualism, a different form of space—a “*city-in-the-fields*”. Could it, with new projects and improvement, be the solution towards an ultimate elimination of the urban-rural dualism?

## Part II

### *Elements of Desakota*

On one hand, in many ways, those areas are already “cities”. Tangqi, an ordinary town with a lot of villages in Yangtze River Delta has a population density of 1258 inhab/m<sup>2</sup> in 2011—much higher than many European city-territories (e.g., Flanders, the Randstad...) as well as the utopian Broadacre City. The infrastructure and facilities listed in Friedmann’s Agropolis, including hard-surface roads, bus services, different types of schools, and health services (Friedmann and Douglass 1978, p. 185) have been delivered dispersedly. On the other hand, the quality of the physical environment tremendously compromises the livability—the urban-rural division is not only presented by the difference in income, services, infrastructure, energy supply, etc., but also in the quality of space, in its articulation.

A detailed investigation of the physicality of the spatial elements in *desakota* is needed. To create a description of a complex territory through the close reading of its elements is a notion shared by a great line of thought, including *Learning from Las Vegas* by Brown, Venturi, and Izenour, *The Form of the Territory* by Gregotti, *The Elementary City* by Paola Viganò, and many others. Today elements of *desakota* are under transformation: the dominant rice field has been replaced by a variety of cultivations including fish farms, plant nurseries, vegetable fields, etc.; the earth roads have mostly been replaced by concrete ones, leaving little space for trees; a great number of houses are being extended and rebuilt, also to

accommodate immigrants... The current condition of those elements could engender new design themes for the same elements, which could change the whole territory through repetition and integration. The roads and the houses are presented as two exemplary elements in the following part.

## Roads

In-between the plots of the industrial parks, roads are built identically to the ones in the cities: orthogonal grid patterns, asphalt surface, gutters, more than four vehicle lanes, bike lanes indicated by separated line or an extra space besides the vehicle lanes, and sidewalks in concrete bricks. Camphor trees, typical to the area, are planted along the sidewalks. Those roads render a strong urban character contrasting with the immediate rural surroundings.

There are almost no detailed regulations for village roads except the basic dimension of their sections. Concrete is used as the most common material covering the entire section, due to its cheapness, low maintenance requirements and simple building process that allows the peasants to participate in the same, not to mention its long lifespan. Sidewalks are barely to be seen. The front space of each peasant house is also laid out in concrete, which forms a continuous surface with the road for parking, car washing, shops and informal open-air markets. The rainwater runs off into the irrigation ditches accompanying the pollution and rubbish.

In the thirties the roads connecting the villages and towns were mainly used for towing boats. During the *commune* era many roads were upgraded for tractors, fir trees were planted on both sides as a celebration of collectiveness. Today the fir trees have either been cut down or limited to small spaces along the roadside due to the new standard of road width. New vegetation has grown up indiscriminately. The monotonous use of concrete and the general lack of street vegetation creates a pale and dusty atmosphere in the villages, and a feeling of arbitrariness and collectiveness (Figs. 1, 2 and 3 ).

## Houses

A traditional one-floor peasant house in Yangtze River Delta is made up of five parts, one parallel to the other: a front court, a living room, a courtyard, a row of bedrooms, and a back yard with toilet. Today, the land in rural areas is owned collectively by the villages, and each peasant family is allowed to occupy a small piece of land to build on.<sup>6</sup> In Tangqi, the first modern peasant houses were built in

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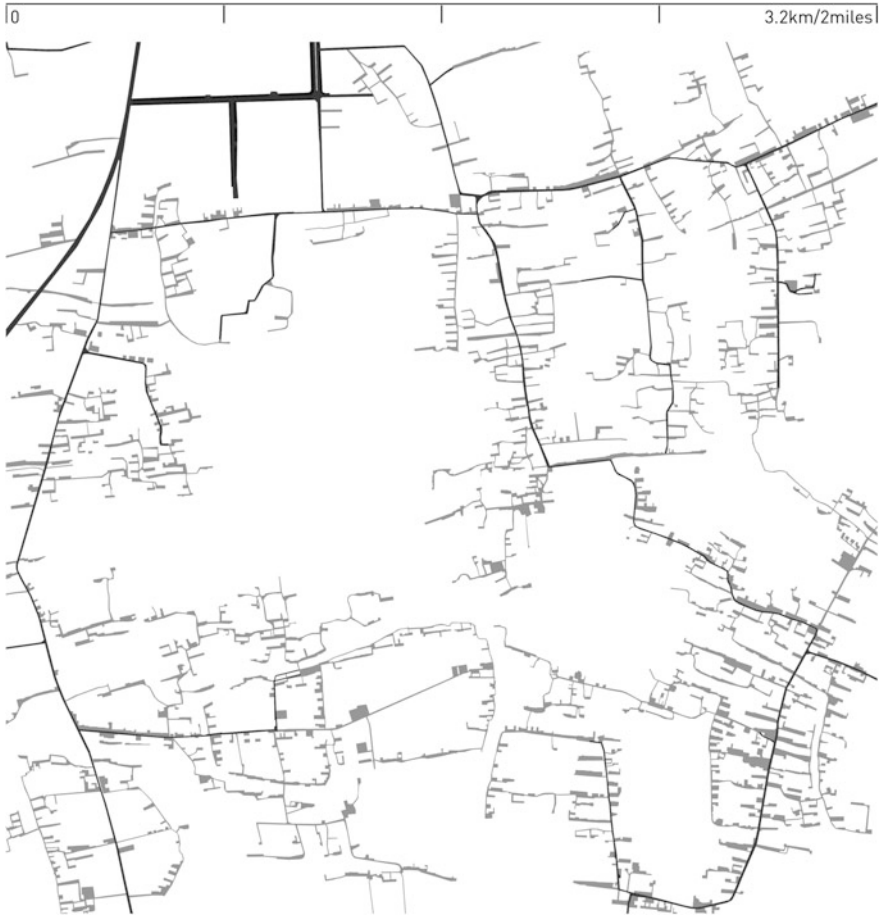
<sup>6</sup>This quota varies from village to village. In Tangqi, a family with four members could have 128 m<sup>2</sup> of land to build their own house. But usually the buildings go beyond that in different forms.



**Fig. 1** A typical concrete village road in Tangqi, Yangtze River Delta. Photo by the author



**Fig. 2** A continuous concrete space: the village road and the front courtyards of the houses, Tangqi, Yangtze River Delta. Photo by author



**Fig. 3** The concrete (grey) and asphalt (black) surfaces, south of Tangqi, Yangtze River Delta. Elaborated by the author

the eighties, and rebuilt from 2-floors to 3 floors with extra small buildings for storage and activities at the back.

Many of the three-floor buildings have recently been replaced by five-floor buildings. With the enlargement of the houses, the courtyards have disappeared. Many of the five-floor houses have multiple entrances. The ground floor is for trade and other activities and has an independent entrance; the first and second floors are for the owner’s family, with an external “monumental” stairway entering the main living room on the first floor; the upper floors, served by an additional independent staircase, are often rented out to immigrants drawn by the industrial parks situated





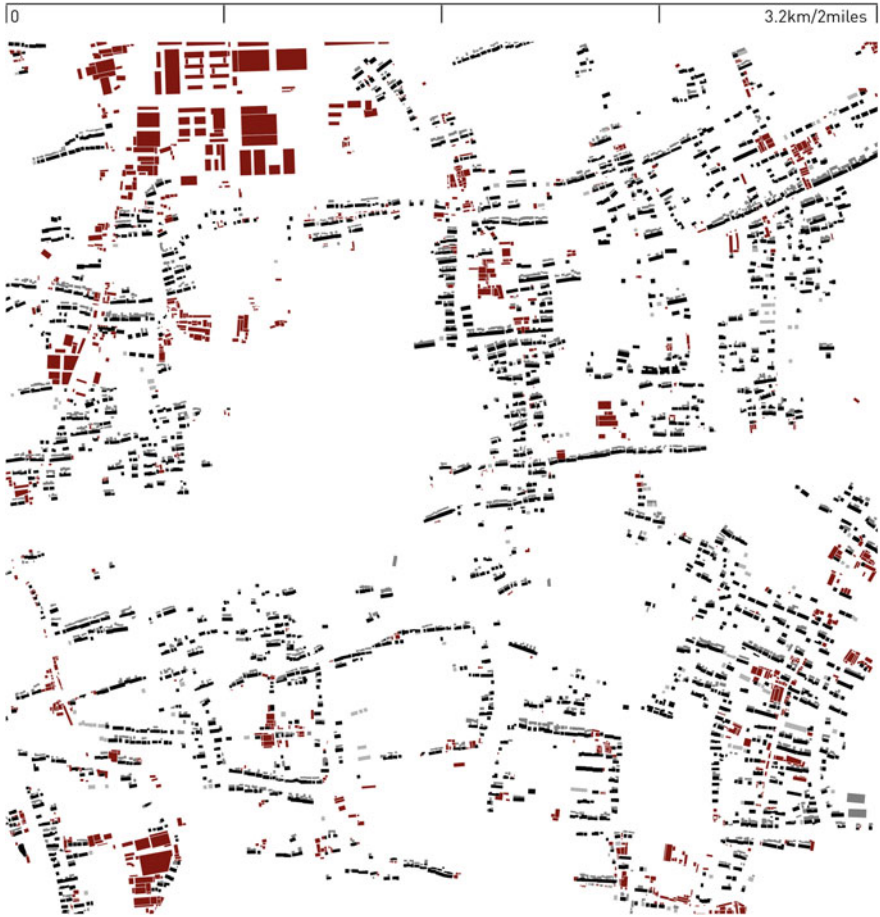
**Fig. 4** Rebuilding the houses: houses built in Tangqi in the nineties (right) and new buildings in the 2010s. Photo by the author

nearby.<sup>7</sup> There is no circulation in-between these parts. Behind the house, additional buildings are built with various functions and qualities: small factories, workshops, storage facilities, etc. high walls have started to appear in front of the buildings, which is unusual for buildings in the eighties and nineties. It could be a sign of a new society in the *desakota* with a more complex population, accumulation of private wealth and a need for security (Figs. 4 and 5).

## Conclusion: From Elements to a Territorial Construction

Thinking from the spatial elements could offer a more radical statement of the kind of society and space we could be moving towards. The construction of Broadacre City, a utopia generating a new American culture and society, came about through a constant writing and modelling of elements: how a family house should be, how a highway crossing should be, how a school could be, even how a personal vehicle might be. The accumulation and integration of the elements manifest a common

<sup>7</sup>A small portion of the immigrants are employed in the village industries.



**Fig. 5** Industrial buildings (red) and residential buildings, south of Tangqi. Elaborated by the author

social value and a coherent form of the territory. To the extent where, although different urban forms are proposed by Wright, the disurbanists, Friedmann and Mao, the similar, even identical intentions in the construction of many elements show traditional leanings.

As mentioned above, a new paradigm is needed. It is needed due to the current bottleneck of the city-centred development that enlarges the gap between rural and urban area; it is needed also for the long process of in situ urbanization happening in the rural area and the obsession with the same. It has to be a paradigm following the long tradition of “city-in-the-fields” where “the age-old conflict between town and countryside can be transcended” (Friedmann and Douglass 1978, p. 183). After the Broadacre City, disurbanism and the communes, a new manifesto is needed to

demonstrate in detail the fundamental transformation in how one could live, study, and work in this new city, through the imagination of its elements.

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# Section Across the Horizontal Field: A Case Study of the Asymmetrical Condition of Bogotá's Periphery



Claudia Lucia Rojas Bernal

## Horizontal Expansion and Environmental Conflicts

The Sabana de Bogotá is facing a continuously increasing conflict between development (urban, agriculture, flower production or any or kind) and a saturated water management system. This traditional agricultural landscape is undergoing a fast process of transformation in which industrial and housing activities juxtapose and rapidly consume fertile land while dramatically disturbing the ecological system. Heavy pollution, subsidence, flooding, demand for drinking water, and a loss of biodiversity are some of the most pressing issues. Demand for new housing increases daily, while Bogotá's overall deficit remains unresolved. In 2011 the quantitative housing deficit for the city reached 258,046 dwelling units (Secretaria Distrital del Habitat 2011). Urban expansion, land speculation and environmental conflicts have displaced the housing problem to the Sabana de Bogotá, outpacing the capacity of surrounding municipalities to provide services and infrastructure and exhausting the carrying capacity of the landscape.

It is already recognized that control engineering strategies need to be replaced by "more flexible, adaptive approaches to managing human activities and designing within the systems that sustain us" (Reed and Lister 2014). In terms of water management, it is clear that the cycles of urban/storm water/waste water have to be reconsidered and ecological and hydrological functioning landscapes should be promoted (Novotny 2009). In the context of the Sabana de Bogotá, a landscape urbanism approach, understood as "working with, rather than against, the forces of

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nature” (De Meulder and Shannon 2010) offers a “framework of mediation and assemblage” (Hight 2014) which can be the basis for a hybrid approach able to negotiate the challenges of the existing conflicts between any development (urban, agriculture, flower production or any or kind) with the (saturated) water management system.

## Deep Sections

This paper presents an interpretative mapping exercise that proposes deep sections as a “system of mediation” to analyse contemporary conditions of peripheral urban formation along the Bogotá River, and to develop new housing typologies that work with the logics of the site and in relation to fragile water realities. Deep sections have become an essential tool to address issues of climate change and integrated water management (Carlisle and Pevzner 2012). The potential of the sectional reading as a tool was already devised by Alexander Von Humboldt in the early nineteenth century. Humboldt, who is considered the father of ecology, illustrated the dynamics and spatial inter-relations between climate, topography and vegetation, setting an important precedent for new practices. His work also “displaced the art of landscape representation away from the poetic and the sacred and towards the scientific and analytical” (Girot 2016). One century later, Geddes used “the regional valley section” to illustrate the interconnectedness between city and region and how physical geography determined patterns of human settlement. In the mid-twenty century, Ian Mcharg extensively used the section as a methodology that “opened up the idea of the interconnectedness between cities suburbs and the natural world” (Reed and Lister 2014).

New sectional representations explore not only the relationships between natural elements and how they set the frame for human occupation, but also how the environment is disrupted by current socio-economic systems. The sectional assemblages drawn by Kate Orff are clear example of this work. Her drawings portrayed a journey along a stretch of the Mississippi River revealing the devastating effects of the petrochemical industry (Misrach and Orff 2014). Finally, recent design competitions such as “rebuilt by design” demonstrated the projective capacity of the section (Rebuilt by design 2013).

The sections presented in this paper function as a synopsis in which knowledge of different fields is integrated and, when used as stepping stone, embody an act of constructing landscape that projects new interplays between water management and urbanization. As an analytic tool the section offers two representational advantages. First, it enables the exploration of the complex relationships of a place, especially the correlation between hydrology and topography which are the basic landscape elements. Second, it blurs the traditional boundaries between urban/rural, local/global, because it represents the continuity of the horizontal field and the relations between flows. Finally, as a projective tool, the cross-scalar sectional reading sets the stage for the design of new hybrid assemblages that defines an elastic water–

land interface in view of climate change effects. Sections make explicit the contradiction between the human need to tame the landscape, by defining water and land, and the fluctuating character of water that constantly refuses boundaries and enclosures (Cosgrove 1999).

## **Framing the Landscape. A Fragile Ecological System Versus an Infrastructural Machine**

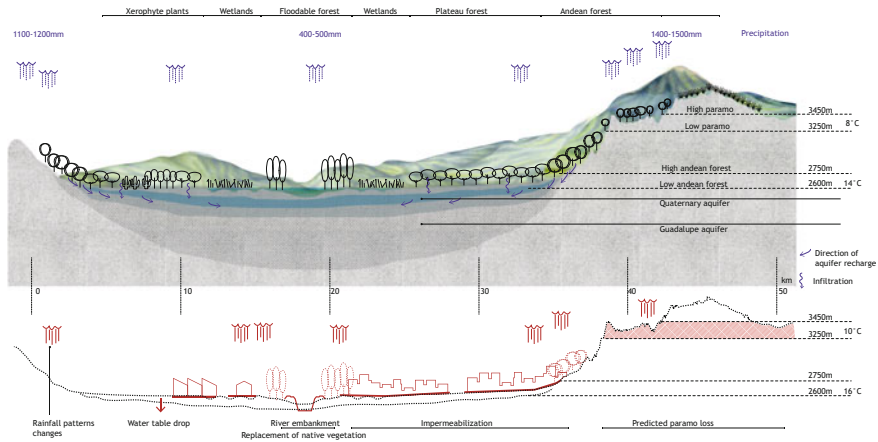
The daily water demand of domestic use for Bogotá and the nine surrounding municipalities is around 1.45 million m<sup>3</sup> (16.8 m<sup>3</sup> s). Currently more than 80% of this volume (14 m<sup>3</sup>/s) is derived from the Páramo de Chingaza in the Orinoco watershed (IEU 2015). An artificial network of reservoirs with a capacity of 894 million of m<sup>3</sup> and gigantic tunnels and pipes transfer the water to urban areas, creating an enormous stress on external ecosystems, but also adding a significant amount of polluted water to the base flow of the river. Temperature changes are critical for the Páramos, as its special vegetation would be unable to adapt to higher temperatures. Underground water is used by domestic, agricultural (especially flower farming) and industrial activities.<sup>1</sup> Greenhouses cover an area of 5168 ha, each hectare requires 10,300 m<sup>3</sup> of water. However the underlying system of aquifers has a low recharge rate and overexploitation leads to dropping water tables. In some areas of the Sabana, studies recorded that the water table drops almost 5 m per year which causes subsidence (Barrera 2010) (Fig. 1).

Today, the middle section of the Bogotá River plain is engineered as a flood control system and partly as a waste water collector. It is mainly a canal defined by the volume of water flows (a base flow of 22 m<sup>3</sup>/s at the beginning and 27 m<sup>3</sup>/s after receiving urban waste water) and the meandering geometry. The river is strictly confined between parallel dikes that narrow the floodplain to a regulatory dimension (50–270 m). The hydraulic capacity of the canal is 80–100 m<sup>3</sup>/s which make flash floods resulting from the increased mineral conversion of the soil into roads and housing blocks more difficult to cope with (Fig. 2).

Polluted water from industrial and domestic uses is reused by agriculture through La Ramada irrigation district. The district covers an area of 6500 ha, of which approximately 70% corresponds to the river floodplain. Water is taken from the Bogotá River, stored in the wetlands and distributed through irrigation canals. The system is complemented by pumps that increase drainage capacity during the rainy season and feed the system as irrigation device during the dry season. The treatment capacity in the watershed is very limited (CAR 2006). Hence the concentration of heavy metals and bacterial coliforms in the vegetables and milk produced are above

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<sup>1</sup>Colombia is the second largest producer of flowers worldwide, 73% of this production is concentrated in the Sabana, which provides significant economic revenues. However it also demands large amounts of water and displaces traditional agricultural activities.

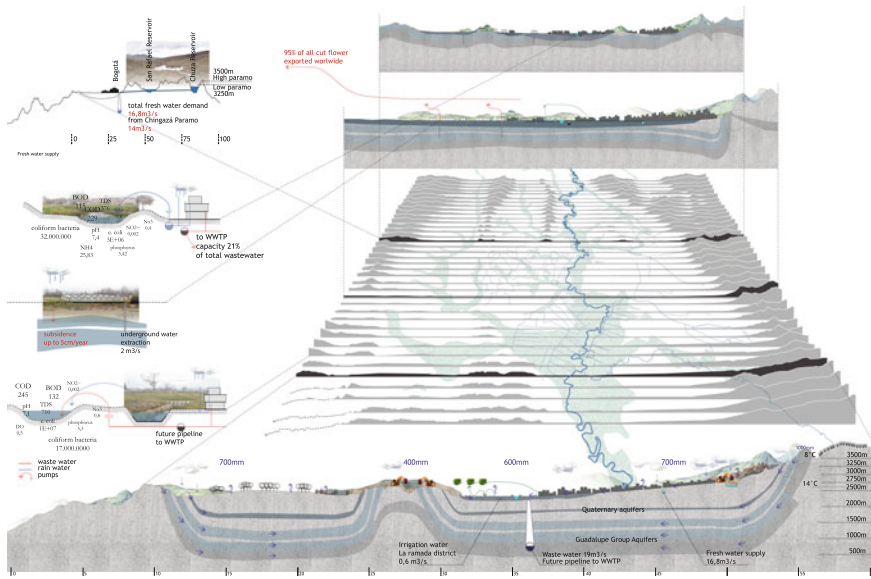


**Fig. 1** Geographical inscription of the Sabana de Bogotá. Deposition of volcanic sediments in a pre-existing lake formed the Sabana de Bogotá, a plateau located at 2600 m.a.s.l. This generated very fertile soil that has allowed a highly concentrated population since pre-Hispanic times though large part of the plateau was initially covered by wetlands. The landscape seems homogeneous. However, rainfall and evapotranspiration patterns and variations in the floodplain width, define subtle changes in wetness, vegetation and gradients of fertility. Rainfall from the north east to the south west varies from 1000 to 500 mm and the floodplain widens (1–10 km) southward as flows from tributaries merge with the Bogotá River. Originally floodable forests of mainly Alders (*Alnus glutinosa*) covered the seasonally flooded areas, and bordered the open wetlands. While aquatic vegetation and different species of bulrush and cattails covered the wetlands (Van der Hammen 1998). The native vegetation has almost completely disappeared as it was systematically replaced by imported species. The river, the floodplain and the wetlands formed an ecosystem that, working with the vegetation, cope naturally with cyclical periods of overflow. A unique ecology adapted to fluctuations of water and sediments flourished. Climate change predictions estimate an increase of 2–4 °C by the end of the century. This situation will cause an upward altitudinal shift of the vegetation zones and changes in the rainfall distribution (IDEAM et al. 2014)

the standard limits (Paéz 2009). In the Sabana, dissolved oxygen concentration falls to values below 1.0 mg/l. This water quality is insufficient to support life, converting the river into a dead natural body (CAR 2006). This situation is critical for the poorest communities that inhabit the reclaimed floodplain. They deal on a daily basis with the polluted landscape and flood risk.

## Towards a Hybrid Approach: Sectional Typologies

Urbanization in the Sabana de Bogotá is concentrated mostly in the east. This asymmetrical distribution, caused by the original high degree of wetness and socio-political forces, emphasized the apparent opposition between the city and the “natural” Sabana. Can we challenge this perception and replace by reading an urban figure diluted into the productive landscape? The potential role of agriculture in determining alternative modes of settlements was emphasized in the suburban



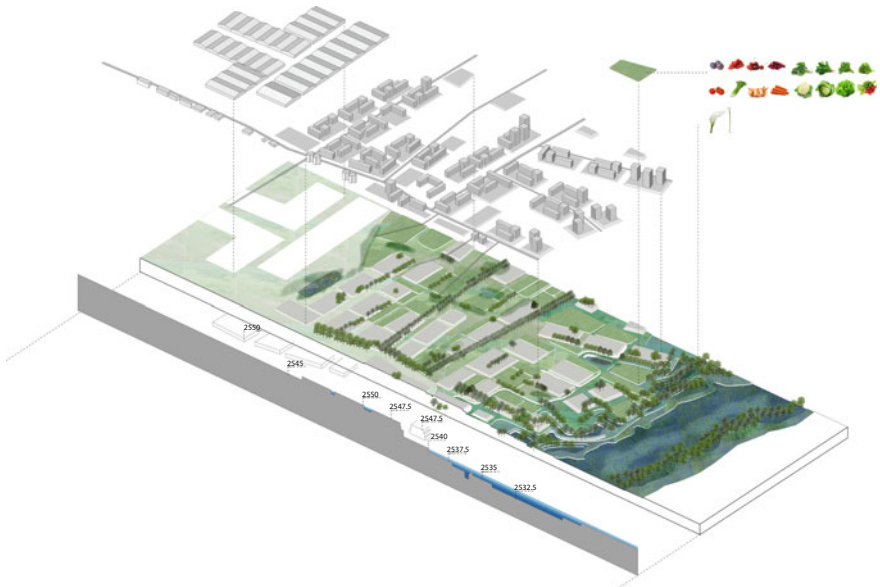
**Fig. 2** Flows of water in the Sabana de Bogotá. The river has been turned into a part of a complex infrastructural network in which water is harvested, redistributed, recycled and transformed into energy, commodities and food. The artificial ecologies that support settlement and economy blur the distinctions between rural/urban, natural/artificial, local/global, highlighting at the same, the limited resilience of ecosystems, overexploited aquifers, fragile Paramos, and failing water infrastructure. High levels of pollution and engineered dikes transform the river in a dead natural body

landscapes of Wright, Hilberseimer and Branzi (Shannon 2004; Waldheim 2010). Design investigations were developed in strategic sections that cut across urban and rural interfaces and are undergoing development pressure. One section in the Vereda El Hato (Fig. 3) cut across the El Gualí Wetland, a fragile environment that forms the landscape framework while performing essential hydrological and ecological functions for the region. The area is the lowest land in proximity to the wetland. It is an agricultural area that limits with the residential tissue to the west and industries to the north. A large Pre-Hispanic Muisca settlement was located here (Boada 2013), after the Spanish conquest the Indians were re-grouped in Funza and the land was used exclusively for agriculture.

### Recovering the “Sponge” Field Condition

The topographical manipulation responds to the specific site conditions (soils, water table, and vegetation). The existing plot structure is preserved as a framework within which cut and fill operations define areas for housing or agriculture.





**Fig. 3** Topographical manipulation. Twelve centuries ago the Muiscas developed a sophisticated system of ridged fields as an adaptation strategy to specific soil conditions and natural cycles of flooding (Rojas et al. 2015). The sectional design reinterprets this indigenous landscape urbanism strategy (Shannon and Manawadu 2007). It proposes a topographical manipulation that creates safe-levels for housing and agriculture and defines a dynamic gradient of wet and dry able to work as an elastic field coping with the climate change fluctuations. The elevated plots are anchored into existing infrastructures and integrate grey and storm water systems. The open tissue aim to recover the condition of the field as a sponge

The linear and hierarchical water system is turned into a hybrid system that combines linear elements and water bodies. The topographical manipulation also creates places for storm water collection, waste water treatment and reuse. By this way the field condition of the floodplain that originally worked as a sponge, and the supply of water to preserve the wetland is recovered. The different levels and the spatial distribution enable the reuse of the grey water in agricultural plots. Grey water reclaiming has strategic importance, considering the increasing water supply demands and the deficit of rainfall caused by the “El Niño” effect which will be worsened by climate change. This will guarantee food security for the region.

## Polytechnic Infrastructure

The spatial articulation of the water structure simultaneously delivers the frame in which new housing fabrics can be embedded. In addition, the sectional design combines the re-engineered water system with landscape programs, again

reinterpreting traditional landscape elements. For instance, street profiles integrate storm water management in the same way that existing streets combine lateral ditches that serve for irrigation and storm water collection. Water treatment ponds can enhance biodiversity and the same time allow recreational activities. Agricultural areas can be temporarily flooded in order to cope with extreme events.

The pre-Hispanic culture of inhabiting wetlands was strongly linked to symbolic meanings of water and nature. By preserving the wetland, re-introducing nature into the urban tissue and promoting agricultural productivity, existing social processes of appropriation can be steered towards a productive landscape.

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# Alternative and Horizontal Spatial Practices: The Case of the *Estero Salado* in Guayaquil, Ecuador



Giulia Testori

## Introduction

This contribution is an attempt to reflect on some alternative spatial practices in times of globalization, not just in opposition to big speculative masterplans, scarcely related to their socio-spatial context (De Meulder et al. 2004), but that also want to disassociate from sporadic participatory processes, that often superficially pretend to find sensational replicable solutions, neglecting the power of the social-role of urban design<sup>1</sup> (Boano and Talocci 2014; Brenner 2015; Bianchetti and Sampieri 2014).

By mentioning a horizontal urban approach, this contribution will investigate a top-down and bottom-up approach, where mediation and negotiation between scales and powers focus on horizontality rather than hierarchy; where social, political and overall spatial scales recognize a mutual accountability and acceptance (Howitt 2000).

The paper will initially focus on the governmental mega-project called *Guayaquil Ecologico*, a massive new park that, by imposing forced eviction on thousands of families, brought and still brings inequality and uneven growth in the

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<sup>1</sup>To remain in the Ecuadorian context, some examples would be the ephemeral tactical-urbanism experience of the Parking Day in Quito. Or the ABCD (Asset-Based Community Development) methodology largely applied in the USA, but also used by a municipal group of architects in Quito called *Mecanica Urbana*, where exclusive artistic participatory processes stood as exemplary actions of citizens' inclusion. From the USA, among the many, there is 'De-Voider' in 'Improve your Lot' project in New York by Interboro Architects, to have abandoned plots re-live with Home Depot supplies under the misinterpreted slogan of Advocacy planning (Theodore 2009).

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Ecuadorian city of Guayaquil<sup>2</sup> (Sanchez 2014; Harvey 2014). In a subsequent stage, in order to reflect on horizontal urban practices, light will be shed on a summer school called ‘Designing Inclusion’.<sup>3</sup> This experience indeed, inserted in years of investigation and citizens’ involvement,<sup>4</sup> has the objective of formulating alternative design strategies jointly with the affected families, in order to open up a process of dialogue and negotiation with the park’s project stakeholders. The paper then argues that the formulation of the proposals, the methodology used and its initial results, made of ‘Designing Inclusion’ a possible case of the above-mentioned ‘alternative horizontal spatial practices’. Finally, under this perspective, a reflection on what ‘horizontal metropolis’ could mean is explored.

## The *Guayaquil Ecologico* Project

Since 2008, when Ecuador was governed by a new socialist party, *Alianza Pays*; the country received a new National Plan and Constitution, and oil exports were nationalized; the consequent economic boom led to the planning and partial execution of an extensive list of big infrastructural projects across the South American State (Fontaine 2014; Gudynas et al. 2011). The 40 km-long *Guayaquil Ecologico* park, is an example of this mega-projects. Its promotion denotes a substantial change for the city of Guayaquil: a renovated image for a degraded waterfront, an innovative water management against flooding and to reduce pollution, a modern recovery of public spaces and the generation of touristic alternatives for leisure; substantially a driver that will re-shape the *Estero Salado*<sup>5</sup> (E.M.E. 2013)<sup>6</sup> (Figs. 1 and 2).

However, by studying this case deeper and examining its first implementations,<sup>7</sup> it can be noticed that there is almost no shadow of an ecological public space, no shrewdness that considers climate change, no integration with the existing urban tissue, but rather strong physical and social barriers. An example of it, is the implemented part along the *Playita del Guasmo*,<sup>8</sup> characterized by ‘militarized’

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<sup>2</sup>The biggest city of Ecuador, located in the south west of the country.

<sup>3</sup>Organized by the University KU Leuven and the Universidad de Guayaquil and financed by VLIR-UOS.

<sup>4</sup>Professor Viviana d’Auria from ASRO KU Leuven and Patricia Sanchez from UG were the main promoters of the Summer School, while Olga Peek and Nelson Carofilis are two of the main researchers who started following the issue since October 2013. Olga and Nelson are still actively involved in the negotiation process between the affected citizens and the municipality.

<sup>5</sup>The tributary river along which the 40 km-long project will be implemented.

<sup>6</sup>This park envisions an inversion of more than 221 million dollars and will be supposedly finished in 2017 (E.M.E. 2013)

<sup>7</sup>‘Tramo 2’ implemented in 2014 and visited in July 2015.

<sup>8</sup>*Playita del Guasmo* is an older project in Guayaquil implemented in 2004 to reconvert a sector of riverside, strongly criticized by Ecuadorian academics Henry Allan and Luis Alfonso Saltos Espinoza.



**Fig. 1** Ecuadorian President Correa showing the *Guayaquil Ecologico* project—from: <http://andes.info.ec>



**Fig. 2** On the left, a part of the implemented project—from: <http://skyscapercity.com>



**Fig. 3** *Socio-vivienda 2*—image by the author

gates, restricted accesses (forbidden to street vendors, gay couples, suspected gangs,...) and extended paved surfaces (Allan 2011).

While walking through another project, the *Socio-vivienda 2*, a social housing-complex implemented by the Ministry of Housing to re-locate, 20 km away, thousands and thousands<sup>9</sup> of evicted families that lived along the *Estero Salado*; the air is heavy, it is extremely hot, there is no shade, there are no public spaces, no jobs. The houses are 40 m<sup>2</sup> and are generally shared between 3 and 11 members (Figs. 3 and 4).

People are angry, furious for what they have forcedly lost and for what they are sadly left with. In the *Estero* they owned a house that generally cost them more than 30 years of sacrifice, not only for the construction process, but also for the achievement of the legal land tenure.<sup>10</sup> Built on precarious, suspended cane sticks on tiny pillars above the water of the *Estero Salado*, now the large houses, generally made of concrete, and normally with patio; if they have not already been demolished, lie gutted and abandoned; moreover they are embedded in a tissue of strong social relations, that in the *Socio-vivienda*, amidst the many other things, have been

<sup>9</sup>A total of 25 thousand families are to be evicted (E.M.E. 2013).

<sup>10</sup>Almost all houses have legal land tenure.



**Fig. 4** *Socio-vivienda 2*—image by the author

lost (Moser 2010). As one of the neighbours said: “all for a park that we’ll never enjoy”.

Even if the project is harshly criticized, it doesn’t signify that there is no need for urgent interventions in the area and that the idea of a big park is to be averted. The scarcity of public spaces is a fact, for some areas the flooding issue is a constant threat, the levels of water pollution are extremely high and the necessity of improving the quality of some buildings appears inevitable (Figs. 5, 6 and 7).

Hence what is being challenged here is not the main objectives of the *Guayaquil Ecologico*, but rather the way in which this urban project has been conceived and implemented: zero involvement of the citizens and very harsh processes of expropriation.<sup>11</sup> Nevertheless, not everyone in the *Estero Salado* that lives close to the river, even under blackmailing and violent actions, accepted the keys of the social housing. Those who remained and resisted under a constant pressure were exactly the main interlocutors of the ‘Designing Inclusion’ summer school (Figs. 8 and 9).

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<sup>11</sup>So violent as to draw the attention of the UNHCR who made a shocking report about all the human rights violations (UNHCR Report 2015).





**Fig. 5** The Estero Salado in Guayaquil—image elaborated by the author

## **Designing Inclusion: Not Just a Design Practice**

‘Designing Inclusion’ took place in Guayaquil from the 11th to the 24th of July 2015, and was organized by the University KU Leuven and the Universidad de Guayaquil and financed by VLIR-UOS as a Short Training Initiative.<sup>12</sup> Proposing alternatives to the *Guayaquil Ecologico* project was not simply about focusing on the final design results, but rather wanted to make use of the creative design process as an interface between institutions and communities (Cruz 2015).<sup>13</sup>

The school was constituted by 40 professionals: architects, urbanists, sociologists, ecologists, lawyers, planners, all from different countries. A multi-disciplinary team that fielded different approaches, perspectives and experiences. Before the

<sup>12</sup>VLIR-UOS supports partnerships between universities and university colleges, in Flanders and in the Southern hemisphere, looking for innovative responses to global and local challenges. It funds cooperation projects between professors, researchers and teachers.

<sup>13</sup>From a conceptual perspective, the approach started from the will to answer some questions that publications such as ‘Urban Dialogues’ posed some years ago. Like the “need for a more inclusive forum”, as a “feasible framing structure where actors can discuss, negotiate and decide”, or “how to find the appropriate and contextual language to communicate in a specific situation”, and in what ways “planners and urbanists...should facilitate learning about each other...a store of mutual understanding of ‘social and intellectual’ capital” (Van Den Broeck 2004, pp. 209–210).



**Fig. 6** The Estero Salado in Guayaquil—image elaborated by the author

start of the school they were trained with readings on the specific case<sup>14</sup> and were flanked, throughout the 2 weeks, by local experts, who offered a series of keynote lectures on specific Ecuadorian issues.

A third point, probably the most relevant one, were the effective on site investigations and the citizens' involvement process. Using maps of the project areas, the various groups of participants analyzed different sites at different scales along the

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<sup>14</sup>This is a very relevant aspect underlined as well by Ward, Huerta and Di Virgilio in their chapter called "Training, Preparation and Application of the Methods and Instruments" (Ward et al. 2014).



**Fig. 7** The Estero Salado in Guayaquil—image elaborated by the author

*Estero Salado*. Building typologies, existing green structures, street sections, relations with the water systems, etc. were studied<sup>15</sup> while actual interviews with the *Guayaquil Ecológico* affected communities were collected<sup>16</sup> (Fig. 10).

<sup>15</sup>A constant methodological reference for the mapping process has been the one developed by Caminos and Turner in ‘Urban Dwelling Environment’ (Caminos et al. 1969).

<sup>16</sup>About the dialogue with the citizens, the methodology used for the interviews, was a combination between luminaries’ theories on case study analyses, such as the Oscar Lewis’ urban analyses for a ‘Mexican case studies’ or the ‘Slum Culture case’ (Lewis 1961, 1968), but also more recent ones, as the ‘Deep Case Study Methodology’ developed by the LAHN (Latin American Housing Network) [www.lahn.utexas.org](http://www.lahn.utexas.org).



**Fig. 8** Resistance of the citizens—author: Olga Peek

After this “penetrating reading of the site” (De Meulder 2004, p. 193), constraints and potentials identification, the different kinds of surveys led to the reconstruction of a series of microstories, extremely useful for recognizing a set of relevant cases on which to base the design part (Secchi 1996; Secchi and Viganò 2009). In a final phase, a process of formulation of visions and scenarios was initiated (Gabellini 2007; Lenoci 2005; Secchi 2002). Some scenarios were based on questions such as: “what if the houses along the river were elevated on pillars and the park passed underneath them?” or “what if the existing houses were ‘moved’ a few meters instead of being torn down?”. In the imagination of this alternative park, the idea was to go ahead along that straight long line,<sup>17</sup> and in some cases alternate green structures intertwined with the built tissue and the new collective spaces for social, cultural and economical community empowerment were imagined. Riverbanks instead of concrete walls were conceived as dikes, along with earth sponges to prevent flooding. Indigenous flora selected to set phytoremediation processes in action were brought in as green species.

<sup>17</sup>As the *Guayaquil Ecologico* proposes.



**Fig. 9** A partially demolished houses still used as common space image elaborated by the author



**Fig. 10** The process of mapping and dialogue with the citizens in sector 10b. *Author* Francisco Bulos



Fig. 11 Dialogue with the community in the university author: Sara Maria Sanchez Ortiz

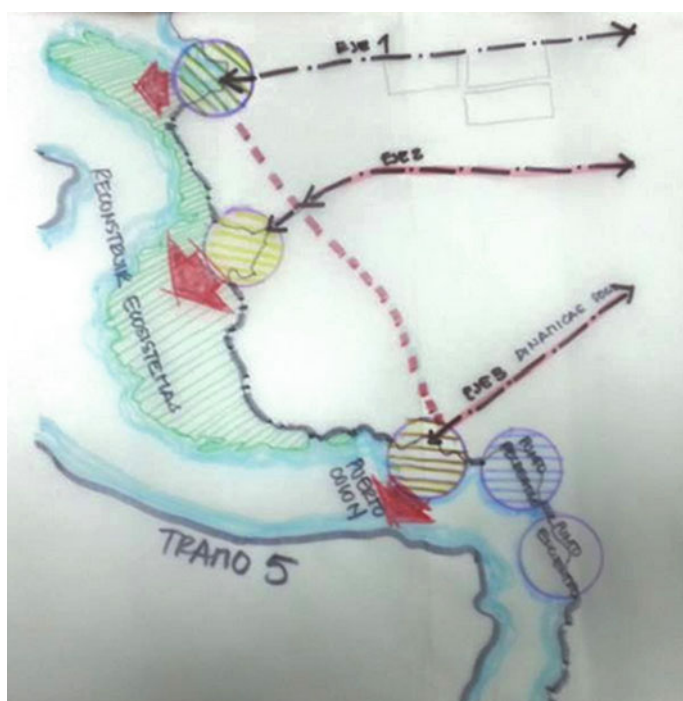
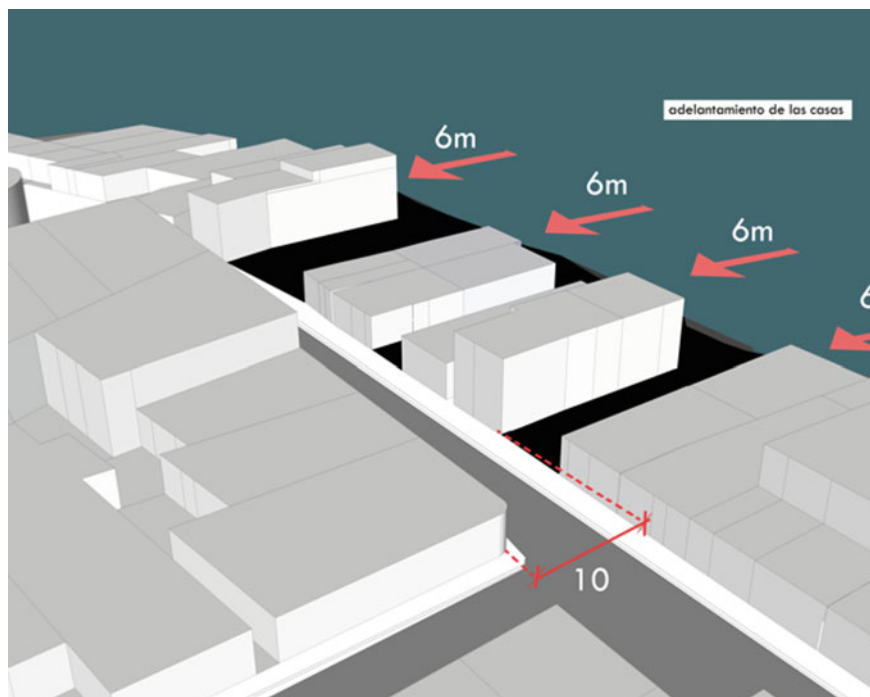


Fig. 12 Reinterpreting citizens ideas author: Shuberth Cordero Alvarado



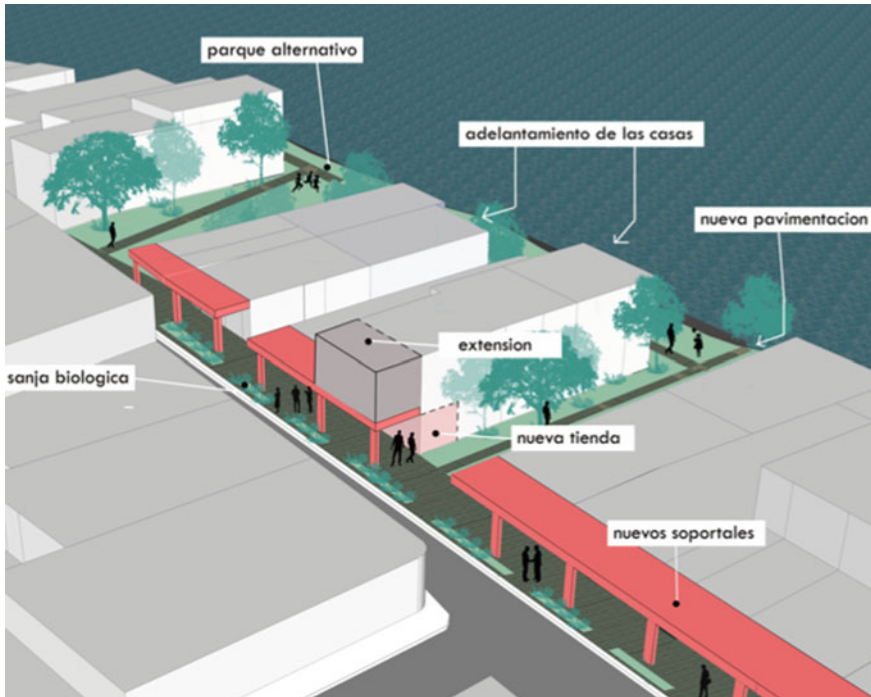
**Fig. 13** Explaining the ‘recessing’ strategy—image elaborated by the author

What was really revealing of these meetings was the fact that the community deemed some of the more unexpected strategies to be the most acceptable ones. Each design step was indeed discussed with the inhabitants (Figs. 11 and 12).

They either came to the university, or the professionals visited them in their neighbourhoods; an aspect that enhanced cooperation between inhabitants of different sectors, which shared the same problem, but that didn’t know each other before. Another key issue of this initiative was the readability of the collected data: the graph was complex but self-explanatory, in order to offer clear and understandable tools to accompany additional discussion between citizens and members of the municipality<sup>18</sup> (Figs. 13 and 14).

The design proposals, in order to be considered, could not simply be a granting of the citizens’ wishes, but rather urban designs coming from the combination of different angles: their aspirations, trans-scalar territorial considerations, building technology alternatives, the actors and—resources involved, institutional framework

<sup>18</sup>If in a first moment expropriations were very rigid, since the declared failure of the *Socio-vivienda* complexes (<http://lahistoria.ec/2014/08/20/socio-vivienda-loteria-pobres/>), the municipality expressed its readiness to start a dialogue about the *Guayaquil Ecológico* and the housing issue overall. However, as Peek states, the governmental position on this regard looks very distant. (Peek 2015a, b).



**Fig. 14** A second scenario of how it could look in 5 years time—image elaborated by the author

contemplation, ... and it is here considered that exactly these combinations allowed some first attempts of authentic horizontal design. ‘Designing Inclusion’ could be recognized as a first experiment to start envisioning alternative mechanisms for negotiation; a way to overcome the block of the “cannot be done” for major forces (laws, policies, resources), but that instead sees design as a political act (Boano and Talocci 2014; Kaminer 2011). An urban design not relegated to a commodifying instrument (ibid., Harvey 2013), that goes beyond the spatial transformation and mainstream production of space and beyond the designer-client relationship (Boano and Talocci 2014); hence finding its motivations outside the capital (Awan et al. 2013). By shifting closer to the user, this alternative narrative of urban design looks attentively “toward a recalibration of power relations” (Boano and Talocci 2014, p. 703). Finally, another asset of this project is that it is not a finished experience, because over the years, right up to now, negotiations with the municipality have continued, and the projects made in summer school have been printed and are in the hands of the citizens.



## Where Does the Metropolis Lie in These Punctual Horizontal Processes?

By talking about this experience in Guayaquil, a set of tools has been described, showing how an urban project, if involving the community in the decision-making, could be more inclusive. A transitional process instead of a finished product, comprising different elements such as: a multi-disciplinary team, in-depth field-work, self-explanatory drawings, the use of the scenarios in a more balanced manner and the distance taken from the idea of proposing urban solutions relegated to capital constrictions, are some of the aspects that made it significant.

This experience was an attempt of working with both bottom-up and top-down approaches, trying to constantly discover points of connections. Design has been seen as a tool for fighting exclusion; thanks to its malleability, it forges potentials in a dance between poles of attraction: citizens and political institutions, economic power and territorial rights.

In conclusion, the idea of horizontality on a metropolitan scale, interprets these various points of view through a process of balanced transition; from local to global and vice versa, but it is also horizontal because it doesn't see each case independently. It is here seen that it is by getting embracing the many inclusive urban experiences inside a metropolis, that a larger vision can be articulated.

Hence the biggest challenge is probably that of seeing cities as conglomerations of a multitude of micro-dynamics, where even if the design outcomes are probably very different, they are unified by non-homogeneous practices of inclusion that "favour the creation of new alliances" (Boano and Talocci 2014, p. 702). The asset of the urbanist in this multi-disciplinary and trans-scalar process, could be the potential he/she has to articulate this variety from a multi-faceted spatial awareness. Finally, urbanism as a discipline has a tacit potential, which is the capability of 'integrating' knowledge. Maybe compared to other disciplines it may appear as a 'weak' discipline, but it is one that has the chance to be reinforced by taking in insight from other expertise, indeed showing itself able to synthesize the same through spatial reconfigurations. Moreover, it is considered, that it is with local communities, especially in a context of self-building and long-standing auto-construction that this indirect potential comes out in all its force.

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# Centralization, Decentralization, and Metropolization: Cultural Attractors in Brussels Metropolitan Area



Yannick Vanhaelen

## Introduction

In our on-going thesis, “cultural attractors and mobility in Brussels metropolitan region”, we investigate the role of cultural infrastructures in the structuration and formalization of the metropolitan landscape. The research aims to contribute to an in-depth debate across research fields regarding the relationship between culture and city, by focusing on the architectural and urban expression of the places of cultural diffusion and on the evolving rationalities that saw to their implementation. A specific focus is put in our research on mobility, and its influence on the territorialization of cultural infrastructures. Indeed, their accessibility defines more often than not their ability to be spaces of convergence and to contribute to construct the cultural, social and public aspects of the metropolis. Analysing the accessibility of cultural infrastructures, and its evolution, thus prove to be revealing of their embedded rationalities.

With this mind-set, we would like to question in this paper the presence, accessibility and localization of cultural infrastructures—which can be seen as (a small) part of a territory’s cultural capital—of the Horizontal Metropolis and the challenges it faces.

This question follows a two-fold reasoning. First, culture has been commonly perceived through time as the distinctive mark of urbanity and of the city. Historians like Mumford (1961), or sociologists like Remy (1998) for example, use culture as a means to understand the specific externally produced added value that is

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urbanity (Dehaene 2013). With such reasoning and in order to be considered a ‘true’ city-territory, one could argue that the Horizontal Metropolis should therefore accommodate culture in a specific manner, different from other forms of metropolises. Secondly, the advent of a context of international competitiveness between cities has seen culture being used as a strategy to reposition the city on a global scale, attract flows and drive urban regeneration (Bianchini and Parkinson 1993). In this context, the building of cultural infrastructures with iconic architecture (Rodrigues 2009), but also the organization of global cultural events (Quinn 2005), allow the city to stand out and attract external flows (Harvey 1989). Cultural infrastructures thus progressively become “nodes of attraction in a global network which inscribes a logistic structure on the territory” (Rouillard 2009). This raises a more prospective question: to whether the cultural capital of the Horizontal Metropolis could be the basis of a territorial, culture-led regeneration or could at least be inscribed in such an interconnected global network and generate attraction on a larger scale.

## The Horizontal Metropolis, Between Isotropy and Centralization of Cultural Infrastructures

Since 2012 and Secchi-Viganò’s long term vision for Brussels, the metropolitan area of the Belgian capital is commonly seen as a case-study of the Horizontal Metropolis. Integrated in the larger North West Metropolitan Area (Secchi 2005), it is described as a city with evenly distributed characteristics (Dehaene 2013) and defined by a dense network of public transport infrastructure and a dispersed urban fabric with various typologies and public facilities, articulated by several territorial figures, like parks, forest or historical city centres (Secchi and Viganò 2012). Though there has been much research on several territorial systems and their influence in the formalization of this particular isotropic urban development, there has been little research considering the territorialization of cultural infrastructures, with the notable exception of “*Architectuur voor vrijetijdscultuur: Culturele centra, zwembaden en recreatiedomeinen*”, a research project which considered the post-war dispersion of leisure infrastructures—among which cultural centres—in Flanders (Heynen et al. 2011).

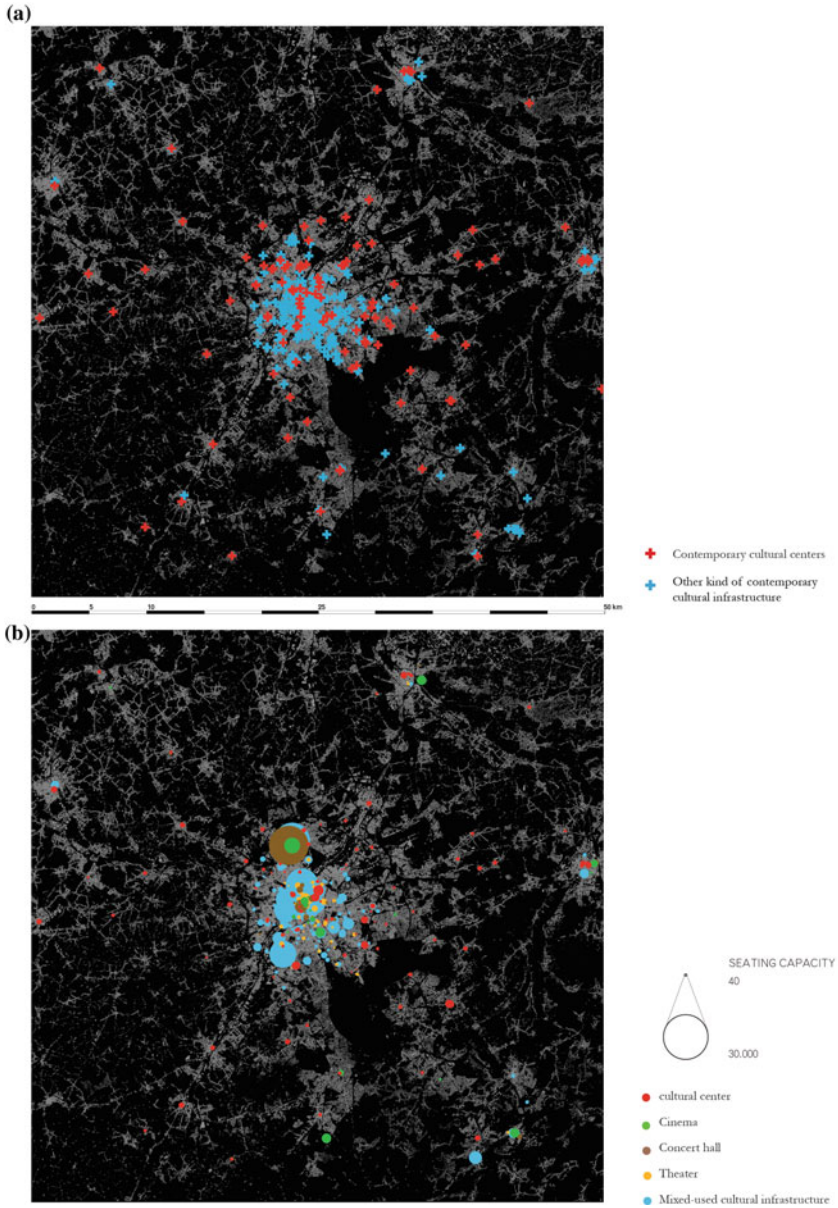
Gosseye (2012) shows that, in line with other western European welfare state policies, the research of a more egalitarian society in Belgium led to processes of democratization, which included cultural offerings. Making culture accessible to everyone—cultural activities were until then a prerogative of urban upper classes—translated into the provision of a new type of infrastructures meant to bring culture to the people. Since urban centres were already well equipped in cultural infrastructures—especially Brussels, where a process of centralization saw the implementation of national cultural institutions in the capital—cultural centres were decentralized across the territory, following the growing dispersion of the

population. “The focus on Brussels as the centre for cultural activities thus shifted to its peripheral municipalities, where the predilection for a ‘bundle de-concentration’ created several larger ‘nodes’ [...] that cluster together an array of leisure infrastructures” (Gosseye 2012, p. 279). The dispersed urban landscape saw thus the implementation of a horizontal network of cultural infrastructures out of urban centres. This development tended towards an isotropic distribution on the territory, which can still be read in the contemporary landscape of cultural infrastructures (Fig. 1a).

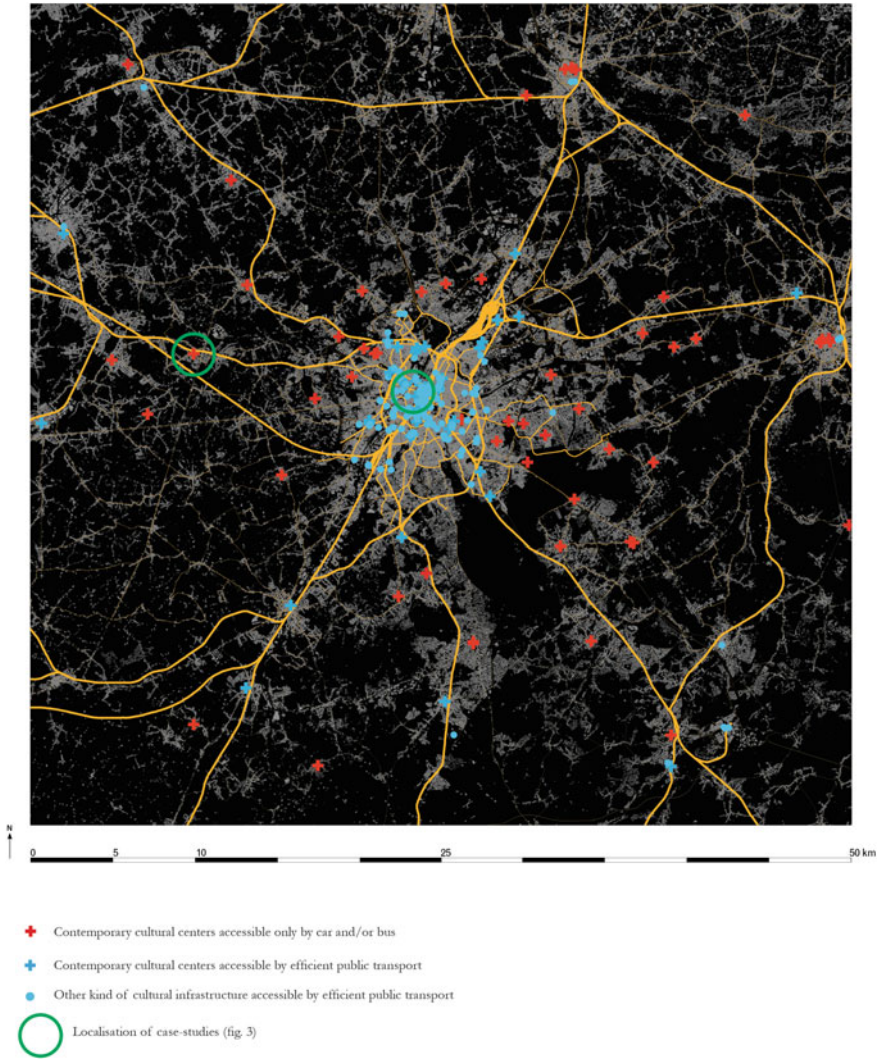
However, the research only considers the territory of the Flemish Region. The Brussels Capital Region, which is spatially surrounded by the Flemish Region, was not included in the study, nor was the Walloon Region. While the horizontal network of cultural infrastructures in Flanders would suggest a somewhat isotropic distribution of cultural infrastructures across the overall territory of the Horizontal Metropolis, the reading is biased. First by not considering all of its territory—the Brussels metropolitan area encompasses not only the Brussels Capital Region, but also large areas of both the Flemish and Walloon regions—and secondly, by only referencing publicly-funded cultural infrastructures.

When considering the localization of both public and private contemporary cultural infrastructures on the overall metropolitan region, the isotropic dispersion of post-war cultural infrastructures revealed earlier is clearly challenged by the polarity represented by Brussels (Fig. 1a). Considering their seating capacity illustrates it even more, as well as the diversity of its cultural offerings (Fig. 1b). While historical precedence, density and cosmopolitanism can easily explain the cultural polarity of the city core; it is not without effect on the current and even future territorialization of cultural infrastructures in the dispersed urban fabric of the Horizontal Metropolis. In terms of infrastructural aspects, this is mainly related to the accessibility of these cultural infrastructures. When analysing the urbanization process of the Brussels metropolitan region, Grosjean (2010) shows that while earlier public transport networks—like light railways (De Block and Polasky 2011)—tended towards an isotropic and horizontal distribution of the territory, their current development and exploitation model is increasingly radioconcentric, mainly focusing on rapidly linking Brussels with other important polarities. Grosjean further indicates that the Brussels metropolitan area is undergoing a process of metropolization. Cultural infrastructures in the urban core of the Horizontal Metropolis, generally well connected to urban mobility system, therefore see their global accessibility improve and their catchment area expand. Cultural infrastructures of the dispersion, on the other hand, mainly relied on car accessibility: “They were implemented where space was available, and where the growth of traffic flows could be easily managed. They are therefore situated out of pre-existing centralities” (Heynen et al. 2011). As such Cultural Infrastructures of the dispersion were based on a “model of mobility” (Lévy 2004) based on individual accessibility. Cultural centres are therefore difficult to access by efficient public transport (Fig. 2).

The dispersed urban landscape is thus doubly marginalized in terms of its cultural offerings: first by the problematic connectivity of its cultural infrastructures to public transports, secondly by the growing polarization of its transport networks,



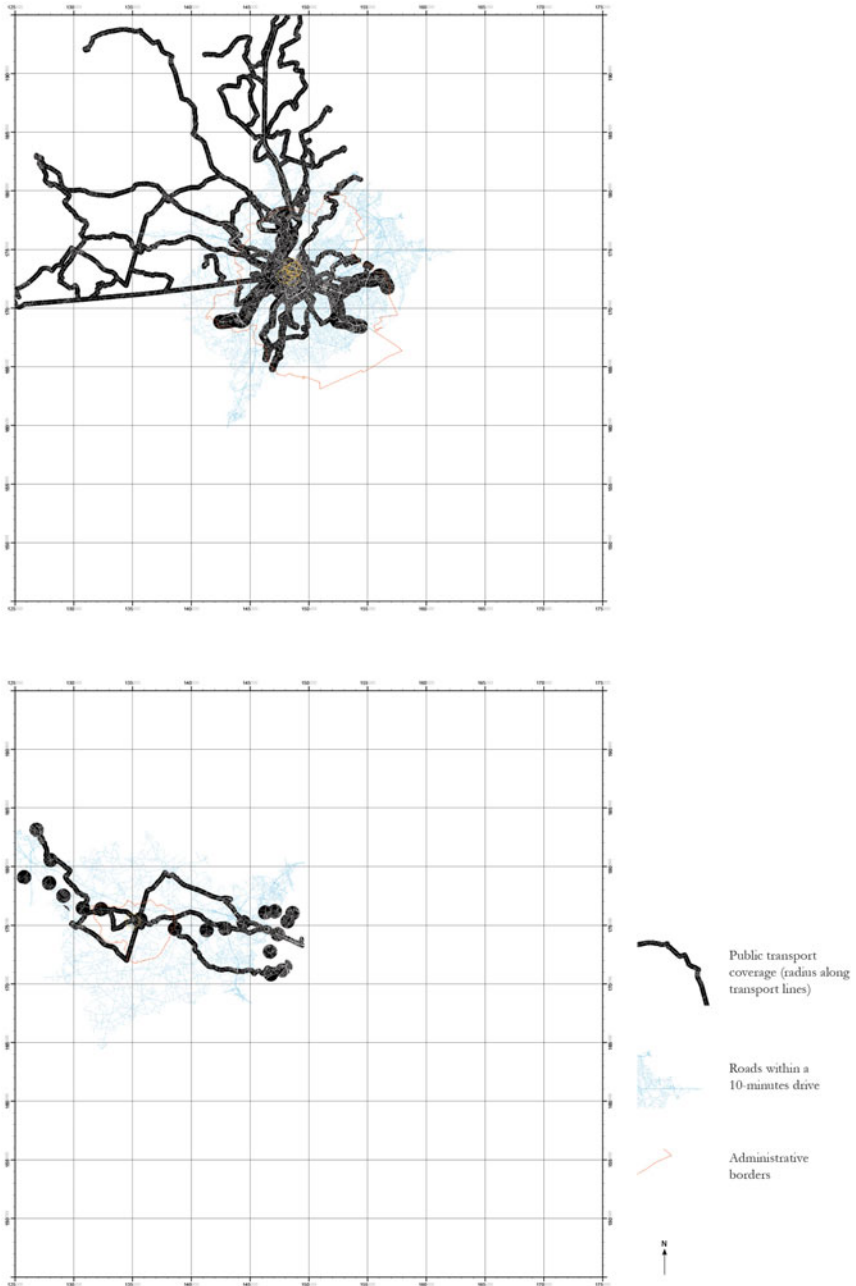
**Fig. 1** 50 × 50 km map of the Brussels metropolitan area, indicating all contemporary cultural infrastructures. **a** Differentiates cultural centres from other kinds of cultural infrastructures while **b** indicates the seating capacity of every cultural infrastructure and indicates its program. Built area is in light grey. *Source* Elaborated by the author



**Fig. 2** 50 × 50 km map of the Brussels metropolitan area and its public transport networks. Built area is in light grey. *Source* Elaborated by the author

which makes it easier to access Brussels and its rich cultural offerings than to travel horizontally to a ‘local’ cultural infrastructure. The spatial analysis of the accessibility and coverage of cultural infrastructure helps to visualize this condition. Two case studies, extracted from our research, are shown hereafter: one located in the territory of the dispersion, the other in the centre of the capital (Fig. 3).





**Fig. 3** Comparison of accessibility and coverage of two cultural infrastructures, showing all transport lines giving access to the infrastructures and roads accessible from a theoretical 10-min drive. The first is a centrally located infrastructure in the centre of the Capital, in Rue Dansaert. The second is a cultural infrastructure of the dispersion, in Ternat. Elaborated by the author

## Challenge: Spaces of Culture and the Horizontal Metropolis

While the above suggests a form of cultural marginalization of the dispersed urban landscape and its inhabitants, it is also more significantly the public articulation of the dispersed urban landscape that is at stake. Cultural centres had indeed a broader role than just the one of cultural diffusion. They were not only designed to bring culture to the people, but also to encourage encounters and public gatherings (Gosseye 2012) and can be considered as social infrastructural assets for the city-territory. As such these cultural infrastructures are clear examples of “welfare spaces” (Munarin and Tosi 2014). Initially aiming at contributing to construct the cultural, social and public aspects of the dispersed urban landscape, their role is increasingly challenged by their lack of public accessibility. One of the challenges for a renewed Horizontal Metropolis is therefore also to be able to redefine (and expand) its cultural capital—currently represented in these inherited infrastructures—in a context of urban policies driven by connectivity and cultural attractiveness. In light of the above, upgrading their accessibility on multiple scales seems a necessary action to undertake, so that they might become nodes of attraction, both at a local scale—reclaiming their status of convergent spaces in the dispersed urban landscape—and on the scale of the city-territory—balancing the current centralization of cultural offerings and promoting a city with evenly distributed characteristics.

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# Vanishing Points: Thoughts on the Horizontality of Israeli Urbanism



Els Verbakel

## Beyond the Horizon

When dwelling on horizontality as a viewpoint by which we look at contemporary cities, we may think in very literal terms. We may imagine a homogeneously distributed, spread out, low rise city without borders, crawling across the territory and seeking benign grounds for it to prosper and multiply, fed by market forces. Alternatively, horizontality serves as a relative term characterizing the ratio between the planes of a 3-dimensional space whereby the x-y plane prevails. From this perspective, the horizontal characteristics of the contemporary urban condition become apparent only when zooming out and looking across the terrain at an ever-expanding built environment (Fig. 1).

This broader approach allows for a complex definition of horizontality, whereby new urban layers are grafted upon previous layers, 21st century configurations of the territory are added upon postmodern, modernist, 19th century, renaissance and medieval urban tissues, and interact with one another not unlike the accumulation and shifting of tectonic plates. This challenges us to develop descriptions and models that are less literally describing the contemporary urban realm as homogeneous, low-rise and spread out, but rather dissecting built up areas and studying the different horizontal layers that interact with one another, either by mutual adaptation or rather the opposite, in a constant state of resistance.

In a territory in conflict such as the Israeli urban realm, horizontality has become a powerful tool for the contemporary Israeli city to thrive despite the urban layers that existed before. The new Israeli urban realm has developed as a horizontal layer 'hovering' over the land avoiding as much as possible a productive engagement with the existing territory. As a national project, the goal of the Israeli new town was to 'conquer the wilderness', disregarding former urban inhabitation and

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**Fig. 1** Roundabout, Hadera, Israel, Google street view

relating to the landscape as an uninhabitable wild form of nature that should be tamed and cultivated. Planners thereby employed and maximized horizontality as a strategy to disconnect the new urban layers as much as possible from former urban worlds, and allowed for a high-rise version of dispersed urbanity, in other words ‘sprawl on columns’. Nevertheless, between the legs of this high-rise suburb, ruins and fragments of former Palestinian settlements and local arid landscapes remain.

And still today, as local, regional and international supremacies cultivate and feed the Israeli-Palestinian conflict; the Israeli urban realm continues to develop horizontally, designed as extrusions of a two dimensional plan, incessantly multiplying mutations of Le Corbusier’s clockwork city. In producing the contemporary Israeli urban field, the urban section has become completely obsolete. In an attempt to house a fast growing population, the Israeli government is planning tens of thousands of housing units for the Israeli periphery based on flat two-dimensional layouts for a monotonous generic urban mass molding itself across a seemingly hostile terrain.

## **Vanishing Point**

With the shifting of urban densities across the territory, urbanity itself has reached a vanishing point, a place where what was formerly known as urban has been replaced by voids. We are left with a new urban terrain that alternates between built up patches of vital, inhabitable areas with holes, voids and barren land.

While many contemporary studies of urban sprawl frequently employ the ‘void’ as a useful tool to formulate future design strategies, the connection between these voids and the natural environment remains an open question. In an often quoted essay studying a range of contemporary urban design projects for the contemporary landscape, Belgian architect and urbanist Marcel Smets explains how the context of sprawl has led to new planning strategies based on empty space, the space in-between developed areas (Smets 2002). While these projects indeed apply strategies that assume emptiness and an intermediary condition, Smets brings to the surface different attitudes toward the tension between man-made and natural space. Yet the interchangeability of nature and void implies an understanding of urban development and human presence in the landscape as full, as massive. Similarly, Kees Christiaanse raises questions about the relationship between built-up and un-built, vacant land (Christiaanse 2000). Christiaanse notes how the space between buildings in urban sprawl has become too large to be intimate or controllable and too small to seem spacious. He thereby reaches a negative diagnosis, an over-dimensioned controlled space, an in-between land without qualities.

This concept of the void as a space vacant of human existence is supported by a historically linear understanding of the processes that led from density to dispersal; looking at the contemporary environment from the perspective of a ‘solid’ city that is then fragmented and diluted, thereby producing “literal voids in a formerly compact urban fabric” (GUST 1999).

These theories, still resonating in contemporary urban discourse proclaim a belief in employing nature as a new collective space, implying a transfer of the distinction between public and private from the pre-modern city to a postindustrial environment, yet at the same time oversimplifying the social complexity of contemporary urbanity. This approach colonizes non-human space with the promise of a solution for a man-made problem.

For example, according to Manfred Kühn, “public space serves as the “glue” of the city,” a function threatened by dispersed urbanity. Kühn wonders how landscape as public open space can integrate urban regions (Kühn 2002). However, he warns against attributing such high hopes to nature as the solution for urban sprawl by being charged with two simultaneous tasks. In the first approach nature functions as a divider between the city and its surroundings such as in green belt and green heart strategies. In other strategies nature functions mainly as a connector between the fragments of urban sprawl. According to Kühn these two approaches come together in thinking the landscape as public space where nature must fulfill a contradictory role of dividing and connecting at the same time.

This contradiction not only functions at the physical but also at the social and economic level of urban space. In an environment in which nature has been almost completely privatized by human inhabitation, private land should be reclaimed as collective space. However, the processes of privatization of nature have created a multiplicity of individual ‘natures’ concentrically organized around the introvert

single-family dwelling, the office tower or the shopping mall. Therefore, the conversion of these multiple private natures implies an inversion of social space, which does not stop at the doorstep. It requires a more fundamental revolution of the social complexities of contemporary urban sprawl outside and inside people's homes.

Most writings on urban sprawl express a willingness to overcome the tradition of dichotomies between city and countryside. Marcel Smets writes: "the end of the old antagonism between city and country has blurred the distinction between landscape, urbanism and architecture" (Smets 2002). According to Manfred Kühn, the re-introduction of the concept of the regional city is a way to overcome the dichotomy between city and countryside, urban and suburban, inner and outer. Yet in this discussion it remains unclear how frictions and conflicts between a new and blurry range of moral meaning and human projections onto the natural landscape should be approached. The profound tension between a man-made versus a natural environment, brings forth a much older discourse in Western civilization on the nature of human environments as a protection from wilderness.

## The Wilderness Debate

Aristotle's *Polis*, or the city-state was the natural culmination of man's nature. Only in the city would man reach the best attainable existence. Beyond the limits of the city, only beasts and gods could survive. Also in medieval times, the city was opposed to a 'lawless open landscape', as in Giotto's depiction of Injustice as a tyrant "ruling over a wilderness in which brigands indulge in robbery and murder".<sup>1</sup> This deeply rooted idea of wilderness as immoral seems to have been valid since then, not just as a way to describe nature or the non-human world but also to be used as a justification of proper human relationships to the environment.

American environmental historian William Cronon develops the idea of nature as a contested terrain, yet at the same time maintaining some form of autonomy (Cronon 1996). This leads to a paradox in which nature becomes the 'uncommon ground we cannot help but share.' He argues that nature needs to become more cultural to understand it. Using a wide range of examples, Cronon shows how nature can serve as naïve reality, moral imperative, cultural construction, virtual reality or demonic order. Yet in each of these instances nature has become a mirror for society's ideals, fears, morals, social order etc. He therefore proposes a more plausible model of nature as the contested terrain by which the opposition between nature and culture no longer holds, and instead becomes the paradox of the uncommon ground in which human history and concepts of nature are irreversibly entangled.

This rearrangement of opposites in Cronon's theory applies to the contemporary urban condition; when the city expands horizontally across the territory, distinctions between urban and rural, natural and cultivated and the meaning we attach to nature

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<sup>1</sup>Martin Warnke describing the position of the castle in the land outside the city walls (Warnke and Cosgrove 1995).

are no longer relevant, yet does this mean we reach a condition of homogeneity, a horizontal plane of sameness? Does the horizontality of the urban region also mean the “flattening” of human presence across the terrain? In “The World Is Flat: A Brief History of the Twenty-First Century,” Thomas Friedman discusses a worldwide condition of flatness, facilitated by equal opportunity for all competitors on the global market, whereby geographical divisions have become irrelevant (Friedman 2005). Friedman explains how hierarchies are flattened and value is created more and more through horizontal collaboration within companies and between companies and individuals. While Friedman’s book focuses on the economic aspects of a flattened world, we may expand the condition of equal opportunity to the built environment. Nevertheless, the question remains whether a redistribution of hierarchies (physical and non-physical) across the globe has led to sameness or rather to an unstable and differentiated redistribution of urban resources and intensities.

The Lausanne seminar on Horizontal Metropolis that led to this book offered a fertile ground for precisely this question and has raised a compelling debate on the question of differentiation versus leveling out in the urban condition of horizontality. As Michiel Dehaene argued during the seminar, we ought to recognize the simultaneity of a variety of territorialities in the process of urbanization, ranging from mid-size cities, great urban conglomerates to spread out and nebulous cities.<sup>2</sup> According to Dehaene, the horizontal condition is one that recalibrates the significance of each type of urban realm and raises a broader question regarding urban citizenship to the point of challenging the legitimacy of the nation-state. Perhaps this can be understood as a radical rethinking of a patchwork of urban ecologies that either under- or overwrite existing power-structures of nation-states. In today’s crisis of the nation-state as the dominant spatial organizational structure, a zoom-in zoom-out approach may offer new opportunities for understanding a highly differentiated urban landscape. From another point of view, Tom Avermaete, in developing an alternative history of urban modernity, described the development of a horizontal urban reality in which former cities have merged into larger entities.<sup>3</sup> Once more, scale plays a crucial role in the discussion on horizontality, yet the projects of horizontality as discussed by Avermaete aspire to provide a more ‘just’ social and spatial distribution and a coexistence of resources, reached by a fractional logic, imitating the vernacular. Although these horizontal urban experiments of the twentieth century indeed presented a strategy of redistributing hierarchy across the land, the current horizontal urban condition seems to be less orchestrated as a socially just form of inhabitation but rather because of a shifting of spatial configurations whereby the layer of built urban fabric has not only been fragmented but severed from its connection with the territory per se. The redistribution of cities in the form of growing suburbs, urban sprawl, nebulous cities aside the emptying out of city centres and shrinking of downtowns, has been going on for

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<sup>2</sup>Statement by Michiel Dehaene (UGent) at *The Horizontal Metropolis*, VIII International Ph.D. Seminar ‘Urbanism & Urbanization’ | Symposium LATSIS EPFL 2015.

<sup>3</sup>Statement by Tom Avermaete (TU Delft) at *The Horizontal Metropolis*, VIII International Ph.D. Seminar ‘Urbanism & Urbanization’ | Symposium LATSIS EPFL 2015.



quite a while now. Nonetheless, the new condition of a decentralized, heterogeneous spatial organization is yet to be recognized as a new spatial order no longer characterized by a clear gradient between high density in the city's centre and lower densities at its periphery.

But not only physically the urban environment has shifted to a horizontal condition; also urban uses, programs and events have migrated and transformed from centre to edge, from node to field, sometimes interconnected, sometimes entirely isolated as oases of excitement in a desert of boredom. In an attempt to not give up on this distinct, rather awkward situation of a ruptured urban environment and not abandon the flattened territory as a hopeless place left to obesity, depression and car crashes (Hudson 2016), perhaps we can nourish our curiosity with new approaches to the expanded habitat we have built for ourselves.

## Urban Dissonance

Returning to the landscape of Israeli urbanism and urbanization, the expanded human habitat has taken on a particular form. Cities in Israel are going through dramatic changes across the territory while new towns are being planned at great speed. At the same time, Israel's urban environment can be described as highly diverse, a result of a history of conflicts, ruptures and erasures, and the continuation of contrasting urban realities, a dissonant patchwork of remainders of ancient cities, vast areas of modernist urban expansion, the recent postmodernist high-rise suburbs, oversized Arab villages that turned into towns lacking public infrastructure, the Gush Dan central metropolitan area and more. Of Israel's population not including the occupied territories, 43% lives in 14 cities larger than 100,000 inhabitants,<sup>4</sup> and more than 75% of the population live in cities all together,<sup>5</sup> numbers often used in the Israeli discourse on urbanism as an argument for developing new urban design tools.

The existing apparatus for guiding urbanization in Israel span between two dysfunctional approaches: on the one hand the uncritical and blind perpetuation of the modernist city of Le Corbusier's towers in the park, albeit in a postmodernist disguise; on the other hand, the approach of the Israeli branch of the Congress for the New Urbanism, 'Merhav' or MIU (Movement for Israeli Urbanism),<sup>6</sup> which promotes ideas of smart growth, strengthening city centres, planning compact cities and "the development of a sustainable and humane urban environment in Israel." (see Footnote 6). The movement argues that Israeli space is limited and its population is growing fast which requires new tools for allowing urban growth "in a way that

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<sup>4</sup>Central Bureau of Statistics data 2014.

<sup>5</sup>UNFPA data 2008.

<sup>6</sup>See website of MIU Movement for Israeli Urbanism, <http://miu.org.il/english/>.

strengthens cities and ensures the survival of green spaces and limited natural resources.” (see Footnote 6). Working with catchphrases such as sustainable local development, democratic planning processes, and humane urban environments, it is hard to criticize MIU’s laudable objectives. Even the movement’s long-term goals such as increasing private investment in existing city centres from 20 to 70% by the year 2027, increasing public investment in city centres from 20 to 80% by the year 2022 sounds reasonable, yet the promise to provide ‘human’ urban environments remains vague and stays short of operative approaches to the fast growing Israeli city. The conservative attitude of Merhav to the overwhelming speed of urbanization in the Israeli context, and its call for the densification of city centres ignores the real action happening outside of those centres and thereby silently tolerates wild speculative construction in those areas, exempt from being cities, relieved from the obligation to provide a well-functioning urban realm, but where most of the population resides. Promoting only one extremity of the spectrum of urban living encourages further extrapolation of the cookie cutter urbanism that thrives without boundaries across the Israeli landscape. Moreover, Merhav’s approach has led to a process of replacing the existing, albeit dysfunctional condition, with an artificial urban formalism that attempts to erase and rewind to a Las Vegas style imitation of the ‘European’ piazza, but thereby destroying the little urban life that existed before. In the centre of the medium sized city of Hadera, a team of the founders of Merhav redesigned the city’s central market area, using a postmodernist, eclectic architectural language, a composition of simplified geometric shapes, and a concoction of forms that imitate medieval town squares, Roman arches and Greek temples. As architecture journalist Noam Dvir writes, describing the transformation by Merhav: “It sticks out like a sore thumb, an alien presence offering a cacophony of bold colors, angular shapes and industrial lattice work. A crimson clock on the building’s facade overlooks a grandiose fountain installed in the adjacent traffic circle at a cost of NIS 1 million. (...) The piazza’s original modernist conception has been violated by stone gates and state-of-the-art stainless-steel benches. Similarly, the original denizens of the piazza—including groups of youngsters and elderly backgammon players—have disappeared with the arrival of new props: seasonal greenery illuminated at night by faux-exotic green lighting.”<sup>7</sup> And so it is that the lack of theoretical specificity on the one hand and the one-dimensional focus on dense city centres on the other in Merhav’s textual discourse have led to a fertile ground for defective, artificial and inert spaces to proceed with business as usual, without a fundamental distinction between the urban environment that is being criticized and the one that comes to replace it. Both situations are characterized by lifeless, hollow and monumental shapes disconnected from the territory and its inhabitants.

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<sup>7</sup>Noam Dvir, Ha’aretz, Hadera.

## Condensing the Urban Terrain

Can the horizontality of the urban realm, instead of being a view from afar, perhaps become a new vantage point from which to operate and relink urban spaces with their terrain? As Sebastien Marot argued at the Lausanne Seminar, the age of urbanism which started with Cerda's plan for the extension of Barcelona's urban grid, ended 20 years ago (see Footnote 2). It emerged as a discipline that coped with the question of city extensions which may also have led to the flattening of the city. Paraphrasing Marot, we find ourselves one century later in a different condition where the issue is not extension but deepening or thickening of the territory, a thick territory that knows how to create 'livable worlds'. The metaphor of thickening the horizontal condition of urban flatness may be interpreted as the challenge to cast new content, meaning and experience in an environment of shifted and diluted urban layers by introducing frameworks and opportunities for economic, social and cultural exchange.

Perhaps then, rather than connecting layers, the challenge will be to first recognize and then thicken them, and ensure their interaction, be it in harmony or in a dynamic and productive instability. The search for understanding the correlation between different forms of inhabitation and the territory is not a new topic of discussion and has often related to the notion of labor, energy and economy. Urban models such as Patrick Geddes' valley section<sup>8</sup> and Lewis Mumford's neotechnic society (Mumford and Winner 2010) but also environmentalists such as Richard White have addressed the need for understanding ways in which labor and economy affect the affinity between people and their geographic location.

Richard White describes in detail how the geographies of energy, labor, society and the body cannot be detached from one another and are under constant mutual influence (White 1991). When the machine is introduced in this system, the Emersonian view of the mechanical as an advanced state of nature justifies the transformation of the landscape to something new and artificial. The replacement of human with mechanical labor is only an illusion and instead the machine only masks its ties to both human and natural labor.<sup>9</sup> In a former essay White argued (White 1995) that labor should not be considered purely destructive for the environment and that even modern and technologically advanced versions of work can be considered as a way of knowing nature. According to him, these are two points that are especially hard to accept by environmentalists who have become the protagonists of knowing nature through leisure, whereby work has been substituted

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<sup>8</sup>“The valley section from hills to sea, Patrick Geddes New York City (United States), 1923” (Geddes 1915).

<sup>9</sup>By looking at the way in which Lewis Mumford describes electricity as an important move from a paleotechnic to a neotechnic society—terms introduced by Patrick Geddes—White demonstrates how nature can no longer be seen as absolute.

by play. At the core of these issues lie two deeper assumptions about nature, to be reconsidered: On the one hand the idea that the first human relation with nature was one of leisure and on the other hand the idea that the machine has functioned as the snake in the garden because of which we were expelled from Eden. Instead of submitting to the effect of technological advancement whereby our link to nature has been masked, White urges us to re-think the way in which modern work links humans to nature. Ultimately, the realization of a possible knowledge of nature not only through primitive forms of labor but also through technologically advanced versions of work opens up new territories for exploration. Here horizontal urbanism as a new form of wilderness becomes not only a place for unlimited imagination, but also one of political and technological challenges.

Rediscovering Patrick Geddes' valley section is only the beginning of our attempt to attach new meaning to a flattened urban reality. In fact, the horizontal condition challenges architects and urbanists to accept the idea of emptiness and rethink the act of design and planning as a weaving and folding of discrete layers. As Stan Allen points out in an essay on Mat Buildings as the 'thick 2D', we are looking at a new city form, more extensive and less controlled than suburbs, a "radically horizontal urbanism, driven by the freeway and the suburban ideal of private housing" (Allen 2001). This is also the reason why landscape has emerged as an alternative approach in urbanism, not only as nature that serves to divide or to connect, but as a spatial tool to deal with horizontal layers and surfaces. Looking at the episode of post war 'mat' buildings, Allen describes how this renewed search for an anti-monumental, non-hierarchical spatial organization allowed for a 'compact and highly differentiated section'. The section no longer serves to demonstrate how one-layer sites on top of the other, but rather how they interweave, interlace and are knotted together. According to Allen, the 'mat' effect produces a state of ambiguity regarding the project's borders, and is invested in an organizational rather than esthetic problem. The 'mat' approach answers the fundamental question of how to design for an "active unfolding of urban life without abrogating the architect's responsibility to provide some form of order" (Allen 2001). But not only has the uncertainty of possible outcomes characterized an alternative spatial configuration. Also, the condition of horizontality which implies the impossibility of a comprehensive overview forms a crucial component of the 'mat' approach, whereby the 'perception of the parts' defines the human experience rather than an all-encompassing understanding of the overall system. Moving beyond the literal continuation of buildings imitating vernacular urban fabrics, Stan Allen's proposition to transfer the idea of a 'mat' approach to the urban scale contributes to our challenge in three ways. First, the thickness has an organizational logic, meaning that we are not only adding depth but also finding new configurations within. Second, this internal organizational logic becomes the focus of the design process,

not for its form but for its *modus operandi*. Third, the ‘mat’ approach sustains the inevitable horizontality of today’s urban condition and thereby recognizes a new and emerging condition of our built environment.

## Beyond the Urban Ensemble

The contemporary urban context as horizontal yet highly differentiated, where emptiness is alternated by pockets of intensive urban life, and where one urban layer interacts with or disengages from the other redefines the activity of architects and urbanists as editing, hacking and sampling rather than composing the grand ensemble of the urban compound. Instead of adding landscape as another reference for formal experimentation, the territorial approach, using sections of a deepened and thickened terrain forms a radical shift in thinking about the configuration of urban space. It ‘stretches’ the significance both of urbanism as vertical and of landscape as horizontal and supports a condition of human environments as composed of a wide range of moments, pockets, patches, islands and clearings in a constantly shifting, interlocking and sometimes conflicting set of urban worlds.

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# The Horizontal Metropolis as an Environmental Toolbox



Panos Mantziaras

In a rapidly and thoroughly urbanizing World, there is no meaning in seeking a definite urban form as an *a posteriori* proof of good (planning) intentions. As Konstantinos Doxiadis's *Æcumenopolis*<sup>1</sup> turns out to become a dystopian reality (just compare his world map with the Earth's nocturnal satellite photograph...), the question the design disciplines have to address increasingly pertains to the means by which the urban continuum will effectively partake in a new type of environmental equilibrium. Forget about the city (form) against the countryside (formlessness). The city is everywhere and nowhere as Frank Lloyd Wright had foreseen<sup>2</sup> (Wright 1932). The city is not anymore a modern project, it is a rather merciless commonplace.

Consequently, the urban realm is not any more an avant-garde project, it is not a promising *horizon*. It is an omnipresent spatial *horizontality*. It extends itself in practically all the northern hemisphere, leaving out only pockets of "nature", whereas the Global South rapidly covers the lost distance towards this artificial Arcadia.

However, despite appearances, this omnipresence is not necessarily negative. Its common and wide acceptance gave birth to a new name of our era, the *Anthropocene*, code name of the Earth's actual period, where the built environment plays a key role with often irreversible consequences. The Anthropocene is not just a descriptive term, as its kindred terms were in the past (Holocene, Pleistocene, etc.). Its invention by Russian anthropologists in the sixties and its recent revival by

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<sup>1</sup>See Doxiadis (1974).

<sup>2</sup>"The future city will be everywhere and nowhere, and it will be a city so greatly different from the ancient city or any city of today that we will probably fail to recognize its coming as the city at all" (Wright 1932) "(...) these Broadacre studies of freedom: this vision of a free city that is a nation the city that is nowhere unless everywhere" (Wright 1937).

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Paul Crutzen represent a critical analysis as well as a projectual stance, concealed behind the refined linguistic play with the *anthropocentric*.

In other words, there is an open and large awareness of the fact that our present anthropological condition is converging towards, or identifying with the present geological condition of the Earth. That our expressions of humanity—arts, crafts and sciences—are not just the outcome of our appreciation of the environment, but above all of our awareness of an enormous potential put into action and brought into fulfilment in the 21st century built environment.

It therefore gradually becomes clear that the scale of the stakes that our architectural and urban exercises are tackling with cannot be and are no longer those of “the client”. It may be true that Michelangelo had conceived Saint Peter’s dome for his Pope, symbolizing a universal dominion. But when Cecil Balmont invents the ingenious structural system of the Burj Khalifa it is not merely for his Khalif. His gesture is rather an “up yours” to the fragile equilibrium of our planet.

Of course, nobody should bother to find a militant counterpoint to the vertical outplay of the skyscrapers. There is no time/place for a pil-pul between the adepts of density and the defenders of sprawl as long as three and a half million people become urban every week, gradually increasing the 75% of urban CO<sub>2</sub> emissions and the three quarters of the World energy consumption. The urban realm being the biggest consumer of the Earth’s resources and a topological black hole of the Earth’s ecosystem, there is no time for yet another pointless televisual *disputatio* on the gender of angels.

The main conceptual question is rather how this sheet of urbanization can become a sustainable living environment, an active techno-human agenda of the planetary *Oikos*. Because for the moment it is not one.

On the contrary, in the last 150 years urbanism was the discipline that tried to turn urbanization—as it was “naturally” happening in the early stages of the industrial revolution—into modernity’s main project. And it made it. Only it was based on the wrong premises, those of infinite resources and of infinite perspectives. “*Die Ausdehnung einer Großstadt muss unserem heutigen Empfinden nach eine unbegrenzte sein*” as Otto Wagner boasted while spiderwebbing the Viennese outskirts: “according to our contemporary spirit, the extension of the city has to be unlimited”. It was hard to find a better infrastructural basis and ideological support to the horizontal modern monument that was just starting to appear. Naturally, but not judiciously.

Thus, and against all odds, the Horizontal Metropolis is not about extension. It is about stabilisation and deepening, it is about erasing, rewriting, scratching, plying, inverting, sewing and cutting, validating and invalidating.

The Horizontal Metropolis is a toolbox to cater for the palimpsestic quality of our built environment.



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**Part III**  
**The Horizontal Metropolis: Issues and  
Challenges of a New Urban Ecology**

# The Horizontal Metropolis: Issues and Challenges of a New Urban Ecology: Introduction



Martina Barcelloni Corte

In recent decades, the awareness on the city-territory's spatial, economic and social configuration seems more mature, the matter gradually becoming a recognized and explicit object of study in academic research but also in broader contexts. Indeed, leaving aside—for a moment—its growing presence in scientific publications or academic research, this specific territorial condition seems today evermore inescapable also to concrete planning and urban design practices. Suffice to say that, for some years now, major metropolises around the world have inaugurated a new season of investigation into their future and visioning (NY 2030, Le Grand Pari(s) de l'Agglomération Parisienne de l'après-Kyoto, New Moscow) in which observing the territory “selectively” is becoming evermore difficult and ineffective. In such visions in fact, the necessity to imagine scenarios for agglomerations of several million inhabitants characterized by the close intermingling of built and open spaces (residential and productive spaces, agriculture, parks, water bodies, etc.), has—on several occasions—forced professionals, administrations and stakeholders to reflect on the emergence of a novel urban condition at planetary level challenging “inherited conceptions of the urban as a fixed, bounded and universally generalizable settlement”.<sup>1</sup> It is not by chance that the self-same concept of Horizontal

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<sup>1</sup>Brenner, N. ed., 2014. *Implosions/Explosions. Towards a study of planetary urbanization*. Berlin: Jovis Verlag; Lefebvre, H., 1970. *La révolution urbaine*. Paris: Gallimard.

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Metropolis began to emerge within one of these experiences, that of Brussels 2040.<sup>2</sup>

Though, despite the growing presence of concrete design explorations<sup>3</sup> capable of fully tackling the phenomenon of urban dispersion, and evermore lively signs of interest from public administration, the general sensation still seems to be that of a “lack of operational visions”, a dearth of methods able to turn the incremental growth of such territories “into a catalyst for the production of new living qualities” (Declerck). In many cases in fact, in the face of the gradual urbanization of vast, originally agricultural, territories, the most common approach is that of stiffening planning prescriptions and strategies with the aim of directing growth towards the reinforcement of major metropolitan areas, with the danger of gradually diverting attention from the “rest of the territory” and producing territorial-socio-economic marginality.

In Switzerland, for example, already described in the eighteenth century as a “Big City”<sup>4</sup> and still representing an exemplary case of a “city-territory”<sup>5</sup>, national policies and narratives, in view of the country’s foreseen growth,<sup>6</sup> tend to support and emphasize “metropolization dynamics”<sup>7</sup> and, therefore, territorial hierarchization strategies and processes that aim at the spatial condensation of urban services and functions in specific, selected locations. The risk is that of gradually neglecting and failing to maintain/recycle/renew its remarkable existing territorial and infrastructural capital.<sup>8</sup>

A complimentary, more comprehensive and forward-looking understanding of the city-territory, capable of “dismantling the ideological bias of the urbanism of compactness” (Dehaene) might, on the contrary, open up innovative and more resilient pathways to accommodate urban growth and face future challenges.

In this frame of thought, the third part of this book tends to critically reflect not only on the radical nature of the changes underway and on the emergence of new

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<sup>2</sup>Secchi, B., Viganò, P., 2010–2012. “Bruxelles et ses territoires, plan régional de développement durable. Elaboration d’une vision territoriale métropolitaine à l’horizon 2040 pour Bruxelles.” Unpublished report.

<sup>3</sup>See, for example, the experiences of Brès-Mariolle in France or of Secchi-Viganò in Italy and Belgium.

<sup>4</sup>Rousseau, J.J., 1763. “Lettre à M. le Maréchal de Luxembourg, Môtiers, le 20 janvier 1763”.

<sup>5</sup>Corboz, A., 1990. *Vers la Ville-Territoire*. In: *Sonderdruck aus Ergänzungen Ergebnisse der wissenschaftlichen Tagung anlässlich der Einweihung des Ergänzungsbaus der Hochschule St. Gallen*, Paul Haupt. Berne et Stuttgart; Walter, F., 1994. *La Suisse urbaine, 1750–1950*. Carouge-Genève: Zoe.

<sup>6</sup>Official forecasts predict that from 2018 to 2050, Switzerland will go from 8 to 10 million inhabitants (an increase of 25% in less than 30 years). While this is sizable, some analysts nonetheless consider it to be a conservative estimate, given that in 2015 the registered growth rate was 1.1%, making Switzerland one of the most demographically dynamic countries in Europe.

<sup>7</sup>Bassand, M., 2004. *La métropolisation de la Suisse*. Lausanne: Presses polytechniques et universitaires romandes.

<sup>8</sup>P. Viganò, C. Arnsperger, M. Barcelloni Corte, E. Cogato Lanza and C. Cavalieri. Rethinking Urban Form: Switzerland as a “Horizontal Metropolis”, in *Urban Planning*, vol. 2, num. 1, p. 88–99, 2017.

urban paradigms, but also on scenarios and concrete design strategies for upgrading and recycling the city-territory as a whole. In contexts where polarization and hierarchization processes tend to disconnect or marginalize territories and populations, looking into forms of order able to strengthen and reconnect horizontal relations appears, in fact, evermore urgent.

Inside the wider hypothesis of the “Horizontal Metropolis as renewable resource” that pinpoints the potential for regeneration of the territory’s self-same “palimpsest”<sup>9</sup>, the contributions gathered in this part of the book reflect on “recycling”<sup>10</sup> along various trajectories: in terms of the “left-overs” (*Dross*<sup>11</sup>) of the territorial production processes, where the focus is placed on the processes of modification and adaptation of the inhabited landscape (Furlan); in terms of the necessity to consider “closed circuits” (*Cradle to Cradle*<sup>12</sup>) inside which reversibility and reuse (of materials, of infrastructures, of the built environment) can be formulated and revised and in which completely new ways to use and store energy can be imagined (Baccini); or in terms of lifecycles (*Life and Death*<sup>13</sup>) that entails the possibility of considering the transformations of entire parts of cities and territories that do not function the way they used to (Sega; Cerruti But), that do not house the same populations any more and that need to be reassessed in depth in order to open up completely new cycles (Garofoli).

Here, recycling is not intended as a process of material degradation, but as one that aims at improving the performances of what already exists, that wagers on the possibility of capitalizing on the “richness” of the territory, on its heterogeneity. Where territorial elements with different vocations find new synergies through new interrelations and complementarities, heterogeneity becomes a value rather than a problem (Vanneste), and the basis upon which recycling can be imagined also in terms of “innovative design” (Vialle; Bahrami). In a prospect of complementarity between the various parts of the territory, it also becomes possible to imagine collaborative and inclusive problem-based approaches, new value chains able to appreciate proximity and to “connect problems and opportunities in new local economic chains” (Declerck).

Nonetheless, as well depicted by Thomas Sieverts in the conclusion to this book, the feeling is that “good architecture, good urban design and good urban landscaping are not enough” to support a radical and virtuous shift in the way these territories are managed. Good practices must be supported by “vital images and

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<sup>9</sup>I refer here to the term as introduced by André Corboz in: Corboz, A., 1983, “Le territoire comme palimpseste”, in Diogène 121 (January–March), pp. 14–35.

<sup>10</sup>Viganò, P., Fabian L., Giannotti E. (eds). 2012. Recycling City, Lifecycles, embodied energy, inclusion, Pordenone: Giavedoni Editore.

<sup>11</sup>Berger, A., 2006. Drosscape: Wasting Land in Urban America. New York: Princeton Architectural Press; Clément, G., 2004. Manifeste du Tiers Paysage. Paris: Editions Sujet/Objet.

<sup>12</sup>Braungart, M., McDonough, W., 2002. Cradle to Cradle: Remaking the Way We Make Things. New York: North Point Press.

<sup>13</sup>Lynch, K., 1972. What Time is This Place? Cambridge: MIT Press; Lynch, K., 1990. Wasting Away. San Francisco: Sierra Club Books.

visions in the eyes of the inhabitants” which call for a new, collective imaginary” (Travasso), capable of going back to defining those challenges (Gheysen) and collective arrangements able to “give the people the tools to answer the urban questions they are daily faced with” (Dehaene) and to express a sense of the collective anew.

# Horizontal Metropolis: Issues and Challenges of a New Urban Ecology Statements



Michiel Dehaene

## Prelude: The Urban as an Afterthought

If we try to think the urban within a context of distributed urbanization, we need to suspend the classical associations with the traditional, dense and compact manifestations of cityness. For this reason, I would like to proceed from a rather abstract and generalized understanding of the urban. I turn to the work of Jean Remy, one of the early interpreters of the Belgian Horizontal Metropolis, in order to develop a possible working definition of the urban (Dehaene 2013).

In *Ville, phénomène économique*, the book version of his doctoral dissertation, Jean Remy tackles a particular question (Remy 1966). What is the specific economic function of the city that cannot be explained in terms of the workings of the market or the internal economy of the firm? However general this question may sound, it came from a specific place. When Remy had finished his studies in economics he joined the Center for the Study of the Sociology of Religion led by François Houtart at the Catholic University of Leuven. Houtart had been asked to study the region around Charleroi, reflecting on the process of secularization, but also on the socio-economic prospects of this declining industrial region (Leclercq 1998).

The environment he was looking at could in retrospect be catalogued as a fairly interesting piece of Horizontal Metropolis. Remy felt poorly equipped by his economic training for the task of studying that reality. He started from the observation that, in order to explain the settlement patterns of this region, one does not really need the category of the city. Charleroi qualifies first and foremost as an industrial landscape: the product of a particular form of industrialization aimed at

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the mining of natural resources from the subsoil. The industrial installations used to extract coal are combined with housing settlements next to the mining pits. These industrial *cités* mainly provide the necessary conditions for the reproduction of the labor component of this industrial operation.

As Remy explains in later interviews, the perspective changed when he began to study statistics concerning the amenities in the area (Remy and Paquot 2003). Charleroi counted at the time almost 100 cinemas, 17 of which were located in 2 streets. These 17 cinemas, however, represented more than half of the ticket sales. The two cinema streets defined a new reality. One that none of the individual entrepreneurs could account for, one that had nothing to do with industrial development. This group of 17 cinemas gives its visitors a range of options and makes the experience of going to the movies into an exciting evening out. Remy compares this different experience to a product with the same function but with a different finish.

In Remy's analysis, the cinemas serve as an example for an interpretation of the city as an ecology of choice. The urban ecology of the 17 cinemas in two streets gives the experience of going to the movies a different quality, different from the experience of frequenting the cinema in the mining village, where one has to settle for the movie that happens to be on show. Through Houtart, Remy was well acquainted with the work of the Chicago School. Remy would be instrumental in introducing a different reading of the Chicago School within Francophone sociological circles, no longer dismissing this intellectual tradition as a form of physical determinism. In Remy's analysis, the urban ecological perspective reads the city as a mosaic of opportunity, albeit of choice and non-choice (Remy and Voyé 1974, 1981).

What then, in the end, was his answer to the leading research question of his doctoral research? The city is the site that organizes external economies, and this not only in terms of the socialization of the collective cost of urbanization, but—as is shown in the example of the cinemas of Charleroi—also in the form of positive externalities and the surplus of use value and meaning. The urban appears in this analysis as the product of a constant trade-off between internal economic logics and the structuring of the social and cultural benefits these produce. Urbanization is first encountered as a negative externality, as congestion, pollution, conflict. The true urban moment, however, is encountered when urban communities are able to overcome this state of permanent crisis and succeed in deriving positive externalities from the process of urbanization.

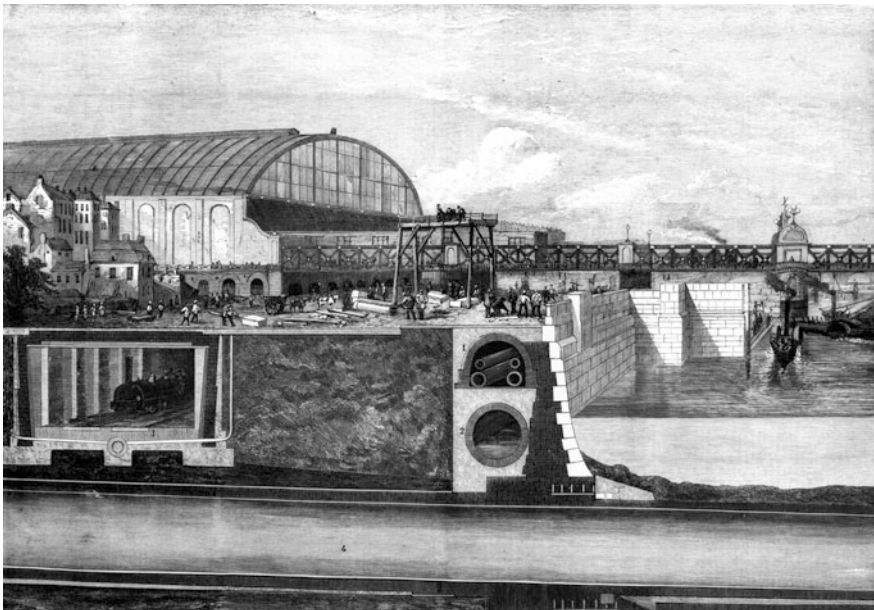
Let me illustrate this with a classic example: the hygienic crisis of the nineteenth century city, i.e. London at the time of the great stink in the summer of 1858. During a hot summer in which the water levels in the Thames were particularly low, the city's slumbering hygienic crisis hit the noses of the Londoners. This time in 1858, not only the noses of those living in East London were affected but those of the entire city. Rich and Poor, West and East. This produced a new momentum, a new urgency that raised the hygienic crisis to the level of an urban problem, a collective concern for all. This would quickly lead to large scale action under the lead of Joseph Bazalgette (1819–1891), who proposed to construct collector drains



that would make it possible to discharge sewage further downstream, beyond the city limits.

What is interesting, however, is that these works did not only produce a technical solution mainly situated underground, literally seeking the internalization of all these negative externalities and alleviating the burden and stench of urbanization. These works also created a new reality above ground, a new system of public spaces. Particularly impressive is the incorporation of a collector drain in the new 'shores' of the Thames, producing public spaces that we know today as The Strand and Embankment. The new reality of sanitized London was not conceived merely as a condition free of stench, but also produced a public landscape accessible to the citizens of East and West London alike (Fig. 1).

It is the vital importance of utility systems, such as a sewage system, that led Manuel Castells in the seventies to construct his understanding of the urban question around issues of 'collective consumption' (Castells 1972). Proceeding from Marx and Althusser, Manuel Castells would squarely place the importance of the urban in handling questions of reproduction. This is particularly clear in the central role of the housing question and its role in the reproduction of labour in an industrial society. David Harvey would in the same years insist on the role of urbanism in coordinating the relationship between production and consumption,



**Fig. 1** Section of the Thames Embankment showing not only the subway but also the sewage collector, the Metropolitan Railway and the Pneumatic Railway [Sir Joseph Bazalgette, Illustrated London News, Vol 67/1, 1867, p. 632 © Science Museum/Science & Society Picture Library]

and the role of the urban in converting reproductive labour into surplus capital (Harvey 1973, 1985).

The focus on reproduction is particularly relevant when we seek to address environmental questions in an urban context. In questioning the environmental sustainability of our cities we question the collective arrangements, infrastructures that were historically produced in order to absorb the negative externalities of an urban way of life. We realize how much the current state of collective organization represents the current ecological status quo. When we move into the Horizontal Metropolis we move into places that have been poorly equipped in terms of the collective arrangements needed in order to face urban questions (Phelps et al. 2010).

Generally speaking, in the Horizontal Metropolis the collective trade-off between the cost and benefits of urbanization has been neglected. More than elsewhere, actors have been able to externalize the social and environmental cost of their individual choices. The distributed patterns of the Horizontal Metropolis have been successful in diffusing the consequences of urbanization, avoiding questions of congestion, avoiding the need for intensive forms of collective consumption and infrastructure. Infrastructures in the Horizontal Metropolis have often been borrowed from the rural constellations historically in place (i.e. ribbon development, historical drainage structures, etc.) or have been reduced to the needed infrastructure for housing, relying on urban amenities available in existing urban centres. The strong feedback loops between negative externalities and collective investment that still propelled the nineteenth century city forward at the time of the hygienic crisis, are in the Horizontal Metropolis replaced by weak signals producing infinitely delayed urban effects.

As the Horizontal Metropolis is coming of age, however, the attention shifts increasingly from questions regarding the financing of the logics of production that made horizontal development possible in the first place, towards questions of reproduction, addressing aspects of what it takes to maintain and sustain the historically produced distributed living patterns. The current reproductive crisis of the Horizontal Metropolis fosters the debate on new urban questions around the increasingly popular issues of water, energy, waste and food. The reproductive crisis provides the solid basis to begin to build an urban agenda for the de facto urbanized landscapes of the Horizontal Metropolis.

Hence, rather than immediately calling them urban, let alone metropolitan, I am interested in asking the question what would make the distributed socio-spatial ecologies of the Horizontal Metropolis rightfully deserve the epithet urban. The Horizontal Metropolis is full of distinctive situations that stand at the threshold of an urban way of functioning and can readily be reconfigured in light of a new balance between collective investment and collective benefits.

## **Statement 1. Horizontal Urbanization Beyond Methodological Cityism**

### ***Planetary Urbanization?***

Building on Henri Lefebvre's *Urban Revolution* (Lefebvre 1970), Neil Brenner and Christian Schmidt have argued that we need to move away from urban theory built around the object of the city, towards a perspective built around the process of urbanization (Brenner 2014). If Lefebvre's announcement of an industrial society being replaced by an urban one was still a bold speculation, today we seem to be living an age of 'planetary urbanization'. The work of Brenner and Schmidt is contested. Geographers in particular point to the fact that there are enormous differences in degree of urbanization, and that there are still large parts of the earth that remain free of any urbanization. Many of these critiques, however, seem to be missing the point. The planetary urbanization perspective is by no means trying to suggest that the urban condition has spread evenly over the entire surface of the globe. Quite to the contrary, it portrays an urban landscape of uneven development and differentiation.

More importantly, however, the position of Brenner and Schmidt should be understood as a direct critique of the urban age discourse that situates the future of the planet in cities without qualifying what is meant by the label city. For the urbanist it becomes increasingly important to build the defence of the urban not around the extraordinary and privileged centres that come to mind when we think of the city. After periods of hollowing out and suburbanization, many cities across the globe have seen a marked reinvestment in the urban core. This city-centred bias is today reinforced by an increasingly dominant discourse that seems to assume that the only ecologically sound form of urbanization is dense, intensive and compact.

Hilary Angelo and David Wachsmuth point to the ideological nature of what they define as 'methodological cityism' (Angelo and Wachsmuth 2014). In order to continue to defend the urban as an emancipatory force, in order to construct the nexus between the ecological crisis and the process of urbanization, in order to think the contemporary urban project, a new epistemology of the urban is needed: an epistemology that is not built around the old centres and their urban elites. The planetary perspective in urbanization is such a call for other points of reference, looking at urbanization in the Lefebvrian sense as a process of spatial differentiation, a call for the careful interpretation of the differences this process produces (Brenner 2013).

### ***New Modernities Beyond the Metropolitan Bias***

Within the notion of Horizontal Metropolis, the urban is qualified through a historically charged term, i.e. 'the metropolis'. The idea of marrying horizontality to

the metropolis which in its historical manifestations was anchored in the vertical core presents us with an interesting oxymoron. The term metropolis might not be the right entry, however, to open the discussion on the type of urbanity characteristic of the ubiquitous horizontal urban landscapes. If I think of Flanders as a potentially paradigmatic example, its urban landscape is diverse and may be qualified in various ways, but the social conditions we find in Flanders are anything but metropolitan.

The modern metropolis has historically served as the privileged site to study the process of modernization. It was the place where the process of modernization first became manifest in its most tangible and exacerbated form. Many of the founding fathers of urban theory were not necessarily studying the city in its own right, but share the city as the privileged site of their inquiries. Marx was studying the process of industrialization and the circulation of capital. Weber was studying the process of rationalization and the emergence of bourgeois governance. Simmel was studying the process of individualization and the replacement of traditional communities by new forms of socialization. Their laboratories of modernity, the factory, bureaucracy, the metropolitan public domain—all define dimensions of the process of modernization still centered on the city. Their theories, however, do not necessarily amount to a full blown urban theory.

The process of horizontal urbanization is no longer convergent upon a singular centre, is no longer inscribed within coinciding logics of territorialization. Late capitalist urbanization processes define, more than ever, multi-scalar, flexible geometries that produce effects that in some places, such as the global cities and centers of high finance, might still represent logics that reinforce one another, but on the whole produce new realities which are partial, incomplete and deeply contradictory. If in the early twentieth century modernization and urbanization could still be used as almost interchangeable terms, today the process of urbanization produces multiple sites, multiple reflections of a modernization process that engenders complex logics of de- and re-territorialization, cascading through different scales. Thus, the term metropolis might be too much attached to a particular modernity, for the purpose of interpreting the new modernities that co-determine the contemporary multiply territorialized process of urbanization.

### ***The Horizontal Metropolis Never Exists in Isolation***

When Francesco Indovina coined the term *città diffusa* (Indovina 1990), he was trying to define and describe a new urban form, one distinct from other urban typologies, such as the historical mercantile cities, their suburbs, the sprawling fringes of the metropolitan areas, etc. While it is important to use terms with sufficient precision, and not conflate the description of particular urban forms with others, there is something problematic about the effort to try to isolate the dispersed fraction of the process of urbanization and to study it in its own right. The process

of distributed development never took place in isolation and was shaped hand in hand with other dynamics.

In the Belgian context, the last two decades produced very good and thorough research on the *longue durée* of distributed urban settlement patterns (De Meulder et al. 1999; Grosjean 2010; De Block and Polasky 2011; Dehaene 2015). A lot of emphasis was placed on the notoriously anti-urban character of the politics of dispersal. However, by writing the history of dispersal as a separate case, as the history of a particular urban form, we run the risk of forgetting that during the same period in which these distributed settlement patterns were facilitated, a parallel project took place under the wings of the nation state. Brussels was recast as the capital of the nation. The same train network that undergirded the politics of dispersal was also centred upon Brussels. King Leopold II refashioned the capital as the home for an affluent national elite. That same elite would make sure that the process of industrialization would not produce an urban proletariat in its own backyard. The nation state shaped a particularly distributed model of urbanization, recruiting excess labor in the countryside, keeping their families in the villages and making the workers commute. In Belgium, the solutions for the reproduction of labor were from the onset situated outside of the city (Fig. 2).

Today's logics of rescaling in the context of the post-national state, affect the multiple manifestations of the historical process of urbanization alike. The current dynamics of urbanization equally touch the historical urban cores, the position of the national capital, as well as the dispersed settlement patterns produced by the historical politics of dispersal. Current urbanization dynamics produce new combinations of old and new urbanities, new territorial selections within a nation that

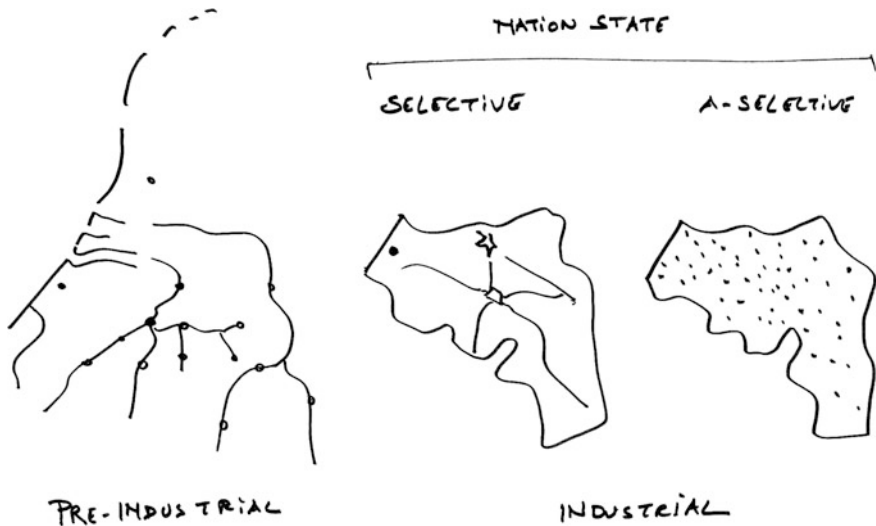


Fig. 2 Three overlapping logics of urbanization within the context of the Belgian nation state

tried to actively even-out difference. These new geometries cannot be understood if we think them as the transformation of the *città diffusa* per se. Rather, they are defined by the recombination of historically overlapping logics of urbanization.

## **Statement 2. Urban Questions in the Countryside**

### *The Double Crisis of the Primitive City*

The urbanization of the Veneto and large portions of Flanders, the self-built suburbs of Bucharest and other Eastern European cities, as well as other samples of the Horizontal Metropolis heavily relied upon infrastructures predominantly rural in origin. The organization of these settlement patterns is not particularly urban, the motivations behind their deliberate creation were often explicitly anti-urban.

In areas such as Flanders, where the politics of dispersal have been reaffirmed time and again, the logics of distributed development have come to define a process of accumulation in its own right. As more and more people have found a place to live within the rural urban continuum, the dispersed settlement patterns of Flanders are slowly but surely subject to a delayed process of becoming urban. Communities living in Flanders in what still may look as the countryside are—and I would say for the first time—confronted with urban questions, finding themselves in a state of relative interdependence that makes it necessary to produce collective arrangements in order to actively organize their ‘vivre ensemble’. While the traditional answer to the urban question may have come in the form of dispersal, that option is no longer available nor attractive.

The urban question comes as a double crisis of a ‘primitive city’, a de facto urbanized landscape without a proper urbanization project. This primitive city could in its genesis simply lean on rural infrastructures that were there historically. These urbanized landscapes are in crisis first of all because of the continuing accumulation of negative externalities. The most recent subdivisions are the first to be confronted with problems of flooding. At first, the primitive city could suffice with the natural drainage structures in place. As development became more intense, these structures were converted into sewage systems. Add to this the excessive soil sealing and you can picture the trouble the primitive city is in.

But more importantly, the crisis of the primitive city is also a crisis of the rural substrate itself. The rural infrastructure that was able to carry this whole structure for a long time, is today no longer reproduced and maintained, as farmers are rapidly disappearing from this landscape. Flooding is, for example, in large parts of Flanders exacerbated by the simple fact that the ditches between the fields are no longer cleared once a year by farmers.

## *Collective Consumption in the Countryside*

By leaning on the rural substrate we have been living on borrowed time. As a consequence of this formula, we are faced today with urban questions in the countryside for which the answers produced within the parasitic logics of dispersed urbanization no longer suffice. These urban questions crystallize around themes that are relatively new to the urbanists who have traditionally focused on questions of housing and mobility. Water, energy, nutrient and soil cycles, localized food production, to name some of the central concerns—all call for new forms of collective organization, new forms of commoning.

And here Bazelgette returns. Again, we see, first of all the very technical version of the exercise to provide answers to these urban questions. Such technical exercises typically focus on settling our losses, on absorbing the negative externalities. A good example is provided by the efforts made to convert the existing sewage systems in which rainwater and waste water are mixed into split systems that keep both flows apart. The technical version of such solutions looks at integrated street sections in which an extra water drain is placed under the street, next to the original sewage pipe. Such technical solutions, however, tend to miss the distinct opportunities offered by the Horizontal Metropolis. In the Horizontal Metropolis we have the option to rigorously handle drainage on grade, in the public domain. Such a project may start by simply reactivating the residualized infrastructures of the rural substrate: the brooks and ditches that handled the drainage problem historically.

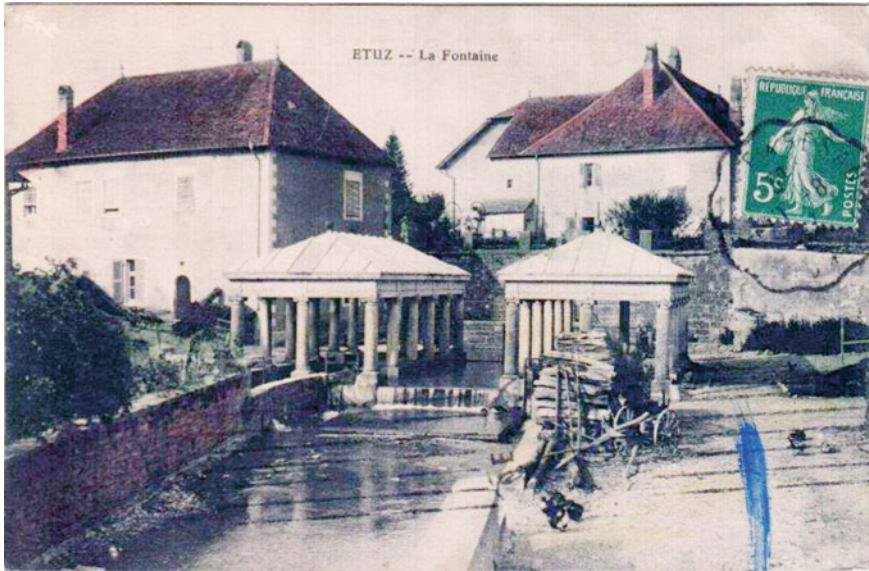
Rigorously handling drainage in the public domain gives room to shape the face of the Horizontal Metropolis and extend a new decorum to the urban landscape. We could draw inspiration from a rich tradition of very light collective arrangements that in many instances literally organized the overlap between the rural and the proto urban use of these infrastructures. Think for example of the *lavoirs* that, often in a very precise neo-classical language, combined drinking places for the animals with water retention and public washing facilities (Fig. 3).

### **Statement 3. Constructing Place-Based Solidarities**

#### *The Legacy of Municipalism*

The logics that produced the Horizontal Metropolis are not particularly well equipped to construct its sustainable reconversion. The project for the Horizontal Metropolis cannot be thought only through the horizontal forms of governance that deprived the current urbanizing landscape from the needed collective arrangements necessary for handling the questions of reproduction and collective consumption.

The main problem of the legacy of dispersal might not be the lack of critical mass, the lack of density, the relative inefficiency of infrastructures and services. Most of all, the policy of dispersal has literally led to the systematic depolitization



**Fig. 3** The lavoir in Etuz is one of the more elaborate neo-classical examples in the Haute-Soane, France

of the urban question. Urban politics are typically articulated around place-based solidarities brokered around the problems people face simply by sharing the same place and being implicated in each other's lives. The problems caused by dispersed urbanization, however, tend to present themselves with two generations of delay and often in other places than where they are being caused. This makes it difficult to hold people accountable or mobilize around urban issues. By choosing for dispersal we have taken the momentum away for the emergence of urban movements.

The de facto urbanized landscape of the Horizontal Metropolis is in that sense not particularly ready—not to say reluctant—to take on an urban agenda. How then can we make the transition from a citizenship that has mainly been shaped inside the boundaries of the nation state to urban forms of citizenship shaped around the politics of place? How do we build a sense of urban citizenship in places that have little experience to offer when it comes to 'living together' in urban terms? (Corrijn 2012).

One very big obstacle to the development of such urban solidarities is the deeply rooted municipalism of the European Horizontal Metropolis. The particular form of local government, installed as part of divide and rule politics of the nation state, may be even considered as the first cause of the policies of dispersal. The municipalist deal is symptomatic for the non-urban character of national politics in many parts of Europe. While the nation state produced the big capital cities and the industrial metropolises, it also installed the strange assumption that urban governance is to be organized on a municipal basis. Cities are conceived of as big municipalities. Urban growth subsequently leads to the incorporation of municipalities within the urban community.



This deeply rooted municipalism reproduces until today logics that do not point in the direction of an urban agenda. ‘*La commune*’ is first of all communitarian rather than urban. Put differently, the notion of community shaped by *la commune* starts from traditional ideas of common background, language, descent, or race, rather than the place-based solidarities and collective arrangements, the simple fact of being implicated in each other’s lives that defines the urban.

### ***The Urbanized Landscape (in Visu) as Matter of Concern***

Where can we begin to build the urban citizenship of which the Horizontal Metropolis has been deprived? Already twenty years ago, Sebastien Marot spoke in this context of ‘the landscape as alternative’, a plausible alternative to the public spaces of the traditional metropolis around which the coordinated actions of urban authorities would typically coalesce (Marot 1995).

The urbanized landscape, understood in visu rather than in situ, is the condition in which the mutual implication of distinct life worlds first becomes visible and can be made the subject of debate, can be articulated as a joined matter of concern (Uyttenhove et al. 2015). If the sprawling landscapes of Flanders are said to be full, it is first of all because of the conflicting patterns of expectations that are being projected on one and the same visual horizon. In the absence of shared imaginaries, we see the clash of multiple landscapes, conflicting logics that destroy the mutual possibilities of realizing the expectations of multiple groups within the same landscape. Framing these conflicts in landscape terms is the right entry to trade logics of zoning, fencing and camouflage geared at avoiding conflicts, for the production of new meaning and shared worlds.

Moreover, framing the urban question in landscape terms seems the right lens to prevent a relapse into a functionalist interpretation of the ecological question. Growing ecological concerns have led to the marked return of (eco)systems thinking, industrial ecology and urban metabolism, pointing to the inefficient and wasteful character of the current state of affairs. We need to do more, however, than fixing the broken links, more than closing the metabolic loops. Making meaningful urban landscapes in which people are offered rich, fair and ecologically sound ways of leading their life, requires more than designing functional imbalance out of the equation.

### ***Justice Beyond ‘Spatial Keynesianism’***

The critical contribution of the Horizontal Metropolis lies in the ways in which it helps to dismantle the ideological bias of methodological cityism. The uncritical reproduction of the language of density, *mixité* and compactness leads to the growing competition over urban premium spaces, reinforces logics of uneven

development and spatial exclusion. The Horizontal Metropolis, however, cannot be a critical concept if it simply amounts to the reversal of methodological cityism, presenting logics of even spatial distribution as the natural way to accommodate distributional justice. The historical development of the Horizontal Metropolis is deeply implicated in politics that organized the redistribution of welfare through what Brenner has labeled as ‘Spatial Keynesianism’: i.e. giving people a ticket to participate in the distribution of wealth by giving them access to cheap land through spatial dispersion (Brenner 2004).

In order to critically think the Horizontal Metropolis, it is necessary to disarticulate the quest for equal opportunity and spatial equality (in the sense of equally distributing opportunities). This is clear when we look at the historical deal around public transportation in Flanders. The formula was the following. The lenient land policies provided opportunities for people to live virtually everywhere. Subsequently Flanders decreed in the nineties the right of every individual to have access to public transport within 800 m of his or her front door. The rather bleak result, however, is that everybody is given the dubious privilege of access to poor public transport.

Spatial difference is what the urban is made of. Urban qualities are derived from the very fact that certain qualities can only be delivered given specific collective arrangements. The urban as a use value is the result of the different milieus, the various options an urban milieu may offer to its citizens. Everywhere the same, may seem just, but amounts to a logic in which society deprives itself from the surplus created through difference. With Soja and others, also the Horizontal Metropolis, needs a quest for ‘those differences that make a difference’, always including the question ‘for whom?’ and the hard task to keep those different spaces accessible for all involved (Soja and Hooper 1993).

## **The Horizontal Metropolis, a Radical Proposal?**

Thinking the urban ecology of the Horizontal Metropolis should start from an active effort to suspend the imaginaries of the old metropolis. The Horizontal Metropolis helps us to dismantle the ideological bias of the urbanism of compactness. In the context of planetary urbanization, it is more urgent than ever to think urbanization beyond the polarity of center vs. periphery, compact vs. distributed, nuclear vs. decentralized. The Horizontal Metropolis may be understood as a radical proposal if we are ready to face the anti-urban ingrained in its prehistory. The seeming contradiction of horizontality and the urban defines a fertile quest for alternative urbanisms that may be played out against the current dogmas. It should be understood as a radical project of urbanizing in place, confronting the de facto urbanized landscape and reading the process of urbanization as a process of historical differentiation that needs to be understood and interpreted, each time anew, in each place in all its particularity. The alternative urbanisms of the Horizontal Metropolis should provide the people already living this urbanized landscape with imaginaries and itineraries that speak to the urban questions as these present

themselves within their concrete lifeworld. The new imaginaries of the Horizontal Metropolis could define the collective arrangements that give these people the real tools to answer the urban questions they are faced with and give meaning to new ways of living together.

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# Territorial Development and Metropolitan Areas: Transformations in the Last Decade



Gioacchino Garofoli

## Introduction

This paper deals with the change in industrial development in Italy over the last decade and, in particular, territorial redistribution of industrial employment. By studying information made available by the last census taken by the Italian government, it should be possible to check two hypotheses introduced in recent years on the regional restructuring of industry in Europe. The first one has to do with the globalization process and the emergence of new industrial countries and regions in the world, while the second concerns the new role of metropolitan areas in developed countries through the presence of new sectors and urban functions. The goals of this paper are hence: (a) to analyse evolutionary territorial trajectories in economic transformation to understand the role of core and intermediate regions and local productive systems, with a focus on resilient regions in periods of crisis; (b) to analyse trajectories in metropolitan areas in Italy and especially in the Milan metropolitan region.

## Regional Development Models and Effective Transformation

The historic regional development waves in Italy, but also in other industrialized European countries, consisted in at least three different phases in the postwar period:

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- (a) The long phase of regional and urban concentration which marked the 1950s, 1960s and beginning of the 1970s;
- (b) The phase of regional diffusion and decentralized industrialization with the formation of local productive systems (late 1970s, 1980s and beginning of 1990s);
- (c) The phase of deindustrialization in Europe since the late 1990s which stopped the regional diffusion with the emergence of new phenomena (the resilience of some agro-industrial areas) that have not yet been completely clarified.<sup>1</sup>

We will try to introduce a simple deconstruction exercise on regional and local and territorial change in industrial and total employment in Italy in order to offer some groundwork for a new interpretation of regional trajectories over the last decades.

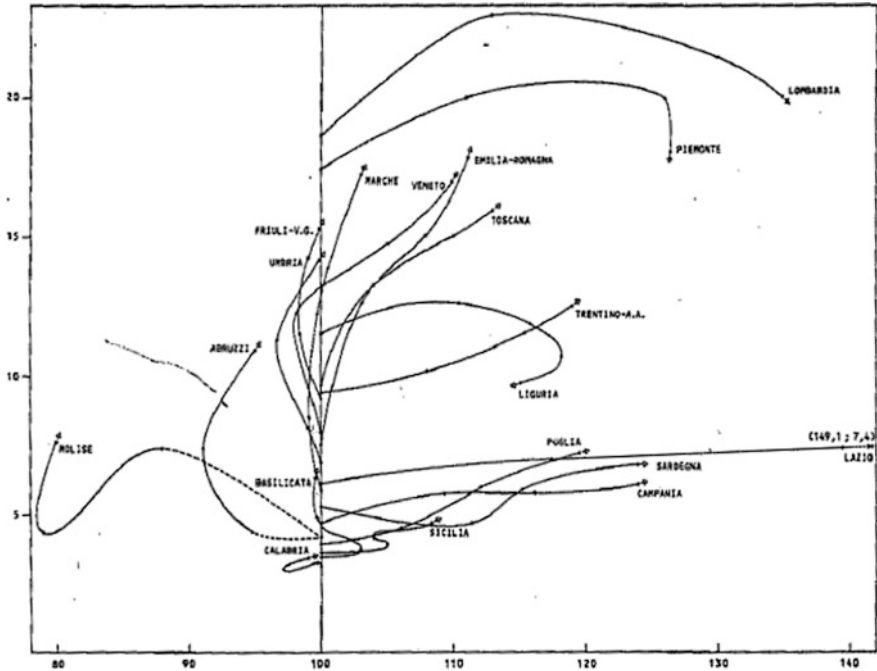
We will start re-proposing an old figure which helped the interpretation of the restructuring of regional development in Italy in the 1970s and 1980s (Fig. 1). The figure presents the regional waves in industrial development in Italy from 1951 to 1981, showing the relationships between the industrial employment rate and total population in the different regions. It is quite clear that the increase in industrial employment in the northwestern regions in the first two decades is caused by the immigration of large quantities of labor and population from other regions. In the meantime the northeastern and central regions were mainly reducing their population; whereas the southern regions and Lazio were expanding their population, with a stabilization of the industrial employment rate. The figure presents the different waves during the 1970s, with the emergence of industrial employment (with sharp increases in the industrialization rate) in most of the northeastern and central regions (without a great increase in population) and the reversal of industrial development trajectories in the northwestern regions, very strong in Liguria (even with a decline in population) and in Piedmont (with stabilization of the population), but also with a reduction in the industrialization rate in Lombardy.

Figure 2 presents a very different scheme in regional development, with a significant decline of industrial employment rates (in some cases even with a reduction of total population). Only in a few regions (Veneto, Emilia-Romagna and Marche) has the process of industrialization continued smoothly into the early 2000s. However, in the last decade, even these regions saw industrial decline.

Figure 3 presents the differences of manufacturing employment rates by province to give a clearer picture of territorial differences and trajectories in development. The employment structure was quite similar within northern and central Italy at the beginning of 2000s, with the exception of Liguria and Lazio and some

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<sup>1</sup>The territorial novelties are different in this period: agropolitan development (Friedmann and Weaver 1979) in some cases and urban and metropolitan recovery in some other cases. A lot of research projects and works have been launched over the last years during the great economic crisis, looking at the opportunities for economic resilience or at new forms of metropolitan and urban development; but it is still difficult to reach a general shared interpretation on the main changes.



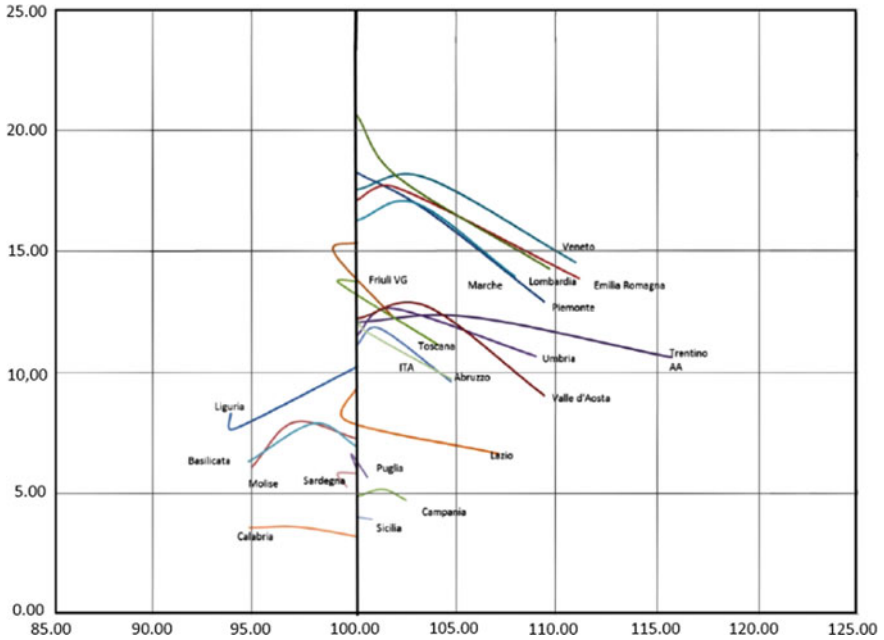
**Fig. 1** Regional development trajectories in Italy (1951–1981). Industry employees per 100 inhabitants (y axis); resident population compared to 1951 = 100 (axis x). *Source* Becattini and Bianchi (1982)

mountainous areas, which show a low rate of manufacturing employment. Considerable territorial differences arose during this decade because the situation in 2011 was very fragmented. Few provinces are still manufacturing-oriented (some provinces in Lombardy, Emilia and Veneto and only one province in the Marche region). This is most likely the consequence of a general restructuring of Italian industry, but with different paces and capabilities in catching opportunities in the various provinces and territories, perhaps due to poor policymaking. We will try to better understand these points through a more precise analysis.

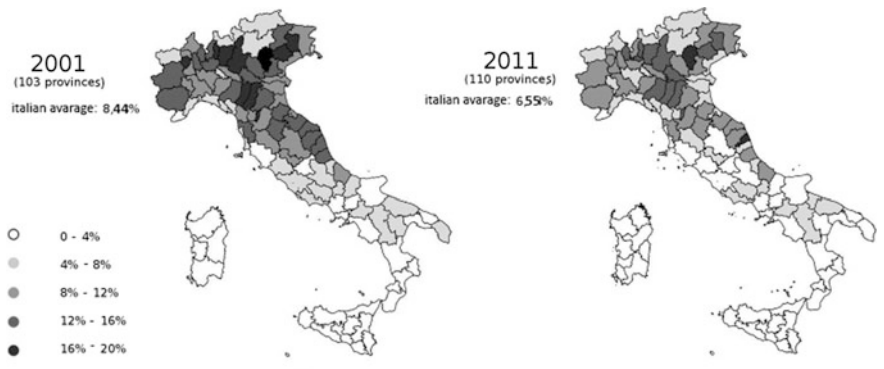
I would like, in any case, to advance some hypotheses which could explain Italian employment trends in the last 15 years, just to clarify the methodological approach in the following section of the paper.

The main hypotheses are:

- (a) The “core” of Italian industry, as well as the “core” of industrial districts, are moving towards a process of decline;
- (b) Some strategic errors were made in the Italian economic system, such as the undertaking of delocalization and outsourcing processes during the 1990s and 2000s, which produced negative effects both on manufacturing employment and contributed to the destructuring of a once close network of relationships



**Fig. 2** Regional development trajectories in Italy (1991–2001). Industry employees per 100 inhabitants (y axis); resident population compared to 1991 = 100 (axis x)



**Fig. 3** Rate of manufacturing employment in Italy by province (2001 and 2011). The national average of manufacturing employment out of the total number of residents was 8.44% in 2001 and 6.55% in 2011

- among local firms, especially along the productive “*filière*” between sub-suppliers, suppliers and final firms;
- (c) The firms’ strategies, in a lot of areas, became increasingly oriented towards labour cost reduction and price competitiveness, whereas in the past decades

firms were not prevalently oriented towards price competitiveness (in coherence with the model of the industrial district) with their attention directed towards quality production and innovation (especially through the enlistment of new professional competences);

- (d) All this caused the lack of coherence of the national economic policy with the structural organization of Italian industry and a lack of governance of the restructuring process of territorial productive systems. This effect has resulted in a lack of awareness of the logical links between economy, society and territory (and of the role of external economies). These were the forces of decline that produced a progressive destruction of manufacturing employment in Italy.

I will start to show the employment dynamics during 1990s by trying to check the existence of different trajectories in industrial districts and in the rest of the Italian economy.

Table 1 already shows the existence of a divide in the trajectories of the two groups of areas during the 1990s. Even though the re-localization processes already started in the middle of the 1990s, industrial districts maintained their level of manufacturing employment, whereas other areas lost 10% of their manufacturing employment in ten years. Service sector employment increased at higher rates in industrial districts compared to other areas (cf. Table 1). This demonstrates that industrial districts achieved better performance than other areas of the Italian economy during the 1990s.

Now we will try to understand what happened in territorial development in Italy during the first decade of the 2000s, using the census data.

It is important to remember the typical size structure of Italian industrial firms didn't change dramatically during this decade. The process of employment share reduction in large firms (and even in medium-large firms) continued between 2001 and 2011, and the Italian economic structure (especially in industry) became more and more oriented toward SMEs and MEs (even in terms of exports) (Garofoli 2014).<sup>2</sup>

**Table 1** Employment dynamics (% change): industrial districts versus the rest of the Italian economy (1991–2001)

	Industrial districts	The economy's remainder
Manufacturing	−0.7	−10.0
Production services	97.7	88.1
Financial services	13.3	0.9
Transport and logistics	17.6	3.8

Source Elaborations on Istat, *Censimento dell'Industria e dei Servizi 2001*

<sup>2</sup>The “performance”—size question (both for economic efficiency—VA/L—and profitability—NOM and ROI) shows the lack of a positive direct relationship with firms' size (the statistical results show an inverse relationship) (Garofoli 2013).



This section deals with the dynamics of territories and industrial districts at the provincial level using databases. To understand the existence of different trajectories at the territorial level, we analysed the dynamics of total and manufacturing employment and tried to understand what kind of relationship, if any, there is between the dynamics of employment and the degree of specialization of different areas.

The relation between the rate of change of industrial employment and productive specialization (measured using the normalized industrial employment index at the beginning of the period) will be shown in the following figures. The relations will be shown for the following sectors: total extra-agricultural employment, manufacturing employment, and that of the food sector, textile & clothing, mechanical engineering and furniture sectors. Comparing the information on each province and of specific industries like textiles, mechanical engineering and furniture will provide rough insights into the the dynamics and performance of industrial districts.<sup>3</sup>

There is a lack of relationships between the two variables (rate of change and normalized employment) both for total extra-agriculture employment (cf. Fig. 4) and for manufacturing employment (cf. Fig. 5): the distribution of the provinces is absolutely stochastic and employment growth figures are completely unassociated with the degree of specialization.

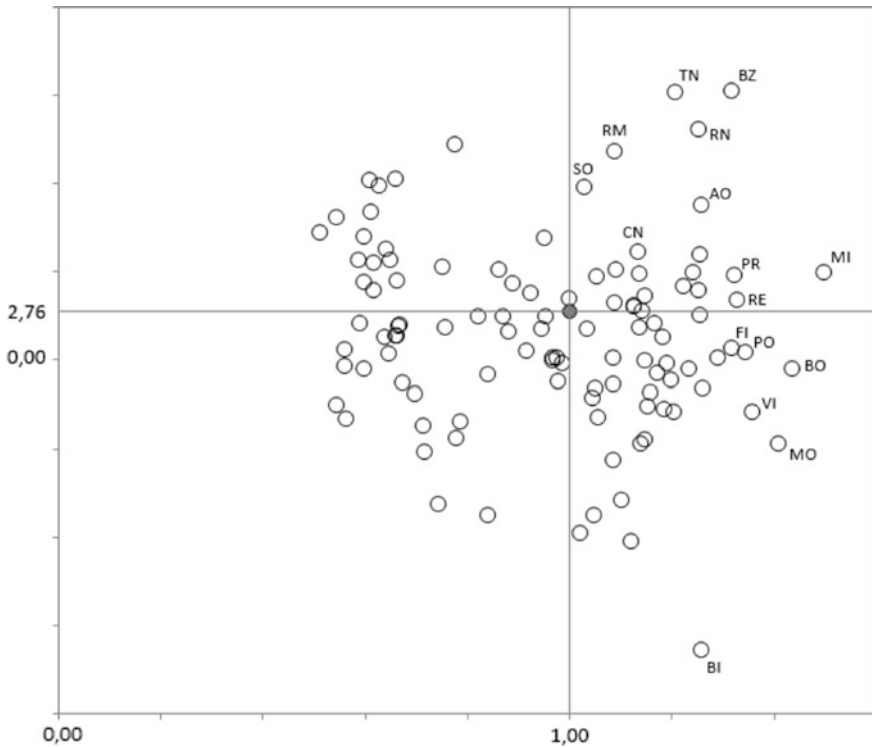
The following figures represent trends in industrial districts, taking into account specific specialization in manufacturing branches like food, textiles, mechanical engineering and furniture. The cloud of points is very wide, and the arrowhead in the areas of specialization is obviously much sharper, but again the figures show an absence of a direct relationship between the two variables (employment change and degree of specialization) for all the manufacturing branches (cf. Figs. 6, 7, 8 and 9). Moreover no differences exist in employment performance between industrial district provinces and other provinces, whereas large differences are present even between different industrial districts specialized in the same manufacturing branch. What is surprising is not only the difference in performance among specialized areas but even (and especially) because there is a great divide in the same industry (cf. the furniture industry) and in the same small region (Friuli-Venezia Giulia). This means performance differences depend on different firms' strategies more than on wage squeeze and labor market conditions.

### *Some Specific Comments*

This section of the paper clarifies the existence of some interesting relationships between a territory's features and economic performance which characterizes regional development in Italy over the last 10–15 years.

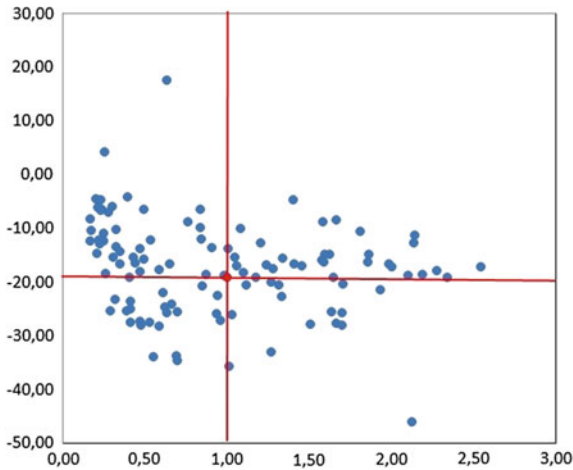
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<sup>3</sup>Even if industrial districts cover usually only a part of the total province, the specific industrial employment of the industrial district usually covers 90–95% of the province's employment in the specific industry. We made test studies in some specific industrial districts and obtained very similar results.



**Fig. 4** The relationship between the rate of change of extra-agriculture employment between 2001 and 2011 (y axis) and normalized extra-agriculture employment in 2001 (x axis). The figure shows a lack of any association between the two variables: the highest values of total employment rate were reached in the provinces of Milan, Bologna and Modena, but in two of them the rate of change has been negative. The highest values of change in the decade were reached in Bolzano, Trento, Rimini and Rome but, at the same time, provinces with similar normalized employment rates obtained negative rates of change. In mountainous areas, not only in Trento and Bolzano but also in the provinces of Aosta, Sondrio and Cuneo, performances were positive

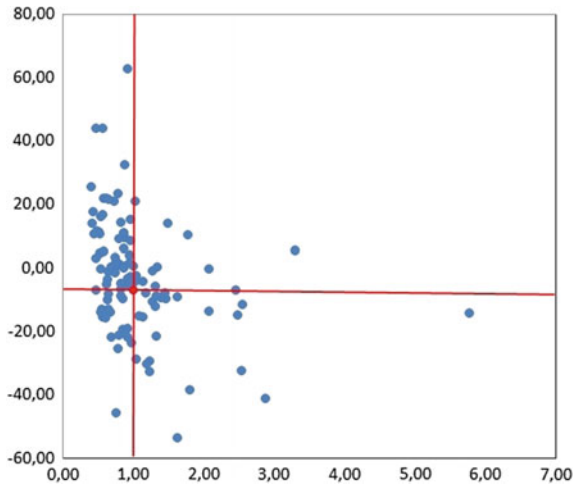
1. In the last 10–15 years industrial employment dynamics have been negative not only on a national level and in Italy's historic industrial regions, but also in other Italian regions. Moreover, the negative trend of industrial employment occurred both in areas characterized by the presence of large firms and in areas whose economy is based on small firms and on industrial districts. However, this doesn't mean industrial districts have become an old and dated industrial organization model, because a more accurate analysis could probably demonstrate something strange happened in the firms' implementing cost reduction strategies rather than upgrading on knowledge and competencies required for quality production and innovation.
2. A territorially disaggregated analysis helped to show the existence of a clear divide between industrial districts (and other areas) that were able to maintain



**Fig. 5** The relationships between the rate of change in manufacturing employment between 2001 and 2011 (y axis) and normalized manufacturing employment (x axis). No relationships between the two variables exists, with drastically differing performance in various provinces: the cloud of points is very large both in the area over and in the area under the national average in the change rate. The drop in manufacturing employment is quite high at the national level (very close to 20%) with the best performing provinces attaining a reduction around 10%. The most resilient areas have been Cuneo, Parma, Pordenone, Reggio Emilia, Padua and Mantua among the most industrialized areas, and Piacenza, Sondrio, Trento and Rimini among the medium industrialized areas. The most industrialized areas (Vicenza, Prato, Modena, Treviso, Lecco) present performance very similar to the national average

employment and the crucial networking and division of labor along the productive “*filière*” within the district through coherent positioning on international markets, on one hand, and, on the other, industrial districts (and other areas) which preferred to keep competitiveness on some final firms with outsourcing strategies and the destruction of once close local network of inter-firm linkages.

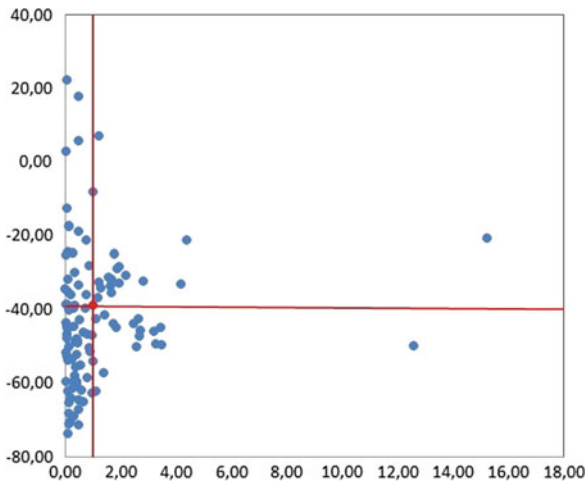
3. This change in perspectives and in strategies produced some interesting contradictions in relation to standard regional development trajectories:
  - Employment has increased, and the local productive systems linked to the agro-food production are getting stronger. These local productive systems are more and more oriented towards production quality and towards the protection and valorization of “typical products” (DOP; OGP) (as per the case of Alba and Langhe in Garofoli 2011), and this also explains the role of the perception of the strict relationship between the territory’s quality and quality products;
  - Some areas and regions emerge in the process of regional development in Italy to show a great capacity of resilience, maintaining the level of employment. This phenomenon seems linked to the existence of a shared development strategy, based on territorial identity and on a high level of



**Fig. 6** The relationships between the rate of change in food sector employment between 2001 and 2011 (y axis) and normalized food employment (x axis). The figure shows the distribution of different provinces, comparing specialization in food and performance in food employment. Again the figure shows the absence of any direct relationships between the two variables. In the provinces of Bolzano, Sondrio and Cuneo the performances in food employment are quite good (with an increase in food employment), whereas in other specialized areas (like Ravenna, Ferrara, Forlì-Cesena and Piacenza) performance rates were negative. Very good performance was achieved even in areas like Vercelli (with a specialization similar to the national average) and in Caserta (with a lower food employment normalized rate). Other three areas with the highest food employment rates (Parma, Cremona and Mantua) present a change rate in employment similar to the national average. But what seems more important is the increase of food employment in some mountain areas (Bolzano, Trento, Sondrio and Cuneo) already indicated in Fig. 5. These present a very well-integrated agro-industry sector based on the quality of local products and conditions (with protection and valorization of environmental and landscape resources, (Garofoli 2011)

local solidarity. The behavior and the employment dynamics of jointly liable communities—especially in mountainous areas—confirms these territorial features, often linked to the widespread practice of social entrepreneurship (cf. the areas of Bolzano, Trento, Sondrio and Cuneo). These positive dynamics allow the emergence of a new typology of local productive system based on a close relationship between territory and social liability;

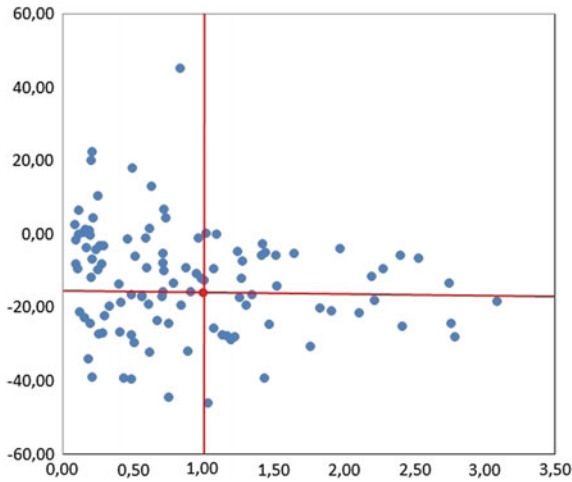
- Some areas have lost their territorial identity and the citizens' and firms' feeling of belonging to a local socio-economic system: this is especially clear in the areas most affected by “outsourcing” processes and cost reduction strategies. The downgrading of the productive system produced a dramatic drop in employment (often as much as 50% of those employed) in the last 10 years;
- Employment is largely stable in clothing, leather goods and footwear production in Florence and Milan thanks to the quality production of some famous brands and to the strong image of the territory, whereas employment



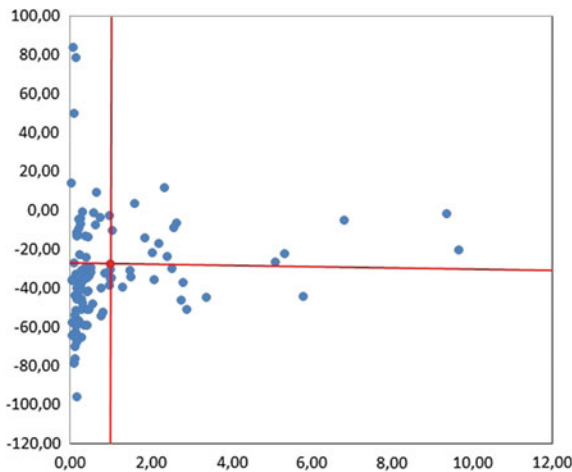
**Fig. 7** The relationships between the rate of change in textile and clothing employment between 2001 and 2011 (y axis) and normalized textile and clothing employment (x axis). Again there is no relationship between the dynamics of employment and specialization. The cloud of points is very wide, and the arrowhead in the area of specialization is obviously much more sharpened. The most specialized areas (Prato and Biella) show differing performance: better in Prato (Even though the performances are similar if one only considers the textile industry. The difference between Prato and Biella is entirely due to the huge increase of employment in clothing industry firms, which doubled in ten years; this is especially due to the section of firms belonging to Chinese entrepreneurs.) and worse in Biella in relation to the very bad national average rate of employment change in the last decade. Analogous performance divergences have been obtained by other specialized textile areas: better performance (in comparison with the national average) occurred in Mantua, Como and Florence, whereas worse performances occurred in Vicenza and Treviso and in depressed southern localities like Teramo and Lecce

in the same sectors dropped significantly in Lecce and in Teramo (in southern and relatively poor areas and regions, with lower wages and “loose” labour market conditions). This shows that the “neoclassical” positions—particularly popular among some scholars and among a lot of entrepreneurs—have been completely belied by facts and economic dynamics;

- Some ambiguous cases exist (for instance Vicenza and Treviso in the Veneto region) which showed a huge drop in employment in some industries (textiles/clothing) but a resilience in the mechanical engineering industry. This dual behaviour seems to be determined by a different strategy used in the two industries. The first industry was affected by the cost reduction strategy of “outsourcing” production, whereas the second industry was obliged to maintain local employment due to the strategic role of “savoir faire,” professional skills and productive integration (and complementary competences) among firms which are a must for the construction of complex and quality products.



**Fig. 8** The relationships between the rate of change in mechanical engineering employment between 2001 and 2011 (y axis) and normalized mechanics employment (x axis). The figure shows that territorial specialization doesn't matter for employment performance. Vicenza, Pordenone, Reggio Emilia and Modena perform better, whereas Turin, Milan, Asti and Verbano-Cusio-Ossola perform worse in relation to the national average. Other specialized areas (Lecco, Brescia, Bologna and Varese) perform just like the national average



**Fig. 9** The relationships between the rate of change in furniture employment between 2001 and 2011 (y axis) and normalized furniture employment (x axis). This figure makes even more explicit this lack of relationship between employment performance and specialization in the furniture sector, because among specialized areas Pordenone and Treviso perform well whereas Udine (i.e. the Manzano district), Matera and Bari (i.e. the Santeramo-Matera district) perform poorly, worse than the national average. By contrast, in the provinces of Pesaro and Urbino and in the Como-Brianza district performance is on a par with the national average

**Table 2** Employment change (%) in Metropolitan Areas (2001–2011)

Metropolitan area	Total	Manufacturing
Milan	+5.0	−27.3
Turin	−2.8	−23.9
Rome	+11.9	−10.5
Naples	+2.0	−16.9
Florence	+0.8	−18.2
Venice	−0.6	−24.4
Bologna	−0.4	−18.3
Italy	+2.8	−19.1

## Evolutionary Trajectories in Metropolitan Areas

We can now analyze the main changes in the metropolitan areas of Italy in the last 10–15 years. After a brief general analysis of the changes in different Italian metropolitan areas, the attention will shift to focus on changes in the metropolitan area of Milan.

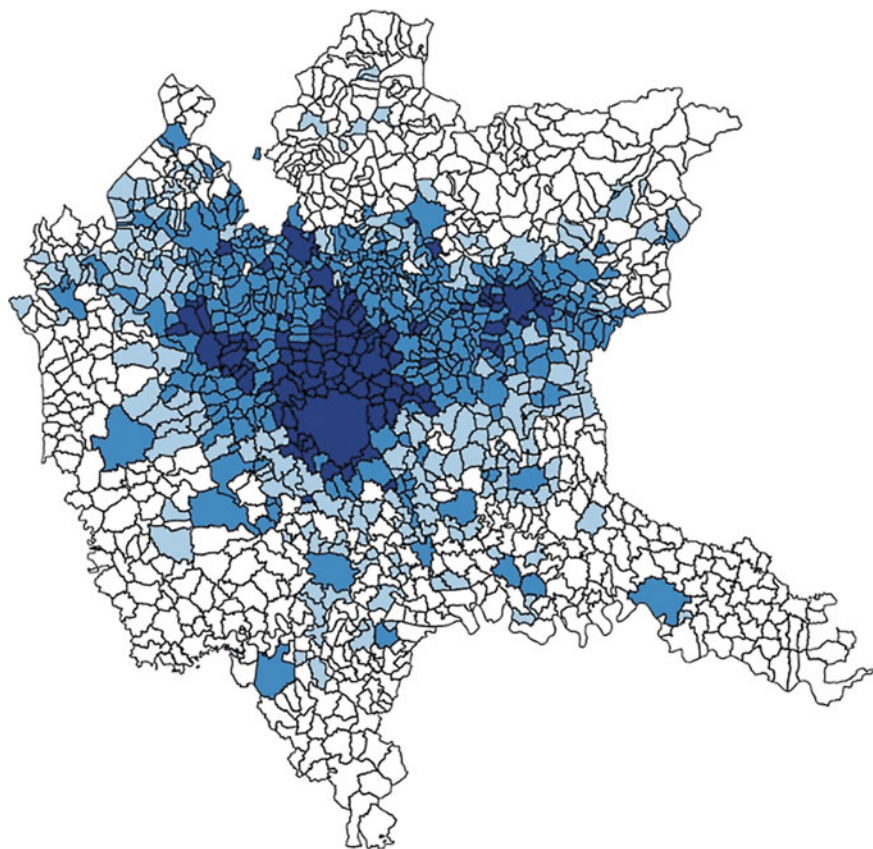
The dynamics of employment in metropolitan areas in Italy, does not present better performance in relation to the national values for either total employment or for manufacturing employment. The values of employment changes differ among the various metropolitan areas: only Rome and Milan present a better performance for total employment in comparison with the national average, and only Rome and Naples present better performance (albeit with negative rate of growth) for manufacturing employment in comparison with the national level, whereas Milan and Turin present very negative performance for manufacturing employment (cf. Table 2). This simple table is already sufficient to eliminate the hypothesis of an urban and metropolitan recovery over the last 10–15 years.

We can consider the Milan metropolitan area in more details.

### *Changes in the Milan Metropolitan Area*

Several changes occurred in the Milan Metropolitan Area (MMA) over the last decades, and especially in the last one. Here it is necessary to address some crucial issues which concern the extension of the metropolitan region, the type of relationships between the inner part of the region and the peripheral ones, changes to economic functions, and new conditions in the metropolitan labour market.

The extension of the Milan Metropolitan Area (MMA) is quite large, because it includes most of the Region of Lombardy and even some of its neighbouring provinces (Novara and Verbano-Cusio-Ossola in western Piedmont) (cf. even the OECD definition in OECD 2006). Resident population density is very high in the inner part of the region (cf. Fig. 10), whereas the dynamics of both resident



**Fig. 10** Density of resident population in Milan urban region. The average density for the Urban Region is 534 in./Km<sup>2</sup>. The lightest colour of the maps refers to a value lower than 250, the darkest colour refers to a value greater than 1500

population and working population are stronger in the peripheral areas of the MMA,<sup>4</sup> especially in the southern and eastern areas (cf. Table 3; Figs. 11, 12). Population growth is therefore higher in peripheral areas than in the inner part of the MMA, and this also explains the progressive extension of the MMA.

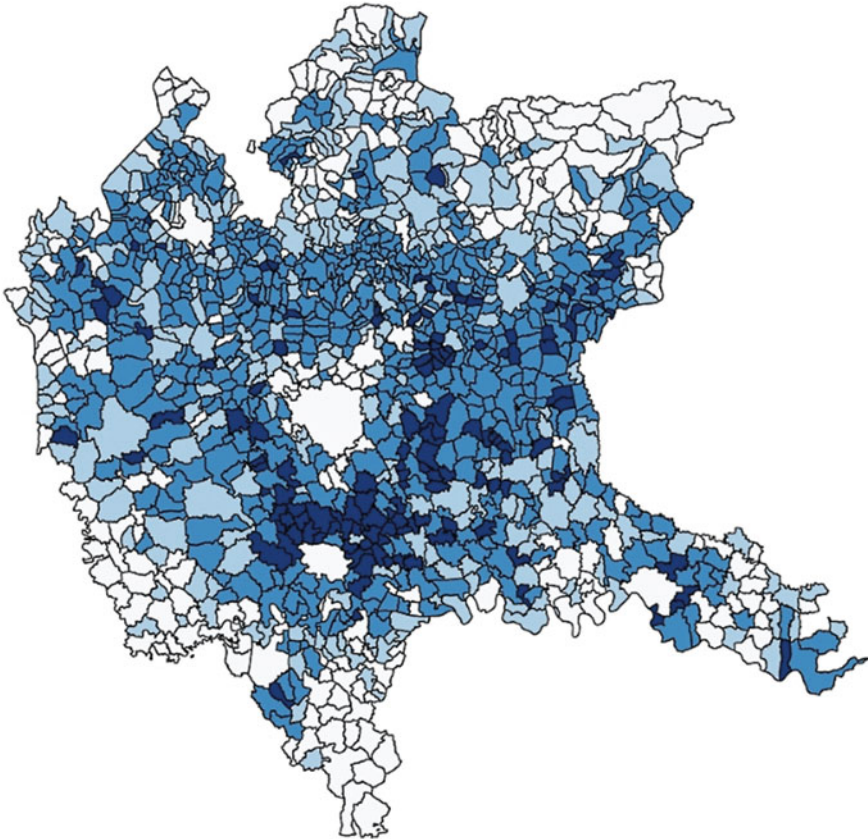
However, it is interesting that, at the same time, peripheral areas attracted most of the working population, whereas the dynamics of employment is directly linked with the centrality of the MMA (Table 4; Fig. 13). Table 4 clearly shows the

<sup>4</sup>In Tables 3, 4 and 5 the data for peripheral areas of MMA are referring to the four areas (Vimercate; western Brianza, Magentino-Abbatense, Adda Martesana) which present the highest values of demographic change (within the 11 areas of the restricted definition of MMA, within the narrow limits of the provinces of Milan and Monza-Brianza) in the period 2001–2011.



**Table 3** Demographic changes in the Milan Metropolitan Area (2001–2011)

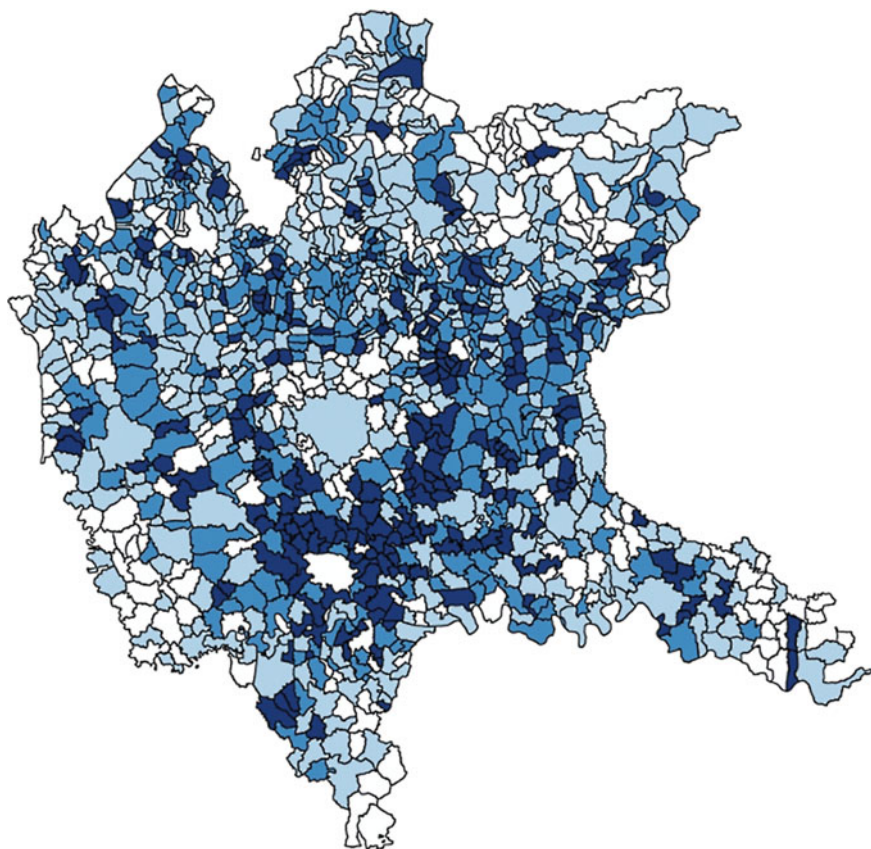
The Municipality of Milan	-1.1%
The Province of Milan	+3.3%
The urban region	+6.9%
4 Peripheral areas in MMA	+12.6%
Italy	+4.9%



**Fig. 11** Dynamics of resident population in the Milan urban region. The average for the urban region is +6.88%. The lightest colour refers to a negative percent value, while the darkest colour refers to a value greater than 25%

inverse relationships of the working population and employment with the centre-periphery ranking in MMA.

The change in the centre-periphery relationship is, then, quite ambiguous. It is apparently reinforcing the central role of Milan and the inner part of the MMA, but

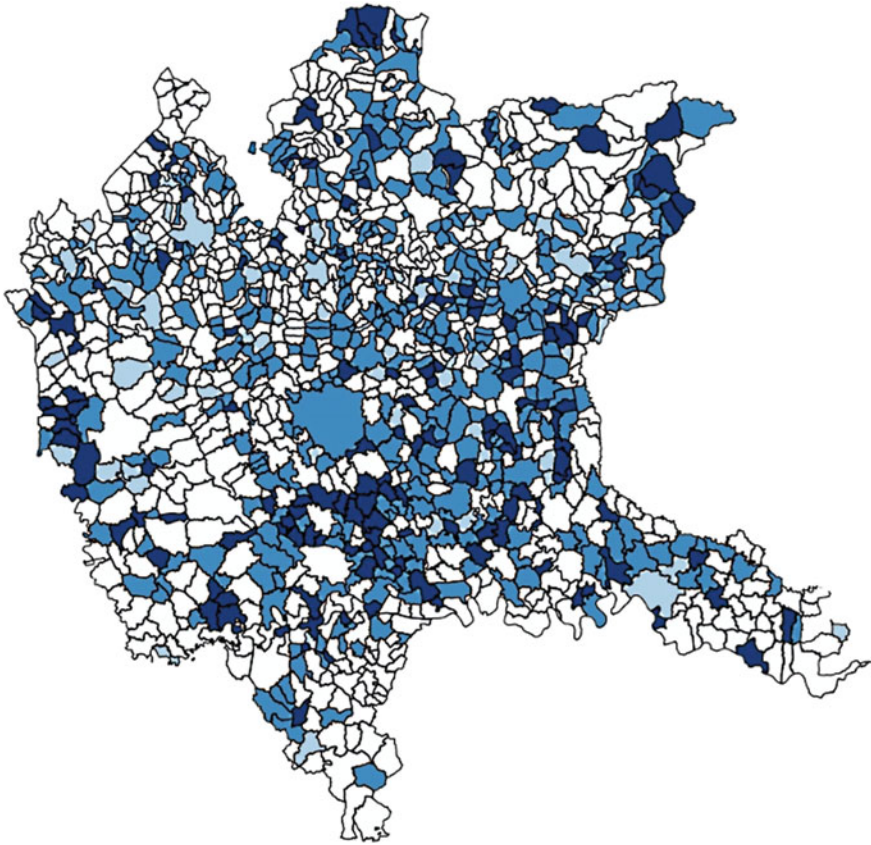


**Fig. 12** Dynamics of working labour force. The average for the urban region is +6.89%. The lightest colour refers to a negative percent value, while the darkest colour refers to a value greater than 20%

**Table 4** Working population versus employment % change (2001–2011)

Areas	Working pop.	Employment
Milan Municipality	+1.2	+9.2
Milan Province	+2.9	+5.0
Urban region	+6.9	+2.7
4 periph. areas	+12.6	-2.3
Italy	+9.5	+3.0

at the same time there is a clear attraction of population and working people toward the most peripheral areas. We need to continue to present the main results of the territorial disaggregate analysis of economic and social transformations of the MMA to try to arrive at some final conclusions later on.



**Fig. 13** Dynamics of employment in the Milan urban region. The average employment change for the urban region is +2.69%. The lightest color refers to negative percent value, while the darkest colour refers to values greater than 25%

**Table 5** Employment rate per sub-areas in the Milan Metropolitan Area (2001–2011)

	Tot. Em./ Pop.	Ind./ Pop.	Trade/ Pop.	Tert./ Pop.
Milan	71.1	8.6	10.1	52.4
Province	51.7	11.0	8.6	32.2
Urban Reg.	41.7	12.9	6.9	21.9
M. Per.	29.1	12.2	4.9	11.9
Italy	34.1	10.0	6.0	18.1

As far as concerns the change in economic functions of different sub-areas within the MMA, Table 5 clearly shows the incredible difference in employment rates between the municipality and the province, on the one hand, and the values in

**Table 6** Employment changes per sector in MMA (2001–2011)

Areas	Total	Ind.	Trade	Tert
Milan Mun	+9.2	-10.2	+5.3	+14.0
Province	+5.0	-18.6	+5.9	+16.3
Urban R.	+2.7	-16.1	+8.4	+16.2
Italy	+2.8	-13.5	+11.6	+11.8

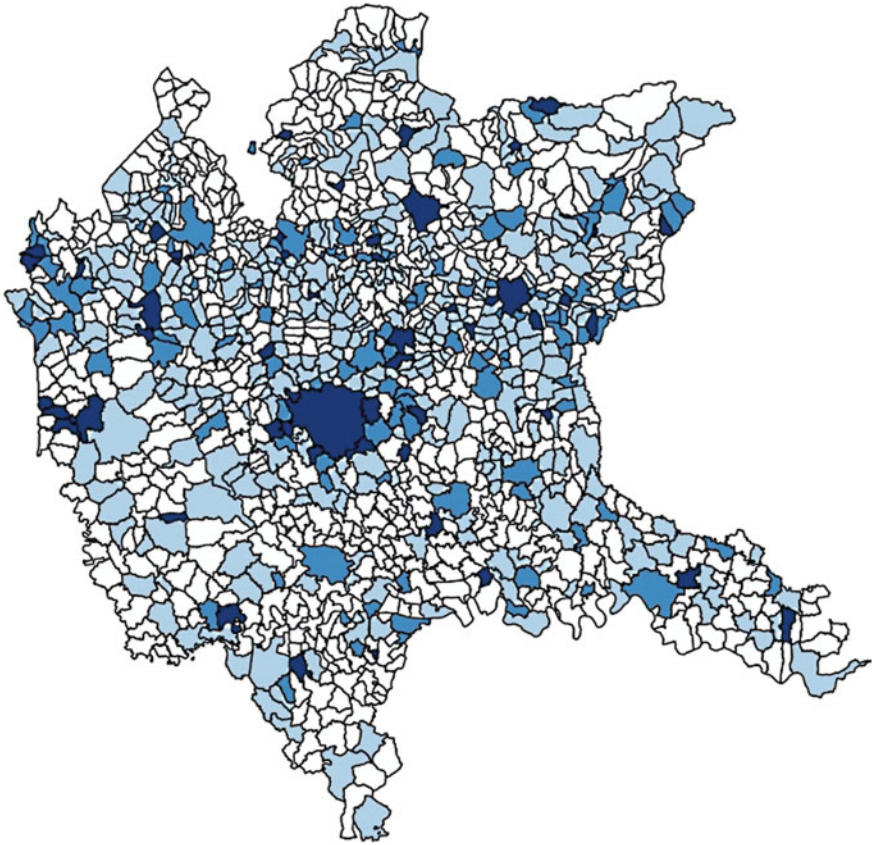
the urban region and peripheral sub-areas in the MMA, on the other. Milan and neighbouring municipalities have a very high employment rate for total employment and especially for tertiary (excluding trade) employment. At the same time, however, the dynamics of employment in different sectors show an inverse relationship with centrality: trade employment, especially, and even tertiary employment increased more in the urban region, especially outside the province of Milan (cf. Table 6).

All this means there is not only attraction of employment and increasing commuting to Milan and the inner part of the MMA but even a great increase of employment in some parts of the external rings around Milan, covering empty spaces in areas with low levels of trade and tertiary employment, even using the available labor force (both due to economic restructuring and deindustrialization) in the old industrial semi-peripheral areas.

There is, then, a territorial diffusion of trade and tertiary services in the urban region of Milan. This means we are facing a sort of diffuse tertiarization (Capitani and Garofoli 1985), following the previous process of diffuse industrialization that occurred in the 1970s and 1980s. There has been, then, a change of economic functions in several semi-peripheral sub-areas within the MMA which squandered their previous specialization in industrial production and their specific competences, causing them to lose economic autonomy. This phenomenon cannot be interpreted as an upgrading of the economic structure, but rather must be considered primarily a consequence of the disintegration of existing local productive systems.

Employment dynamics show a progressive shift towards the southern areas of Milan and the northeast of the urban region (towards Bergamo) (cf. Fig. 13). All this has created an enlargement of the metropolitan labor market, as well as the introduction of new conditions to how it is organized. This phenomenon has been the consequence of both increased commuter traffic into Milan and the inner part of the metropolitan area (cf. net commuting flows in Fig. 14) and increasing competition among workers in the regional labor market.

If we consider at the same time the territorial differentiation of the dynamics of the working population (cf. Table 4; Fig. 12) and the territorial distribution of the employment dynamics (Table 6; Fig. 13) we can glean that the employment rate in the different sub-areas of the MMA (cf. Fig. 15) is the consequence of large flows of migration to poorer (and cheaper) peripheral areas of the MMA. The enlargement of metropolitan labour market means new opportunities for increasing competition among workers in the regional labour market, along with a squeeze on wages and working conditions. The economic and social transformations in the MMA and the

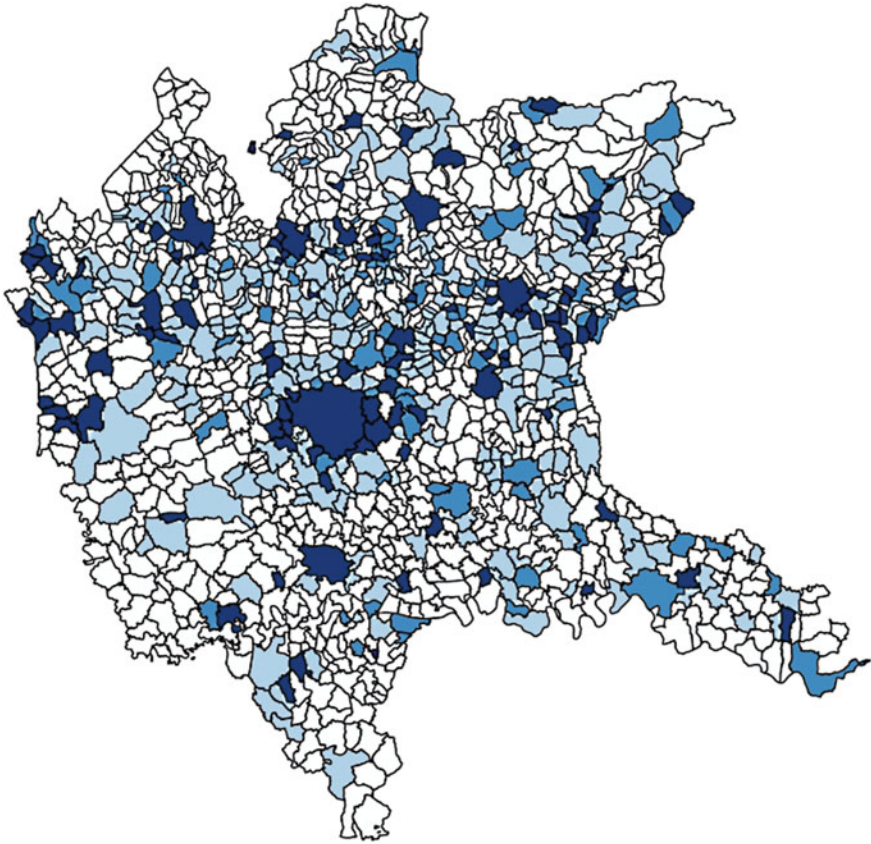


**Fig. 14** Net commuting flows in Milan urban region. The lightest color refers to high values of net outgoing commuting flows, while the darkest color refers to high values of incoming net commuting flows

employment increase in the inner part of the Milan area is then the consequence of a great increase of the population of working poor,<sup>5</sup> anything but an upgrading of urban functions. The case of the Milan Metropolitan Area thus stands in opposition with the positive and perhaps rhetorical interpretations of recent changes in other metropolitan areas in Europe and elsewhere, which should have kept all the advantages of the diversification of employment (Martin et al. 2016; but in general see the articles in the special issue on “Resilience Revisited” of *Regional Studies*, edited by Bailey and Turok 2016).

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<sup>5</sup>Cf. even the reduction of elderly and retired people in Milan and central sub-areas of the MMA in the last ten years.



**Fig. 15** Employment rate (employment over resident population) in the Milan urban region. The employment rate average for the Urban Region is 41.69%. The lightest colour refers to municipalities with values lower than 30%, the darkest to municipalities with values greater than 50%

## Some Provisional Conclusions

The MMA has, then, assumed a form which is possible to define as “diffuse metropolis” or “horizontal metropolis”. The semi-central and semi-peripheral areas have in fact lost their capacity for economic and social autonomy.

The enlargement of the metropolitan area is not the consequence of the introduction and development of new manufacturing sectors which work as “motors” with multiplier effects of other interconnected activities, but only as the consequence of a general restructuring of the labour demand of metropolitan firms and of the regional residential model introduced in the last several decades, which implies attraction of increasing commuting flows from peripheral areas.

We have seen how the territorial dynamics of the working labour force and employment show an inverse relationship.

The growth rates of trade and tertiary employment are higher in semi-peripheral areas of the Milan Urban Region, reducing the differences in the employment rates of the two sectors, covering empty spaces in a great machine (in a sort of diffuse “tertiarization”) which controls regional resources without any capability of local and territorial autonomy.

The disintegration of territorial industrial production continued over the last 15 years, producing a progressive “desertification” of the oldest industrialization process, with huge quantities of empty and wasted infrastructure and industrial space. This phenomenon has been followed by the disintegration of business networks and an increasing lack of awareness of the challenges and opportunities of launching shared investment projects at local and territorial levels.

The need for new public investment and new public-private partnerships to launch new investment projects, those focused on social issues but also in the economic sense are more and more crucial. Only these new projects could change the perspectives and the opportunities for private involvement and the orientation of firms toward social responsibility.

Integration is the key concept and word for a new vision for the re-composition of the economic and social system: integration of the productive cycle, horizontal integration among local firms (and even with those located in the neighbouring areas), integration between economy and local society to restore territorial identity and the general awareness of private and public actors about the problems to be solved and on the opportunities to be seized.

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# What Is Happening to Industrial Districts?



Michele Cerruti But

## The Multiform Territorial Reindustrialization of Industrial Districts

Looking at Industrial Districts (IDs) from a territorial point of view means studying one of the most important specifically Italian economic models, the “fundamental basis” of the Italian economy (Alberti 2009). “Though being a worldwide phenomena, IDs have typically characterized Italy since the 1970s, becoming a peculiar trait of its economy and a relevant source of socio-economic development and growth. (...). According to ISTAT, Italy comprises 199 IDs, operating mainly in the fashion, furniture and food industries, that is, those industries which are conventionally labelled as ‘Made in Italy’. In particular, IDs located in northeastern Italy are considered models of economic efficiency, innovative output, and high employment levels (...). The relevance of the model of ID for the Italian economy and for Italian society has also engendered an intense wealth of research on the topic, contributing most in what has been addressed as the Italianate [sic] variant of the Marshallian industrial district (Markusen 1996; Alberti 2009). According to Giacomo Becattini’s definition, an industrial district is “a socio-territorial entity characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded area” (Becattini 1990). Nevertheless, the Industrial District is also known as a dissipating model because of its inclination to consume and lay waste to land. (Becattini 1973 calls it “*campagna urbanizzata*”; Indovina 1990; Boeri et al. 1993). These features have generated many different situations, varying according to origin, history, placement, types of production and mode of ground use (Becattini et al. 2009).

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The crisis (Bauman and Bordoni 2015) and regeneration that have affected industrial districts over the last fifteen years highlight the sheer variety of ways of transforming territories (Bellandi and Caloffi 2014). Because of this multifaceted way of coping with change, it is finally possible to draw a completely new geography of productive industrial territories, drawing attention to the chosen models of transformation.

The aim of this essay is to study this variety and point out the main issues pertaining to each case. This contribution to the research will start out by exploring four major Italian industrial districts: Biella, Matera, Pistoia and Veneto are the case studies, chosen according to two parameters—(i) each case has to face relevant and very specific issues; (ii) each case needs to be supported by extensive literature (both urbanistic and economic). The hypothesis the work implies is that reindustrialization processes can be observed focussing on the transformation of an economic model.

## Four Case Studies

### *Biella: The Surplus District and Minor Vivacities*

The Biella Wool District is one of the oldest districts of its kind in the country. Its origins date to 1816 when a special loom spread throughout the territory and changed the way textiles were produced (Maitte 2009). This event launched the Industrial Revolution in Italy and soon became a model of local economy together with Schio in Veneto and Prato in Tuscany (ibidem).

Since 2001 Biella has lost 50% of its economic weight. This entails radical change because the number of enterprises has dropped from 3000 to 1000 and the district workforce from 30,000 to 15,000 (Maggioni 2008). Together with the economy, local demographics and the welfare system have changed a lot: the aging population, particularly in the mountain villages surrounding the centre, is a real social problem, generating a series of needs (Sulis 2011) which the welfare system is no longer able to cope with: long distances, bad streets and roads, healthcare and education are just a few of the big challenges Biella is facing (ibidem). Nevertheless, the stalemate has helped strengthen the remaining firms. The active ones are even stronger than before, while the district is shrinking around them, leaving a huge amount of urban overstock in the form of spatial and infrastructural surplus, which can apparently no longer be recycled (Cerruti But 2015). In spite of this stagnant situation, in an effort to deal with the inherent social problems, the district has generated an inner network of “minor vivacities” (Cerruti But 2014). One can speak of a minor welfare system created by many small associations, private institutions and groups of people who are reorganizing the territory and trying to respond to social demands. A promising company recovery welfare system is also part of this new “minor welfare” structure.

Two main issues can be observed in Biella: on the one hand the district is shrinking within a wider territory, leaving behind surplus space and infrastructure. While this space and infrastructure could be the frame for new growth, the crisis seems to have paralyzed projects and policies. On the other hand, the “minor vivacities” seem to be restructuring the welfare system from the bottom up. If this be the case, it means that, while the territory is losing parts, its society appears stronger and evermore active.

### ***Matera: The Weak District***

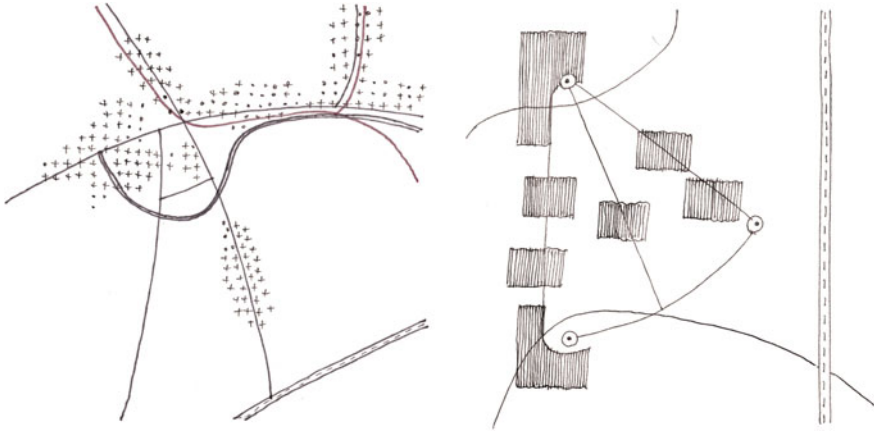
The Matera Upholstered Sofa Industrial District is an interesting district model, particularly so for its being located in southern Italy. According to Gianfranco Viesti, this sizeable district, straddling the two regions of Puglia and Basilicata, came into being in the 1950s, thanks to several local entrepreneurs who started industrializing some artisanal processes (Viesti 2000). A key role in the growth of the district was played by Pasquale Natuzzi, who was the driving force behind a real industrial process in the 1970s and 1980s (Viesti and Luongo 2013). The district experienced its heyday in the second half of the 1990s, when it had one of the highest shares of exports in Italy (ibidem).

The crisis of the beginning of the century led to the complete reorganization of the district, with major delocalization processes and a change in the production system, with many negative implications: exports decreased by 65%, from €1,272,000 in 2002 to €421,000,000 in 2011 (Greco 2012). These effects were felt by the local small and medium-sized enterprises together with the two main companies of the district—Natuzzi suffered a huge drop in production, and Nicoletti went bankrupt (Viesti and Luongo 2013).

The main causes of this decline appear to be in a so-called “individualistic temptation” (Greco 2012) together with a “territorial dissimilarity”.<sup>1</sup> Here the industrial system reorganization has generated a territorial dissimilarity which has split the district into two entities following two distinct policies. This feature, which was once one of the key elements of the district, is now a problematic weakpoint. With virtually no coherent policy framework, the fate of the district ultimately hangs on the single companies’ evolution or collapse. In a context of reshaping, the transition seems to be difficult because of the “individualistic temptation” of some of the biggest firms along with what are seen to be overbearing “collective demands” (Greco 2012). As said, the main issue is that the formerly strong and well-connected Industrial District has become inherently weak (Fig. 1).

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<sup>1</sup>This is one of the weaknesses the analysis of the Osservatorio Nazionale dei Distretti Italiani is pointing out. <<http://www.osservatoriodistretti.org/node/345/distretto-industriale-del-mobile-imbottito-di-matera>>.



**Fig. 1** Author's diagram of Biella industrial district and of Matera industrial district

### ***Veneto: A Horizontal District Without Territory***

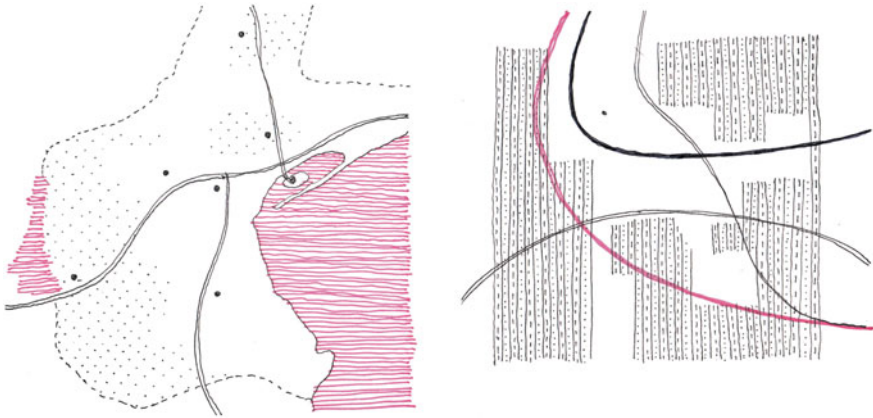
During recent years, in Italy a new concept of Industrial District has been defined by local policies. The “meta-” or “thematic district” is a completely different concept of ID because it has no strong relations with the territory, rather it is theme specific, where a territorial net links places and enterprises located far apart. Nevertheless, despite its being quite different from an industrial district, the performance of the MD is evaluated in much the same way, and interestingly some MDs have the best economic performances of all Italy (Unioncamere 2014).

Whilst the Industrial District maintains a vertical interpretation of the territory because of its local economic structure (Becattini 1990), by its very definition the MD tends to exclude and reach beyond its local territory (thus to some extent falling short of Becattini’s definition), experiencing the territory horizontally, its policies and relations being totally horizontal.

Indeed, in the Veneto Food Meta-district, the best performing industrial district in Italy in 2014, the role of the territory is fast disappearing. The district is formed by a collection of subscriber companies. Single subscriptions replace proximity, one of the most important features of the Industrial District. The Meta-District is comprised of enterprises dotted across the territory and thus not well-connected physically. A horizontal metropolis in need of infrastructure.

### ***Pistoia: The Janus Faced District***

The Pistoia Flower and Garden District is one of the largest in Europe. While at the beginning of the twentieth century only 50 ha were cultivated, in the 1960s that



**Fig. 2** Author’s diagram of the Veneto food meta-district and the Pistoia district

figure rose to 3000 ha, and now stands at over 5000 ha, comprising 1200 enterprises and more than 5500 operators and workers. Fifty-five percent of the district’s output is exported.

Over the past few years, crisis, international market competition and natural disasters have provoked many problems in this as in other districts, triggering ensuing reorganization. The territory is in actual fact divided in two, between the large and powerful stakeholders that operate alone and that own most of the territory (one enterprise owns almost 10% of all cultivated land) on the one hand and on the other the smaller companies united under a producer’s association. This separation also features in research and innovation: the large enterprise carries out its own research and innovation and has its own training resources, while for its part the consortium has built its own research center (Cespevi). The division is becoming increasingly apparent and has completely changed the shape of the territory. The consortium and the larger enterprises have very different economic statuses and very different goals, tools, needs and ideas for the future. Thus one has a two-faced district with two different ways of economically relating to the territory, underlying a totally different definition of that district (Fig. 2).

***The Reindustrialization of the Horizontal Metropolis***

Transition and the pressure of reindustrialization are leading the Italian Industrial District system to a complete reorganization. The new district models can be weak like in Matera, they can be divided, as in Pistoia. Elsewhere the territory recedes in importance with individuals coming to the fore, like in Veneto, while elsewhere still the district is supported by a dense welfare network provided by companies and associations, as in Biella. The local economic structure is less cogent, and the

territory seems to play a minor role in economic growth. Even though the Industrial District model has been re-described, re-defined, re-regulated and seems to have reached a distinct new conceptualization,<sup>2</sup> the territories instead are a multifaceted collection of very different situations and reveal a noteworthy complexity (Bianchetti 2015). While in the 1980s and 1990s IDs were one of the key components of the Horizontal Metropolis in Italy, because of their unique features and their common way of coping with territories (Indovina 1990; Boeri et al. 1993), nowadays the great variety of responses to the demand for change are making the IDs more and more dissimilar from each other. In the absence of policies, the reindustrialization processes make the horizontal metropolis more vertical.

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<sup>2</sup>See i.e. Bellandi and Caloffi (2012), Brancati (2012), Calafati (2012), Davezies (2012), Arrighetti and Traù (2013), Bronzini et al. (2013), Rullani (2013), De Marchi and Grandinetti (2014).

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# Towards a Productive Mesh of the European City-Territory



**Roberto Segà**

With the aim of identifying different perspectives for the future of territory—starting from the dimension of production in the context of diffuse urbanization—this Ph.D. research intends opening a critical reflection on the dynamics of territorial polarization and marginalization underway in Europe. According to the last European Competitiveness Report drawn up by the European Commission, production is still to be considered as an engine of prosperity linked to the real economy and to the development of the territory; thus the need for a new re-industrialization program for Europe. In recent decades production has been one of the territorial elements exposed to more extensive changes, while at the same time it has become one of the elements least subject to reflection in terms of spatial construction of the territory. In order to avoid the risk of a dualistic model of development, that opposes urban areas to productive and secondary territories, this article claims the need to include production in the debate on the structural specificity and potentialities of the European city-territory<sup>1</sup> as one of its constituent elements.

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<sup>1</sup>The expression “city-territory” was used in Italy in 1962 by Piccinato, Quilici and Tafuri to describe not only the widespread urban condition of some territories, but also to focus the attention on a possible method of development necessary to define a new urban dimension.

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## The Role of Production in Constructing the City

The setting up of production and manufacturing facilities in the outskirts of existing cities or within the limits of industrial cities drew workers from the countryside, leading to the consequent abandonment of marginal territories. On the other hand, the decentralisation of production in peripheral, outlying places—due to the cheap offer of labour or to functional reasons—led to different phenomena of urbanization.

The need to solve—in a hygienist way—the large imbalances produced by the cities of the industrial revolution, led to the devising of urbanism based on zoning (CIAM), leading to the recognition and separation of the different materials that compose the city. In 1918, between Lyon and St Etienne, Tony Garnier devised his idea of the “*ville industrielle*”, where he shows how different functions (including manufacturing and production), “[...] give rise to different principles of settlement and different relations with the topography and the main infrastructures. Thus zoning became a design tool of urban planning, not only an attempt to separate and adequately distance the different functions according to their degree of compatibility or incompatibility” (Secchi 2005). Despite the ambitions of spatial continuity and balance, zoning quickly became a planning instrument for fragmenting the territory and isolating those activities that are incompatible with residential dwelling (such as the industrial zones), in actual fact depriving production and manufacture from the key role it had hitherto played in constructing the city up until that moment in time.

Over time production has abandoned the city. There are many spatial reasons why this has occurred: for instance because of the transport congestion due to an incompatibility between goods traffic and urban traffic, the given dangers and drawbacks underlying particular production processes (pollution, cooling systems, noise etc.), or due to economic logic tied to land value. Hence we have witnessed the conversion of factory buildings into lofts, museums, and universities or more simply into office blocks and new residential plots subsequent to demolition. These seem the only economic operations in which policy-makers are able to deal with the cumbersome physical legacy of areas of production and factory districts. One of the issues of the change in strategy is raised by great scale of the plots, the presence of heavy constructive materials or of dedicated infrastructure like rail and technical networks, or indeed the possible pollution of the soil. Re-cycling projects destined for public use, or programs of *mixité* between residence and production, remain exemplary and not everywhere feasible. At any rate, it is clear that productive and manufacturing activity, in a Post-Fordist economy, are seen to be incompatible with the traditional idea of the compact city.<sup>2</sup>

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<sup>2</sup>We quote here as reference some Italian press and institutional reports that describe the dramatic situation of the secondary sector: (Istat 2011); (Valori 2014); Il Sole 24 Ore (Bricco 2015); Nomisma (De Nardis 2015); (Oggioni 2015).

One of the major reasons is precisely the loss of relevance of the real economy within society (Harvey 1989). Both, urban growth and production, have become evermore hostage of financial and fiscal rules tending towards a marked detachment from the physicality of territory.<sup>3</sup> However, production has the capacity to bind itself to the territory, drawing strength from it, at the same time ensuring its economic development. The relationship between city and production—that today appears to have lost its spatial aspect—is on the contrary still present and indeed essential in terms of economic and social issues. According to Calafati, “the territorialisation of the investment depends both on the (economic) relational context of the enterprise and on the (social) relational context of individuals working for that company” (Calafati 2009). A new form of growth driven by the concept of wellness, could introduce new standards regarding the territorialisation of enterprises and the capacity of a site to attract investments.

## **Production and Manufacture Within the European City-Territory**

Production can be both active element in constructing urban dispersion (Indovina 2013) or a passive element when, over time, it has found itself surrounded by urban growth (Figs. 1 and 2). If today it seems that production is no longer part of the traditional cityscape, it is on the contrary one of the constituent elements of the European city-territory. Looking at the maps, it is evident that most of European productive and manufacturing sites are located in the outskirts of cities or in urbanized territories between the same.

If the purpose is to maintain and encourage the presence of manufacturing in Europe,<sup>4</sup> the relationship between production and a new condition of urbanity should be studied and designed. By analysing closely the territorialisation of production in different regions, we can recognize and conceptualised at least four categories that are followingly detailed (Fig. 3).

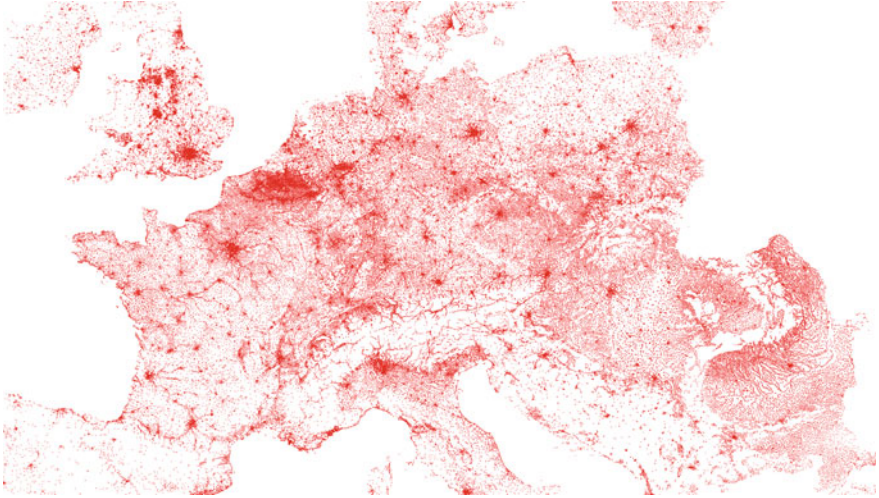
### ***Industrial Suburbs Serving City-Centres***

The localization of production complies with the traditional model of land value. Activities tend to locate where land costs are lower, or devalued by the presence of heavy infrastructures or by the proximity to low quality urban material. Depending on the growth of the city, production activities tend to be located in peripheral areas

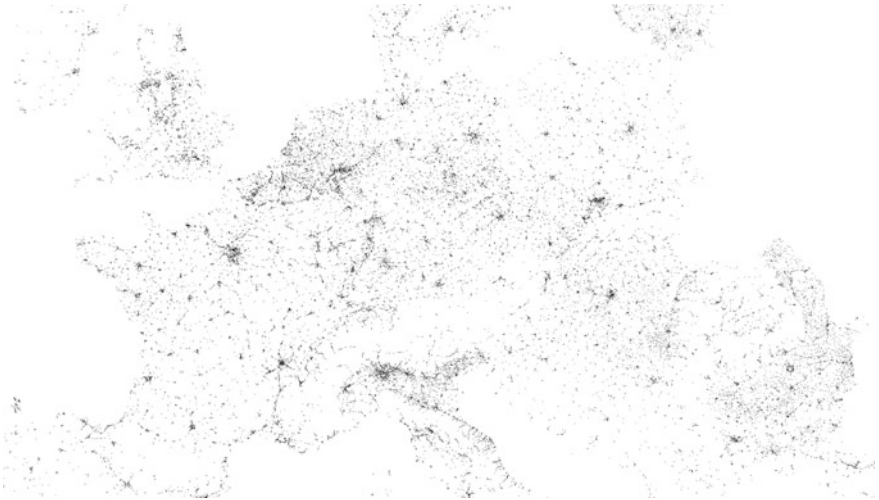
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<sup>3</sup>“In the Era of globalization, companies are no longer ingrained but anchored in a territory” (P. Veltz).

<sup>4</sup>“For a European Industrial Renaissance” European Commission (2014).



**Fig. 1** Urban areas in Europe. The red shows the residential dwellings. Elaborated by the author. *Data* Corine Land Cover 2006, EEA



**Fig. 2** Industry in Europe. The productive activities are marked in black. Elaborated by the author. *Data* Corine Land Cover 2006, EEA

increasingly far away from the city-centre, occupying agricultural areas. For logistical reasons these are located close to efficient motorway junctions, thus allowing them to be less affected by urban traffic congestion. Their relationship with the city is sometimes conflicting, anonymous but at the same time indispensable.



**Fig. 3** Territorialisation of production in Europe. Drawn up by the author

Examples of this category are the large and medium-sized cities isolated in the territory and having a precise, concentric shape (Ile de France).

### ***Industrial Corridors Between City-Centres***

Production grows along the main interlinking routes between existing cities. It is one of the constituent elements of a particular pattern of settlement. Its structure is linked to the presence of a strong linear road infrastructure (seen as pipes). It may also be tied to a particular morphology (for instance the presence of valleys, canals or rivers). Production and manufacture takes advantage of the visibility deriving from its location along the infrastructural corridor to advertise its business. It is in fact essential for the economy of the territory where it is located. It is often subject to tax and legislative concessions by the local government to ensure its presence.

Examples of this category are the territories of: Valais, Via Emilia, the territory along the Rhone river between Lyon and Avignon.

### ***One-Factory Cities***

Cities reached a crisis together with their factories. Cities forced to transform their economies following the crisis in the economic groundbase. The massive closure of production and manufacture has left important traces in the structure of these cities. Infrastructures, buildings and whole parts of the city have been redesigned and rationalized following the drop in production and manufacturing facilities. There are experiments of ‘functional *mixité*’ and ‘re-cycling’ projects made possible by a strong political will for urban renewal.

Examples of this category are the cities of: Barcelona, Bilbao, Manchester, Lyon, Karlsruhe, and Turin.<sup>5</sup>

<sup>5</sup>This category of “one-factory cities” and cities listed as examples are drawn from Calafati, from his book “Economie in cerca di città”.

### ***Productive Diffuse Territories***

This category refers to diffusely urbanized territories. Where production and manufacturing facilities are present alongside other materials that comprise the territory. This is accompanied by considerable road network and by the presence of a high level of access to services. In some Italian cases, production even became the reason for the urban sprawl in the first place. In these spaces, each act of territorialisation of production at the same time leads to the redesign of the selfsame city, constituting a step towards the construction of a territorial figure denoted as city-territory.

Examples of this category are the territories of: Veneto, the area around Milan, Flanders.

### **Re-manufacturing Europe: A Project for the Horizontal Metropolis**

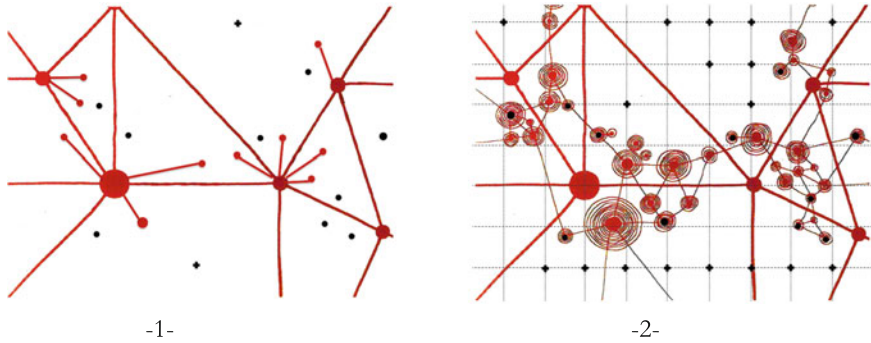
“The city after the economic crisis will be radically different from the city as we know it today” (Secchi 2013).

Today, Jeremy Rifkin introduces the advent of the “Third Industrial Revolution” (Rifkin 2011): a democratization of manufacturing, based on renewable energy resources, characterized by the presence of new ways to use, exchange and store energy. The possibility of storing energy and exchange it, using it at different times of day and year would in fact have a considerable spatial impact on the organisation of territory. Without trying to rely on technical solutions to solve all our problems, it becomes central to reflect on new scenarios of production in areas of diffuse urbanisation, using the energy crisis and climate change as stressors for interpreting new trends in production, transport infrastructure, and from the possibility offered by a delocalized energy production.

In a moment in time when technological progress is ushering in changes in manufacturing and production processes, all those involved in planning the city-territory, in order to recover the spatial role of production in constructing city, need to go back to closely looking at the spatial relations between production and other urban materials nearby.

### ***Towards a Productive Mesh of the European City-Territory***

The relationship between production and others materials that make up the city-territory is, quite often, the result of coincidences and necessity rather than deliberate planning. On the contrary, the hypothesis corresponding to the question posed by this research study, is that production affects, or may affect, the



**Fig. 4** The polarized model versus a more horizontal growth pattern. Drawn up by the author. In the diagram on the left, centres interact with each other, but peripheral areas and territory between poles still depend on the ‘city-pole’, to which they refer in order to access a larger scale of relations. Secondary territories are isolated and suffer from a social and economic marginalization. In the diagram on the right, a lower hierarchy between elements is ensured by a complex pattern of overlapping relationships. The heterogeneous elements work in balance and spatial continuity without internal contradictions

functioning of a city-territory. Hence, planning and designing its relation with the urban areas and the territory in general could be a way of intervening on the specific structure of each single city-territory. In a period where latching onto the economic recovery becomes essential, an opportune growth strategy, capable of enhancing the endogenous potential of the territory through the design of a European ‘productive mesh’ would be desirable, rather than that the indiscriminate increase of the density in rural and suburban areas. We are referring here to a new physical support of development that allows inhabitants of the European city-territory to enjoy all the heterogeneous elements comprised in the same, without suffering the differences of not living in a compact traditional city (Fig. 4). In this scenario the condition of marginality of the city-territory would hence no longer be superseded via logics of polarisation and densification, but thanks to the implementation of a productive support capable of resolving—by way of ‘prototypes of complementarity’ between urban elements and production—the ‘functional incoherencies’ that the project of the compact city has failed to solve. A point which in actual fact has caused and led to the exclusion of productive and manufacturing activities from the landscape of the traditional compact city.

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# After Tomorrow: Three Perspectives on Urban Wastelands



Cecilia Furlan

## Excess in Scarcity

Across the world a different urban form is arising. Due to human population growth and urbanization demands the European urban tissue has continued to grow exponentially over the past several decades, from the middle of 1950 the area subject to impermeabilization and soil surface sealing has increased 78% (EU 2012). Since 1965 the European population living in a non urban and non rural condition has increased by 113% (EEA 2006). This original urban form has been widely described since the late eighties. Its distinctive spatial features of agricultural land and non agricultural economic activities create an original mix: the city-territory (Viganò 2014). Its heterogeneous character and its isotropic nature reveal liveable features, obliging a reflection on heterogeneity as a value, in which different elements can find synergies, and to envision a successful future of this distinctive model of spatial economical and social organization. Nevertheless, the European city-territory has to deal with three main challenges: land resources are finite; the territory is under the pressure of climate change dynamics and energy requirements and is subject to the exponential impermeabilization of fertile land. Hence there is a consequent risk of losing the richness of the diffuse model for a more compact one. For this reason isotropy cannot just be registered as a condition but as a project, dealing with future dynamics in a highly urbanized territory.

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PhD 2017: “On Worn out landscapes. Mapping wasteland in the Charleroi and Veneto central territories”. Supervisors: B. de Meulder, P. Viganò.

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In this context wastelands represent a resource. A considerable number of sites built in the nineteenth and twentieth-century, namely former military installations, out-dated infrastructures, warehouses, now lie empty (Secchi 2007). They naturally result from the conclusion of different productive cycles and waves of horizontal urbanisation (Berger 2006; Lynch 1990). Architects, designers and theorists have described this spatial condition in various way, as unused space (Lynch 1990), space of vagueness and uncertainty (De Solà-Morales 1995), “dross”, out of the structure space, that needs to be purposefully incorporated within systems. The current moment of transition raises two main issues. It requires a rethinking of the territory, which will surely function differently, and the protection of the green and agricultural environment, reusing previously developed landscapes instead of consuming new ones (Viganò 2014; Di Simini et al. 2013). This is especially true for former developed areas that are now abandoned or underused. Wasteland can indeed be revaluated and given new life, achieving a more sustainable urban setting (Loures 2014; De Sousa 2003; Portney 2003). Considering the heterogeneous character of the city-territory, the abandoned and underused spaces can be perceived as the starting point for future territorial projects, as an essential part of environmental and ecological reflections, and technological and energy developments. Based on these assumptions this article aims to reflect on three perspectives of reinterpreting wasteland in the city-territory.

## A Research Approach

The city-territory is a dynamic entity whose spatial features are “*permanently emerging*” and subject to constant modification (De Meulder 2008). It is important to assume that the processes of wasteland generation are grounded in space in ways that are both geographically and historically specific. Therefore, to access the previous issues, a multi-disciplinary study has been developed and tested on two case studies of 30 by 30 km each: the diffuse central area of the Veneto (PA-TRE-VE)<sup>1</sup> and the scattered region of Charleroi.<sup>2</sup> The grounding hypothesis reflects on the idea that different productive modes leave different traces in the territory, usually defined as wasteland; furthermore, it hinges on the idea that wasteland is a cultural value construction.

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<sup>1</sup>For Veneto Central area, the research defines the portion of the territory, located in northeastern Italy, included between the Treviso, Castelfranco, Padua and Venice provinces. It occupies a surface of approximately 30 by 30 km, with roughly 2.6 million inhabitants.

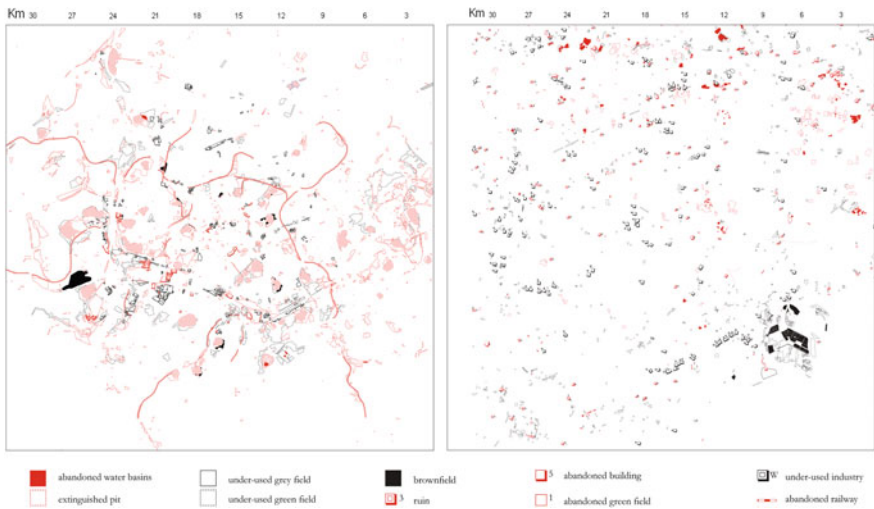
<sup>2</sup>The Charleroi territory is located at the centre of the Walloon region, Belgium. The metropolitan area covers an area of 1462 km<sup>2</sup> (564 m<sup>2</sup>) with a total population of 522,522.

## Wasteland

The proposed case studies look at wasteland as the result of two different and even quite opposite processes: the massive and heavy industrialisation in the Charleroi area during the last century, and the weak and diffuse industrialisation in the PA-TRE-VE over the last fifty years.

The heterogeneous collection of wastelands has become visible by the elaboration of different scaled analyses from a series of measured spaces of 1 by 1 km, to a construction of interpretative maps on a territorial scale (a portion of 30 by 30 km), based on direct observations and surveying (Fig. 1).

Even if diverse in location, material and form, they all fit within a similar wasteland concept. This issue imposes a different classification. Consequently, wasteland was mapped according to two main categories: *Underused spaces* (marginal and de-programmed areas) and *waste(d) spaces* (polluted sites, abandoned areas...) and other subcategories (De Carli 2013). According to this “waste code” two series of maps, one for each territory, were produced. Thus the two following maps emphasise the macro-forms and the micro-forms of wastelands recognisable in Europe: The large industrial platforms and infrastructures of the Charleroi region and the tiny dispersed elements of the PA-TRE-VE. The intrinsic nature and the territorial distribution of the revealed waste landscapes demanded that the possibilities of different approaches be considered in the study.



**Fig. 1** Wasteland landscape of Charleroi (on the left) and wasteland landscape of the Veneto Central Area (on the right)

## Contrast of Three Alternative Perspectives

Wastelands arouse mixed feelings. To some people they seem ugly and unpleasant (Amstrong 2006), and who wish they be wiped away and redeveloped. For others their vague character may provoke a sense of wilderness, representing the absent presences of the past and an imaging of stories of the future (Edensor 2005), or a rich playful environment, evoking a desire for temporary occupation (Unt and Bell 2014; Edensor 2005). Generally situated in advantageous locations near city centres or along waterfronts and supported by existing infrastructure, wastelands constitute environmentally impaired resources that need to be revaluated but not necessary reintegrated into the surrounding community (Curulli 2007). The question about the different values of such spaces becomes of interest when discussions over their future use arise. However, the complexity of wasteland is evident in the variety of ways in which they are described, both in literature and by designers and developers. The research identifies three principal families of urban design approaches reflecting three alternative perspectives on wasteland and the urban territory: an anthropocentric approach, in which man and his needs are at the centre, an ecological attitude, and a cyclical attitude.

### *Anthropocentric Perspective*

The first perspective assumes the wasteland's indeterminacy of function, program and design as a potentiality. In this view wastelands are perceived as potential spaces to be re-used to respond to human needs. These are territories of transition, whose meaning is derived from association (Curulli 2007). From Smithson to Guidi, passing by way of Hanson, several photographers have celebrated the poetry of the forgotten lands, revealing the peculiar materiality of the passage of time, the nostalgic beauty of each space. The peculiar physical condition and the in-between characteristic inspired designers and not only to a temporary re-appropriation of these spaces. Through time several kinds of projects have enabled the definition of industrial wasteland in different ways: as space for re-use by revealing existing relationships, as space to de- and re-construct, as ruin and memorial space (Jackson 1980) and as *terrain vague* (De Solà-Morales 1995) amidst the rationally planned urban territory. The option of a re-connection with the surrounding landscape was exemplarily expressed in the Ruhr region (DE) with the Emshar Park initiated by International Building Exhibition (IBA) (1989). In opposition to the idea to re-contextualize wastelands many architects support the legitimacy of a "tabula rasa" approach, The Eurolille (1991) project of Koolhaas and the Bilbao waterfront (1999) exemplify this attitude. In conclusion, both attitudes highlight the idea of the territory as something to be tamed in order to accommodate human agencies. Furthermore, it relays to anthropocentric worldviews, legitimating the human condition over the environment.

## *Ecological Perspective*

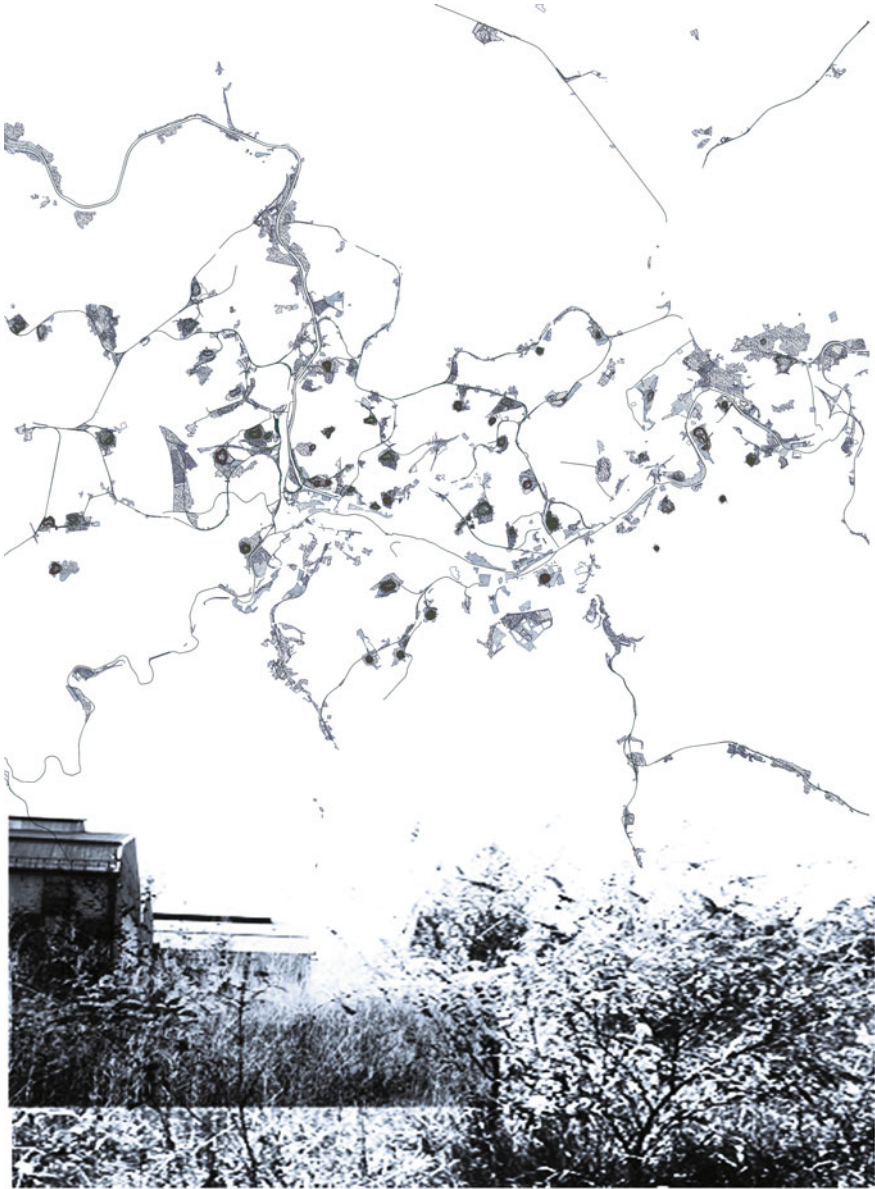
The second perspective recognizes the central relevance of ecological dynamics and offers substantial knowledge of some of the environmental effects of wastelands (Pickett et al. 2011). According to landscape ecology any built or non-built land can be classified according to three broad categories based on soil characteristic, land use history and present vegetation (Del Tredici 2014; Bradshaw 1987). Hence, wastelands can be considered in relation to the presence or not of spontaneous forms of vegetation (Gandy 2013; Del Tredici 2014). Although a high level of wilderness characterizes this land, according to the landscape architect Clément, wilderness is not nature. The notion of wild as untouched by man is false. Gradients of human presence fluctuate from more densely urbanized to more dispersed conditions, and wilderness is encountered throughout the entire spectrum. Therefore this land, heaven for many natural species, calls for a third state/phase, another kind of land and a space that no longer classifies as the object of human activity (Clément 2004). Starting from the French definition of friches, Clément defines as third landscape: abandoned spaces associated with past agricultural or industrial uses with different species of vegetation, spaces scarcely modified by human activity albeit due to their inaccessibility, and spaces designated as nature reserves (Clément 2004). In the urbanism and landscape urbanism fields the third landscape concept has been able to translate the metropolitan wasteland aesthetic into well recognized scientific knowledge (Fig. 2).

Many urban designers, such as Corner, Latz, and Desvigne, experimented an ecological thinking by adapting design strategies to more technical ones and projecting them through time, they transformed ‘injured’ lands into various kinds of public spaces. Systems theory and complexity or simply systemic design form part of this “projective” ecological approach. Some of the most interesting studies, especially those developed in the north-American context, are based on this approach: McHarg’s famous studies in regional planning, the field operations landscape architecture projects and the in-depth research of Berger on drosscape. For instance, according to Berger (2009) systemic design merges the existing territorial dynamics with multi-layer strategies and historical transformations, enabling the understanding of how natural and artificial systems dynamically operate on a regional and local scale, and how their interrelation is the basis for an innovative design.

Similarly, the ecosystem services attitude considers the direct and indirect contributions of ecosystems to human well-being. They directly or indirectly affect and support human survival and the quality of life.<sup>3</sup> Within this view wastelands are “ecological refugia” or “islands for biodiversity”, becoming part of the ecological

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<sup>3</sup>According to the Biodiversity Information System for Europe, ecosystem services can contribute to: Climate regulation, water purification, soil biodiversity, cultural service (<http://biodiversity.europa.eu/topics/ecosystem-services>).



**Fig. 2** Third landscape of Charleroi region (BE). As third landscape we consider the system of abandoned spaces associated with past industrial uses characterised by different species of vegetation and scarcely modified by human activity. *Source* Elaboration of the author, based on the Master thesis of Stas, Martens and Van Braban, Promoter De Meulder, Furlan

infrastructures of the urban territories, assuming the role of flood control, water purification and useful to mitigate urban heat island effects (Hall 2013).

### *Cyclical Perspective*

Cyclical thinking is a well established approach in science fields, representing a temporal based model of evolution (Johnston and Reid 2013). It is methodology that considers the entire cycle and lifecycle of processes and products. Any kind of product or material has a “life”. Generally this life starts with the design/development of the product, followed by resource extraction, production, use/consumption, and finally end-of-life activities (waste disposal) (Rebitzer et al. 2004).

Here the cradle to cradle strategy is exemplary. This strategy considers that every artificial element can be virtually reduced back down to its original form, and recycled or reused for another purpose (McDonough and Braungart 2010). Although lifecycle reflection can be understandable and desirable for material objects (buildings and items) when the reflection is translated to the urban space, the matter becomes more complex. Within urban spaces and especially within the wasteland debate the lifecycle approach requires deeper reflection. With regard of the application in urban environments cyclical thinking is used more as urban metaphor than as a way to quantify environmental impacts and evaluations of processes and activities. Therefore wasteland can be seen as fallow land, as land at rest. This view has its roots in the agricultural tradition of crop rotation. The practice of the crop rotation system is indeed a longstanding example of cyclical approach applied to the ecological, productive and spatial environment. Following this ancient system land is regularly alternated between use, rest and reuse (Fig. 3).

### **Towards the Future, Towards the Past**

Reflecting on wasteland dynamics, with the awareness of the on-going change in contemporary European city-territories, this paper reflects upon wasteland as a cultural construction (Thompson 1981). Firstly, the cartographical study shows the contemporary forms of wastelands. Secondly, the paper points to several perspectives on the urban environment. Each of them has elements of strength and weakness. In the last two views, wasteland dynamics strongly interact with environmental complexity, with temporal perspectives, and compels a reflection made on different spatial scales. However, each of the three views faces the problem of its legitimacy. Why this intervention and not another? Why there and not elsewhere? There is no simple answer. Perhaps the way lies in a constant search, continually questioning the territories and wasteland values.



**Fig. 3** Wasteland can be seen as fallow land. Collage of the abandoned industrial area “Chiari e Forti”, located in Treviso, IT, as a land at rest. *Source* Master Thesis of Giulia Cavallari, “Vuoti a perdere” Promoter P. Viganò, tutor C. Furlan

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# Hidden Forest Figures in the Horizontal Metropolis: From Placeholders to Micro-biotopes, the Case of Liedekerkebos



Wim Wambecq

## Introduction

This paper contributes to the transition of the dispersed city in Flanders towards an urban model that is no longer based primarily on the urban dispersal disconnected from its natural capital, but attempts to install a new way of living in the dispersed condition. The individual logic is replaced by an intermediate field of action mediating between individual needs and the sustainable collective. This intermediate is spatial, in this case specifically the hidden forest figures in the dispersed city, but also temporal and organizational. It continuously bridges different and diverging needs and necessities to steer suburbia towards a more sustainable environment. In order to do that, a tailored transition management has to be developed.

Here ‘Liedekerkebos’—the forest of Liedekerke—is explored as one possible contribution to the transition of the dispersed city. In fact, the forest and its surrounding urbanization show a latent structural capacity of the forest, a hidden forest figure that can be activated as the intermediate figure around which a new urbanity emerges. An analysis of the urban form that invaded the Ferraris forests—forests present on the 1775 Ferraris map (Lammens 2011)—in Fig. 1 shows that the dispersed city did not develop the same way in and around this former forest than in other places of the territory. The forest underwent a typical evolution in relation to the growth of the dispersed city. With the dissolution of the religious institutes after the French Revolution the forest domains became state property, which often

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**Fig. 1** Aerial image of the area, with the former Ferraris forest perimeter indicated. The urban realm within the Ferraris forest perimeter appears subtly different. *Source* developed by the author, image base from Google Earth, 2015

resulted in a reduction of the forest stock. However, the disappearance of the forest was not accompanied by an equal and typical growth of the dispersed city. A certain resistance against urbanization brings a moment of otherness inside the monotonous nebula that can be the pretext for a sustainable future—a forest figure that hides in the dispersed city.

## The Forest Talks About the City

This history of afforestation and deforestation reflects changing ownership and interests in the forest, but in this evolution many influences on the urban structures have gone unnoticed. Abstractly one could describe the forest as the ultimate

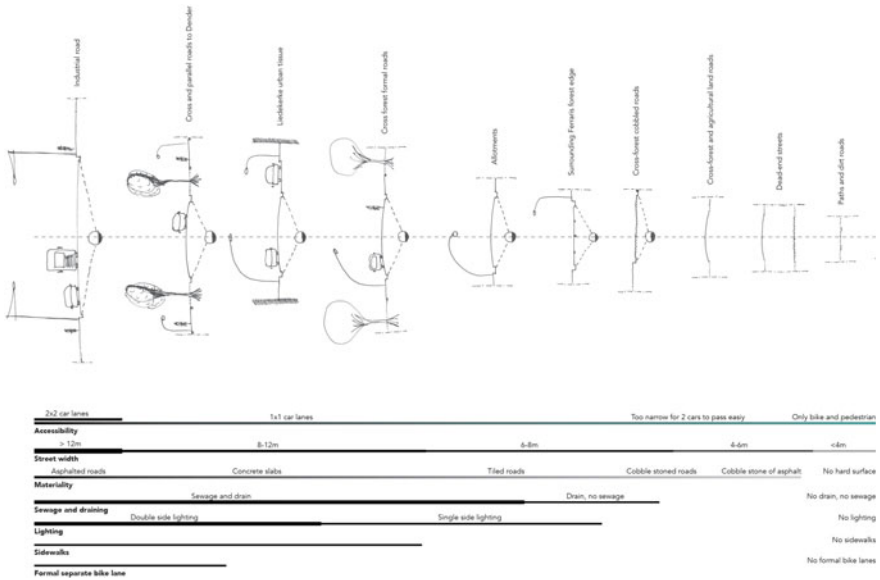
collector of ambiguities: the forest is the counter-figure—the ultimate nature—of the city, but glued around it are socially diverse urban classes in different housing typologies, making it highly urban itself; the forest is structured by natural streams and artificial orthogonal deforestation patches, but it is inside the artificial infrastructure, including the nature reserve in the former R.T.T. site, that the forest's ecology is rebuilt. The forest was highly embedded in the region's metabolism since it served the noble lords and clerks in providing peace, timber, hunting, currency etcetera, but also the poorest farmers collected firewood and poles from the forest to cultivate hops on every square meter of their garden; finally the forest seems like a persistent, static entity, but, on the contrary, it has been a continuously changing patchwork of land-uses that responded to the owners' necessities and the forest's opportunities.

The identity of the forest as collector of ambiguities began to be lost ever since urban planning codified land-uses. It is very unlikely that the forest will ever regain its original size, dynamism, ecology and identity under these legal conditions, yet the particular spatial impact of the forest—meaning the forest in its original size at the time of the Ferraris—on the territory of dispersion can become the subject of four urban-forest narratives. These do not attempt to rebuild the Ferraris forest in a misplaced nostalgia for historic reconstruction, but search for the hidden potential in the urban-forest realm to re-explore the multitude of meanings of the forest itself, and produce a dispersed city located within its landscape, in and in relation to the forest, rather than sitting bluntly on top of it.

### *Narrative 1: Extending the Obstacle*

The hidden Ferraris forest resisted the infrastructuralization of the dispersed city. In the decades following the Second World War, the wave of reconstruction changed the original city's relationship with its hinterland. The extremely isotropic road network drastically reduced the amount of places unreachable by car, while the new ecological awareness and traffic congestion called for new spaces where the car is prohibited, so-called 'no-car' spaces. Yet in some parts of the dispersed city the road network was never completed, making these spaces authentic and automatically appropriate for a no-car vision. Namely in flood prone areas, steep slopes, valuable nature domains etcetera and also in the (former) Ferraris forests.

An analysis of current day infrastructure in Liedekerke forest, shown in Fig. 2, tells us that the roads have not completely penetrated the original forest as in other places of the dispersed city. As one draws closer to the former forest perimeter, the roads become narrower, rougher—without streetlights or signage—and in the last stretches unpaved and inaccessible. This gradual decomposition of the dispersed



**Fig. 2** Analysis of the street sections proceeding from outside to inside the former Ferraris forest perimeter. As one goes deeper into the former forest, the roads become smaller, narrower, less serviced, rougher etc.

city’s base of existence introduces another living space and overall connectivity, and—for the nature lovers—a potential ‘area of silence’.<sup>1</sup> The isotropic network dissolves into irrational, incomplete hierarchical branches.

The gradual decomposition of the dispersed city’s infrastructure should be better accentuated. It can be made clear that from the fictitious border of the former Ferraris forest, the car is no longer desirable and therefore as much as possible left behind as other modes of transport take over. Biking and walking are now mainly associated with leisure activities, but the hidden forest figure should also be considered as an already established ‘no-car’ area—as in Bernardo Secchi and Paola Viganò’s vision for Brussels 2040 (Studio Associato Bernardo Secchi—Paola Viganò 2012)—where biking, walking and public transport (and horse-riding?) are the most functional ways to get around. The proximity of Liedekerke and Denderleeuw<sup>2</sup> as urban cores with a certain density and presence of urban amenities, makes a soft mobility lifestyle perfectly possible. For long distance travel, the stations of Liedekerke and Essene-Lombeek (and also Denderleeuw) provide direct connections to the old forest perimeter and could be much better integrated within the forest structure.

<sup>1</sup>Stiltegebied.

<sup>2</sup>The furthest distance from a forest edge location to Liedekerke is about 4 km by bike or foot, and almost 50% more by car (circling the forest).

## ***Narrative 2: The Seed Bank and DNA of the Dispersed Landscape***

The Liedekerke forest's ecology is closely related to its history of changing land-uses. Where the forest disappeared and agricultural practices were introduced, the soils were worked, turned over, exploited and fertilized over and over again. Almost none of the forest's original soil has survived there. Where the forest persisted, or parcels remained as wasteland, the age-old seeds remain hidden in the soil. The seeds exemplify the true ecology of the dispersed city since they represent a sample of what the territory inevitably would look like if left to nature's forces, also called the Potential Natural Vegetation, (Cornelis et al. 2009) but they also hold many rare species that are only visible in century-old soils as in the Liedekerke forest. Along the Kruisbeek and Hollebeek streams some 'old-forest' species indicate the forest's continuous presence: the golden saxifrage (*Chrysosplenium*), the bluebell<sup>3</sup> (*Hyacinthoides non-scripta*) and wild garlic (or buckrams, ramsons; *Allium ursinum*). (De Keersmaecker et al. 2009)

As in all the other woodlands in the territory, urban forestry is the main forestry practice. This term covers a wide range of activities compatible with an urban lifestyle, and with principles of sustainable forest husbandry. In practice it implies a varied forest landscape receiving a mosaic of functions that are not all compatible with the function of the area as the territory's seed bank. Functions that are becoming ever denser as the forest area has been shrinking for some time. This tendency needs to be reverted. Instead of allowing an over-densification its functions, and therefore having to choose just a part that can be ecologically untouched, the pieces of Ferraris forest need to be protected rigorously. Activities need to be pushed outwards into the wooded areas surrounding the Ferraris forest, that satisfy the needs of an urban population, but that at the same time serve as outward-reaching ecological stepping stones.

## ***Narratives 3: Forest to See and not to Be Seen<sup>4</sup>***

The forest offers a bizarre range of intimacy and collectivity. In the same spatial frame of the forest one can choose to be completely isolated and alone, join together with others in intimate, collective moments organized by a clearing in the forest or a strategic spacing of the trees, or take part in the public activities that are organized there. These qualities are exploited by functions in the dispersed city that need this

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<sup>3</sup>This is the flower that makes the Hallerbos (forest of Halle) so famous.

<sup>4</sup>In Analogy to the Art Installation the Gemeentelijke Academie Voor Beeldende Kunst Liedekerke Organised in the Liedekerke Forest in 2012 Called "Transparant. Kijken Door En Doorkijken". "Kijken Door" means "to see by" (the lens of, as a way of seeing) and "Doorkijken" means "to see through" as in literally seeing through something). Liedekerke (2012)

context: the municipal cemetery Kruisbeekveld allows for private moments of peace; the manège 't Lindeken, a departure point for horse-riding, the ultimate return to a slower paced society; the Roosdaal camping site on the edge of the former Ferraris forest forms the dead-end where 'camp is set' as a base from which to explore the forest landscape; the public forest entrances and play areas inside the forest; the hidden remnant of the cloister Ter Muilen that lies hidden between two majestic linden trees as protected heritage that serves for personal and more public pilgrimages (Erfgoed 2015).

Unfortunately, this wealth of public, collective and intimate functions in the hidden forest figure often lie torn away from their context. The forest no longer embraces them as it has been concentrically reduced to its current size. The ambition of the hidden forest figure is to re-establish this bizarre range of seeing and not being seen, of visibility and transparency, of intimacy and collectivity. There is a need of upscaling. The functions within the former Ferraris forest, such as the new housing as will be shown in narrative four, can benefit significantly from a position truly inside the forest, rather than being on the edge of, or next to the forest. Therefore, the former Ferraris forest edge can once again become the moment of transition between the forest's interior and exterior. By selective afforestation along the edge of the former Ferraris forest, as is happening now in the Hertigem forest, the forest has regained its original shape. The intention is not to completely re-establish the area as if conducting reconstructive surgery, as agriculture in the forest can continue to exist, but to create an inhabited forest landscape, rather than habitation next to the forest.

#### *Narrative 4: Finally, that Flemish Dream*

A new forest figure allows for a renewed municipality of Liedekerke. Liedekerke was founded by the lords of Liedekerke on an island in the Dender valley; the municipality grew as a small urban core along the river valley and gradually grew towards the forest that by origin was a space of disconnection, for escaping the city. Today the significance of escape has taken on a different meaning. The forest becomes a more democratic refuge for the inhabitants of the dispersed city. It is no longer just a forest, it is an urban figure as well. Liedekerke from now on has the Dender and its plantages; its river banks and shores; and the forest as urbanity.

It is suggested that the forest is not just something one can live "next to", but rather inside. The expansion areas on the edge of the former Ferraris forests are planted with trees to establish the forest edge. The development potential in these areas is reorganized within the forest figure into concise and compact urban entities of various scales, always in relation to the forest and served by the soft mobility network that crosses it. Three urban scales appear in the forest, as shown in Fig. 3. Along the railway stations a more dense urban program fits into the orthogonal mesh and forms an urban-forest edge; the historic axis crossing west to east from Liedekerke to Brussels is the only road maintained crossing the forest, and it

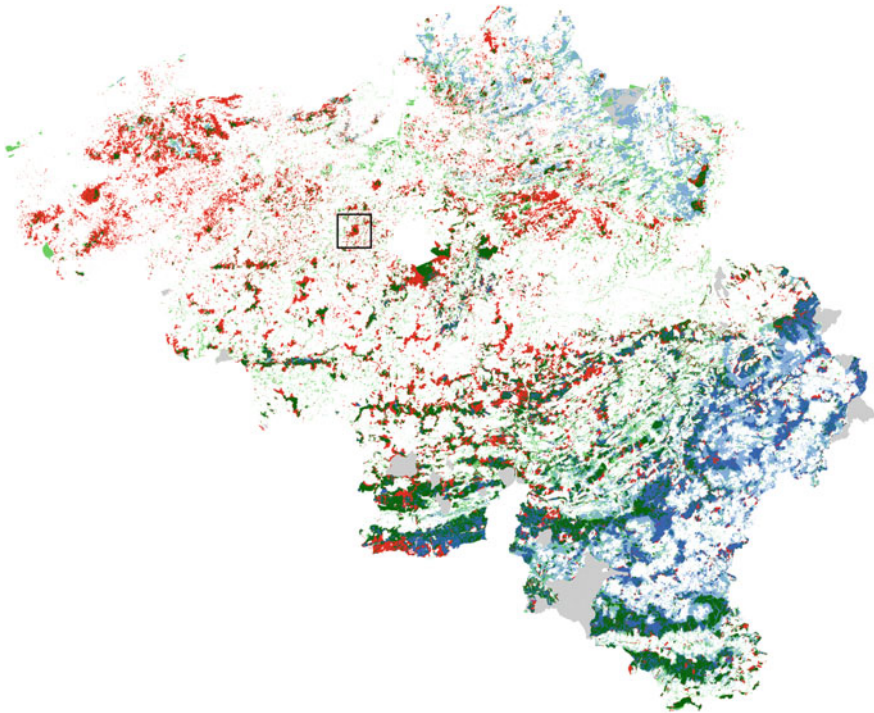


**Fig. 3** Liedekerke could be the site of a rich urbanity. The forest is no longer considered as the municipality's escape, but as a (complex) destination of another type of urbanity that is inexistent today: the collective and sustainable, typologically diverse refuge into the forest as a true embedment of the dispersed city into its (dynamic) landscape (author's diagram)

becomes a forest avenue along which urban transformation of the existing allotments can make them fit into the forest rather than devour it; smaller scale housing units, of the scale of the Roosendaal camping site, can be introduced in strategic locations throughout the forest.

### **Conclusion: Forest Urbanism in the Dispersed City**

The case of Liedekerke forest and its four narratives presents a discourse on how to fit the dispersed city into its landscape. Intermediate (landscape) figures can be strong operators that allow a unique co-produced urban realm. The hidden forest



**Fig. 4** Landscape inversion in Belgium since 1775. Red: deforested since 1775; blue: pine afforestation; dark green: Ferraris forest (forest since 1775); dark blue: Ferraris forest turned into pine forest; light green: new forest since 1775. *Source* compilation arranged by author, based on: Flanders: digital GIS data from NGI; Wallonia: Service Public de la Wallonie, spw-dgo3-DEMna. The Liedekerke forest is indicated in the square. A large part of the red can be considered places of resistance against the urbanization wave of the twentieth century

figure holds an intrinsic capacity to build swathes of unique urban realm in the dispersed city. The Liedekerke forest is one of many forests that remain hidden amidst the city's dispersed web of streets, as shown in Fig. 4. Its origins in association with religious institutes, that proliferated in the first centuries after the Dark Ages, makes this method of looking at the dispersed city multipliable and thus potentially structuring.

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# Territory Between Product and Project: Rethinking the Limits



Guillaume Vanneste

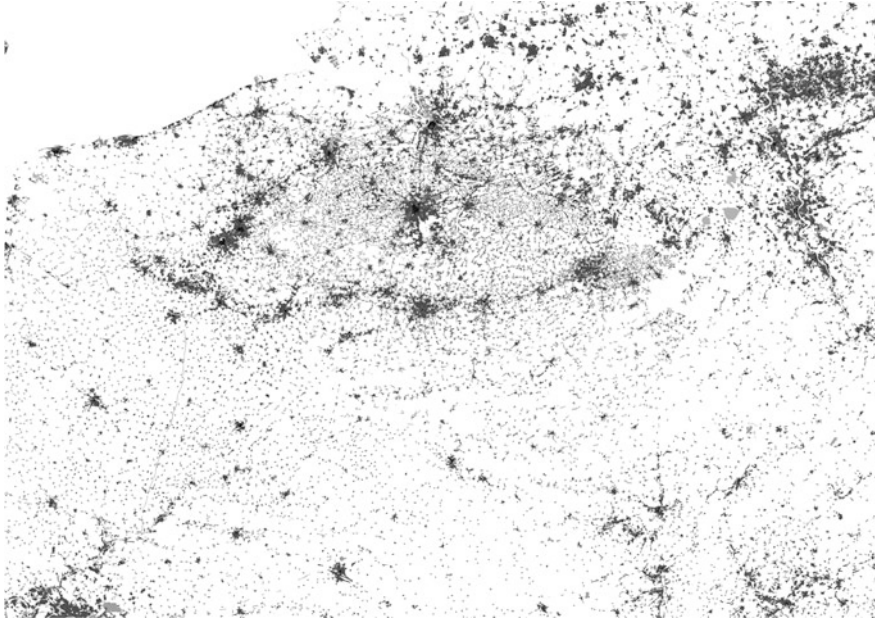
## The Belgian Territory Under the Lens of Dispersion

European Territories of dispersion began with the creation of dwellings, production areas and communication networks, most often in the fertile lower plains. Among those Belgium will serve as territory of investigation. Dispersion already occurred during the Middle Ages and then increased during the industrial period, through individual housing construction, with the development of railway and tramway infrastructures and of some policies commuting displacement in social laws (Seebohm Rowntree 1910; Uyttenhove 2011). Afterwards, during the post-war period, supported by an incentive law encouraging access to property, an Arcadian image of individual housing was forged in the collective imagination (Smets 1977): each family aspired to build its own detached house on its property, in a welfare state context described in the text “*la banlieue radieuse*” (Smets 1986). Demeulder (2009) speaks of Belgium as “[...] a land of laissez-faire, where the cacophonous juxtaposition of designs deliver surprise after surprise, where an intense poetry lurks side by side with a nauseating banality behind the common place of everyday habitation” in the article “Patching up the Belgian landscape”. He describes a disparate landscape, based on suburban villas or *fermettes*. In “Urbanization Without Urbanism”, Grosjean (2010) describes the fine process of construction of the diffusion based on transportation networks and on worker-housing estates in so-called rural areas. As a measuring index of contact, in linear meter, between built and open areas per inhabitant, the ‘linear of contact’ developed by Studio in the prospective study “Brussels 2040” (Studio Secchi Viganò 2012) shows the specificity of the metropolises relations with its open space. In addition, the mismatch between the physical limits and administrative boundaries in Brussels makes its case paradigmatic (Roland 2013).

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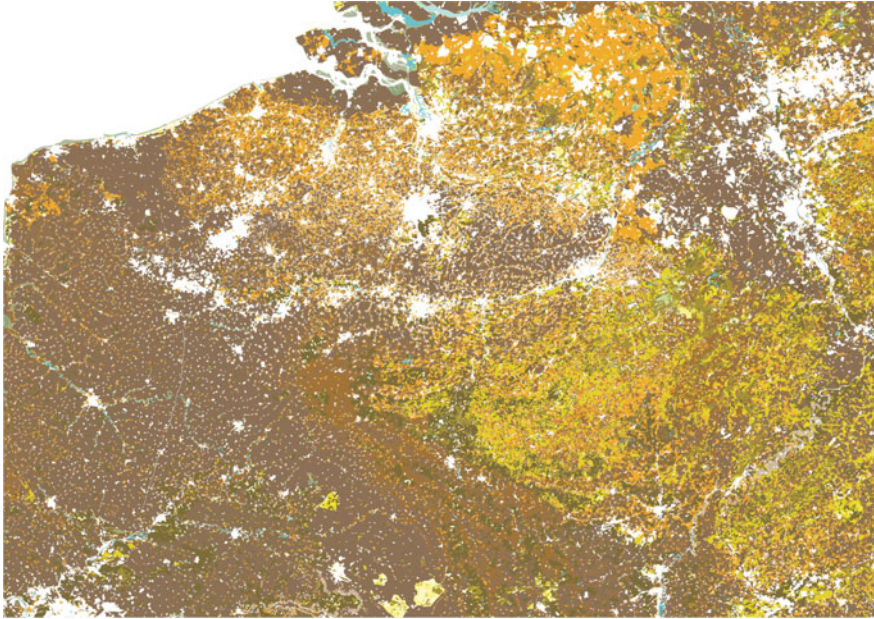


**Fig. 1** Built space in Belgium. *Source* Corine Land Cover 2006, elaborated by the author

Nowadays, building plots are saturated in Flanders and new dwelling conditions are being considered to preserve open spaces. In Wallonia space is still a resource but its management could be enhanced (Van Hecke et al. 2009). Current urban mechanisms are supporting a way of conceiving limits which share responsibility in the constitution of today's territories, including a low-quality interface between different allocation areas (Figs. 1 and 2). These specific findings on these specific territories and in the literature point to limits as a question around which to reconsider some of the tools of urbanism more widely.

### **Limits in the Contemporary City: Deconstructing the City Countryside Opposition?**

Coming on the heels of the industrial and modern city, the context of the contemporary city is new and occurs through rapid mechanisms which we can barely begin to understand. The tendency to agree on a new paradigm, the one of the 'Anthropocene' as new environmental and social conditions for humans, invalidates the city countryside relation inherited from the classical and modern city and tends to reconsider the tools and design methods, as pointed out, for instance, by the theme of the last Rotterdam Biennale, 'Urban by Nature'. Nature, among other human artefacts, would no longer claim to have a pristine character. The urban fact,



**Fig. 2** Open space in Belgium. *Source* Corine Land Cover 2006, elaborated by the author

now global, is described as a new environment, a frame for the development and the relationship between humans (Gugger and Macaes e Costa 2015), a second nature (Dixon Hunt 1996). The renewed interest in metabolism as a metaphor of the city is also a reformulation of limits between the urban and the rural. Dismantling both conceptions of city and countryside, these hypotheses, though looking mainly from an urban point of view, no longer bring the issue of limits as an antagonism anymore but mainly as a relationship between elements (Viganò 1999). In a “post-diffused” city which assumes its dispersed form, rural and urban have to be conceptualized together, in the mutual vicinity of the territory’s materials and in their collective readability through the imaginary<sup>1</sup> (Corboz 1983).

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<sup>1</sup>«Les buts et moyens de cet usage du territoire supposent à leur tour cohérence et continuité dans le groupe social qui décide et exécute les interventions d’exploitation. Car la portion de croûte terrestre qualifiée de territoire fait d’ordinaire l’objet d’une relation d’appropriation qui n’est pas uniquement de nature physique, mais qui tout au contraire met en œuvre diverses intentions, mythiques ou politiques. Cette circonstance, qui interdit de définir un territoire à l’aide d’un seul critère (par exemple géographique, celui des fameuses «frontières naturelles», ou ethnique, en fonction de la population résidente ou seulement majoritaire ou encore dominante), indique que la notion n’est pas «objective». Un tel constat ne signifie nullement qu’elle soit arbitraire, mais bien qu’elle intègre un nombre considérable de facteurs, dont la pondération varie de cas en cas et dont l’histoire a le plus souvent composé—sinon consacré l’amalgame. [...] Cette nécessité d’un rapport collectif vécu entre surface topographique et la population établie dans ses plus permet de conclure qu’il n’y a pas de territoire sans imaginaire du territoire. Le territoire peut s’exprimer en

## Limit as a Specific Aspect of the Diffused City

The construction of the contemporary city is characterized by the heterogeneity of its constitutive materials and paradoxically by an impoverishment of the relationships of those materials among themselves, particularly in the public space but also for what concerns the shape of the territory (Marot 1995). The diffuse city, among others, is a city that has seen the variety of urban materials increasing, reinforcing the figure of the fragment, often in an individualistic, capitalist or private logic, multiplying limits. If we recognize that the individualization of society is one of the main character of the *citta diffusa*, we have to consider that the limits are not only among fragments but between one element and another, between one house and the other. The growth of these ‘pieces of cities’ has been made with little or no regard to issues of public spaces and relations to the context. The private plot is then a place centered on the self-interest of its owner or on the function it hosts, indifferent to its surroundings and its context: house, shopping center, gated communities, industrial ‘park’, campus. Social injustices bound to these spatial limits are also increasing in our contemporary societies. Some limitations seem more solid than ever or even strengthened, building a city cleaved between poor people and people with high income and strong purchasing power, not without the urban planner having his responsibility in it (Secchi 2013).

However, the fragmentation of contemporary space generates a specific urban structure presenting rich or unusual situations and which brought to the fore concepts and tools depending on the question of limits such as porosity, network, isotropy, ecotone or gradient. The incorporation within itself of this urban nature previously discussed makes the diffuse city particular from the point of view of limits, in the way that the diffusion “abolishes the boundaries between town and country” (Novarina 2003). In this perspective, it augments the relationships between elements of the territory and multiplies their linear contact, making the study of the same relevant.

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termes statistiques (étendue, altitude, moyenne de température, production brute, etc.), mais il ne saurait se réduire au quantitatif. Etant un projet, le territoire est sémantisé. Il est ‘discourable’. Il porte un nom. Des projections de toute nature s’attachent à lui, qui le transforment en sujet.» (Corboz 1983, pp. 14–35)

## Limit Is a Legacy of Spatial Discipline

The concept of limit<sup>2</sup> is intrinsic to the disciplines of architecture, urbanism, landscape architecture, urban planning, geography and any “spatial discipline”. The disciplines in charge of space indeed adopt different postures in defining the limit in their methods and concepts. In the past 50 years for instance, agronomy and ecology have given to the concept of limit a declension strongly transposed into urbanism with the concept of the edge: the french *lisière* or ecotone. The *lisière* is an ecological transition area between two ecosystems, often richer than the systems themselves.

Therefore, travelling from one discipline to another leads to the establishment of a transdisciplinary knowledge<sup>3</sup>. “The history of a concept does not always follow a path leading it to be more refined and to achieve a certain level of abstraction; rather it consists in defining its different fields of validity, in the rules of uses which follow each other, according to the multiple theoretical climates where its development was conducted and concluded” (Secchi 2006, p. 118). The history of the city shows us devices, tools and elements of our society spaces which are referring to the notion of limit<sup>4</sup>, the modern city and urbanism bequeathed us a legacy still based on a country town antagonism applying figures on a background (Cogato Lanza 2005).

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<sup>2</sup>«Limite. [...] Objets géographiques de plein exercice, les limites présentent des contenus et des styles variés. S’ouvre alors un vaste éventail de réalités, qui sont la manifestation et l’instrument de l’interface. À côté des métriques topologiques (la discontinuité brutale par le bornage et la frontière), d’autres situations (seuils, confins, gradients) mettent en évidence des continuités et des changements insensibles. (Levy and Lussault 2013, p. 617)

<sup>3</sup>Tracing the history of the making of the city teaches us about the tools of limitation which are today still remain the basis for the spatial definition of private property. Establishing the cadaster allows these properties and these land lots to be organized and managed. Gromatics, the art of survey, is responsible for measuring the land. Geography at all time has sought to accurately describe the characteristics of the territory. The contemporary developments in photogrammetry, in aerial photography or geomatics, are rapidly changing our way of perceiving the Earth and of treating a large amount of data. Cartography, because it works on the representation of the earth, teaches us how boundaries between places, geological layers, countries are transposed into communicable drawings promoting the city to a ‘scientific object’ status (Chapel 2010). In the artistic field, land art uses the territory and the landscape as raw materials of work. As such, it uses tools similar to that of urbanism but in an artistic and critical purpose. The mathematical field is also an important contributor to models and concepts on limits.

<sup>4</sup>«Séparation spatiale. [...] La séparation est une des modalités dominantes de l’organisation spatiale contemporaine, dont l’importance peut surprendre, tant elle paraît d’abord contre-intuitive. En effet, elle contredit le modèle dominant de l’urbain mondialisé et dégroupé, qui promeut l’idée d’un espace lisse, sans interruption, offert à la circulation sans entraves des marchandises, des flux, et par-dessus tout, des individus. Or une observation, même rapide, des formes spatiales du Monde montre la multiplication des barrières, des limites, des murs, des sas, qui composent de facto, à l’inverse du modèle précité, un espace découpé, marqué par l’inflation des limites et un imaginaire (très puissant) de la séparation comme principe de la mondialisation, qui la travaille, en tension avec la mobilité.» (Levy and Lussault 2013, p. 911)

This western legacy can be found now at the base of most practices such as land use, planning regulations or zoning<sup>5</sup>.

A reading of the natural and human systems as interdependent rather than opposed began to emerge in the field of urbanism in the early 1960s when the environmental movement began to exert a growing influence on public opinion in North America. Ian MacHarg, influenced by the work of Patrick Geddes and Lewis Mumford, proposed a new way of looking at the interactions between human settlements and natural processes in his iconic book, “Design with Nature” (1969). His approach, though criticized as too deterministic, would generate huge reactions and an understanding of the ecological and urban challenges, advocating a development not exclusively based on human needs. Consequently, the urban region will emerge in landscape ecology and American planning as the measurable and observable entity to work with in an integrated perspective of urban and ecological phenomena.

Following that the anthology, “The Landscape Urbanism Reader”, edited by Waldheim et al. (2006), brought together different contributors’ writings about the emergence of a movement, landscape urbanism, which built its approach around landscape as the project’s main medium, drawing from the writings of Patrick Geddes, Lewis Mumford, Ian MacHarg. It expresses a conceptual shift in design tools from built architectural elements towards open landscaped elements.

Today in Europe, design strategies are directly using the limit in metropolitan emblematic projects<sup>6</sup>. In a context of increasing urban population, these strategies seek to question the limits of the metropolis. Various conceptual notions are then proposed to set up an inhabited edge: the buffer, the foreshore, the antiparc by Studio Secchi Viganò, the thick edge by Desvignes, the limit as concept, the Orion and Orismos by Reichen (Vanbutsele and Declève 2015; Masboungi 2005). These projects can be seen as critical reading for which they seek conceptual alternatives. This short reading of the theoretical construction of concept of limit could lead us to a reconceptualization of this object.

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<sup>5</sup>«La séparation fonctionnelle et sociale est donc devenu un véritable standard. La légitimation de ce mode de déploiement spatial apparaît vraiment avec la naissance de la ville industrielle de l’urbanisme scientifique, qui théorise peu à peu à partir de la fin du XIX<sup>e</sup> siècle, le zonage ou zoning. Celui-ci fonde en partie les conceptions du mouvement moderne en architecture sous l’espèce des quatre fonctions universelles promues par la Charte d’Athènes et de la préconisation de dissocier et spécialiser les espaces afférents.» (Levy and Lussault 2013, p. 911)

<sup>6</sup>«Deux tendances s’opposent aujourd’hui: la première s’attache à définir des seuils et des limites, à retrouver une figure propre à la ville qui la sépare idéalement d’un fond indifférencié. La seconde vise à se débarrasser de cette image et à proposer comme figure du contemporain ce qui est informe. Elle répond probablement à l’aveu d’une certaine incapacité à réfléchir avec rigueur à la ville contemporaine et à la question de la forme, dans ses différentes acceptions. Dans ce défini, on peut saisir l’énorme dette de l’urbanisme hérité, à l’égard d’intentions implicites, qui ont défini le projet par des objectifs qui ne sont pas les siens, mais répondent à d’autres politiques: rente foncière, fiscalité, soutien à l’emploi ou à la production industrielle.» (Secchi 2000, p. 133)

## Limit as a New Tool in the City-Territory

By looking at the territory through the lens of limits, our attention is more directed towards the relations of the things to one another than towards the things themselves. The precise description of these relationships will help us, on the one hand, to understand what constitutes the land in its banal and ordinary parts, and to understand the disciplinary contributions and enrichment built or argued around the concept of limit and how it has been translated into policy and tools on the other. The limit serves as a decoder of the territory.

At this point, one can agree how the concept of limitation is implicit in many tools, methods and cultural devices that form together the conceptual basis for western planning and urbanism. Based on this, a new hypothesis is that the dispersed characteristic of Belgian territory is also built upon weak infrastructure, such as the *parcelaire* and the land management tools. In between plot fragmentation and consolidation, in between different scales of governance, from state policy to private initiatives, limits are constantly being defined or transformed as a visible and dynamic evidence of these processes. Mapping the evolution of the *parcelaire*, its rationalities and logics of fabrication, through historical processes of permanence

**Fig. 3** Internal limits, relations between built and open space in the Belgian territory. Picture of the author, 2016





and persistence (Rossi 2001) or identifying operational tool such as land management plans and land consolidation, acting on the land division will teach us more about the construction of the limits in the history and whether it played a constitutive role or not in the dispersion of the territory and could still be transformed.

Among the specificities of the contemporary city, the place of the limits is a space of potentialities, especially in the ‘post-diffused city’ territories, territories which assume their diffuse condition, no longer seeking to ‘solve’ a ‘city nature’ relation but aware of their hybrid and rich condition (Fig. 3). If this is so, the limit would become a productive place, tending to have an autonomous behaviour and becoming spatial fragments and connexions and not only lines or separation. In that sense, they could become a design object available for conceptual and design transformations (Dehaene 2013). Reorganizing fluxes and dynamics of dispersed territory from the inside, those internal limits would be able to support new collective and sustainable places, becoming new commons. The dual feature, both representative and substantial, allows new projects to be thought or designed for a refound collectivity in the horizontal metropolis.

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# Unlocking the Potential of Collective Spaces in the Peri-urban Condition: The Case of South-West Flanders



Maarten Gheysen

## The Overwhelming Daily Life of Collective Spaces in the Horizontal Metropolis

Cities reflect no longer, if they ever have, the spatial form we intuitively think of. The city as a compact morphological dense and built up entity has become an obsolete idea.

In Flanders 57% of all addresses<sup>1</sup> can be found outside those areas defined by the Flemish government as urban<sup>2</sup>. Historically, this condition has always been present since the spatial development of (South-West) Flanders was not limited by topographical or hydrological restraints and the combination with a fertile soil made it possible to open up the territory early in history (De Meulder and Dehaene 2001). This resulted in strong sprawled patchwork patterns combining small towns and municipalities, farms, housing, factories in a seemingly random configuration. This refers to the so called Horizontal Metropolis (Secchi 2013) or peri-urban (INSEE Première 2009) condition that characterises the region. Although strongly contradicting the model of a compact and dense city, the sprawled patchwork pattern offers high living qualities and proximity but also mobility problems and environmental issues.

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<sup>1</sup>GIS analyses by Leiedal based upon 'CRAB adressen, AGIV, 02/09/2016' and 'afbakening stedenbouwkundige gebieden (van definief goedgekeurde RUP's), RWO, 02/02/2016'. Not published.

<sup>2</sup>The Flemish government defined in 1997 the 'delineation of urban areas'. It is a policy tool to identify urban versus rural areas. Within the delineated urban areas, a policy is applied to mix and interweave different functions and embed them in the existing urban structure to obtain a more urban result (RSV 2004, p. 28).

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When describing the collective spaces (de Solà-Morales 1992; Bijlsma and Groenland 2006; Scheerlinck 2013) in the Horizontal Metropolis, one is overwhelmed by the ordinary character of these environments. The historical village square, what used to be the focus of the community life has become a traffic oriented context.

What once was the centre of power (commerce, church and state) has vanished due to different modernisation processes (commercialisation, technological developments and the restructuring of democracy itself). The historical core as a vibrant place, filled with people and activity, is in reality a traffic oriented crossroad where pedestrians are not seen. Where villagers were once confined to their own village and its services, they now have the means to benefit from an ecology of choice<sup>3</sup> which no longer coincides with the nearest village (Figs. 1 and 2).

Confronted with the urban paradigm shift, the need arises for an updated discourse.

The existing framework, methods, language are, when confronted with the particularities of the Horizontal Metropolis (individual fragmented city, accessibility and connectivity and the expression of mobility and lack of pedestrians) inadequate. It feels as if we designers suffer from a spatial dyslexia (the inability to read) and agraphia (the inability to write) in these conditions.

## Dyslexia-Agraphia

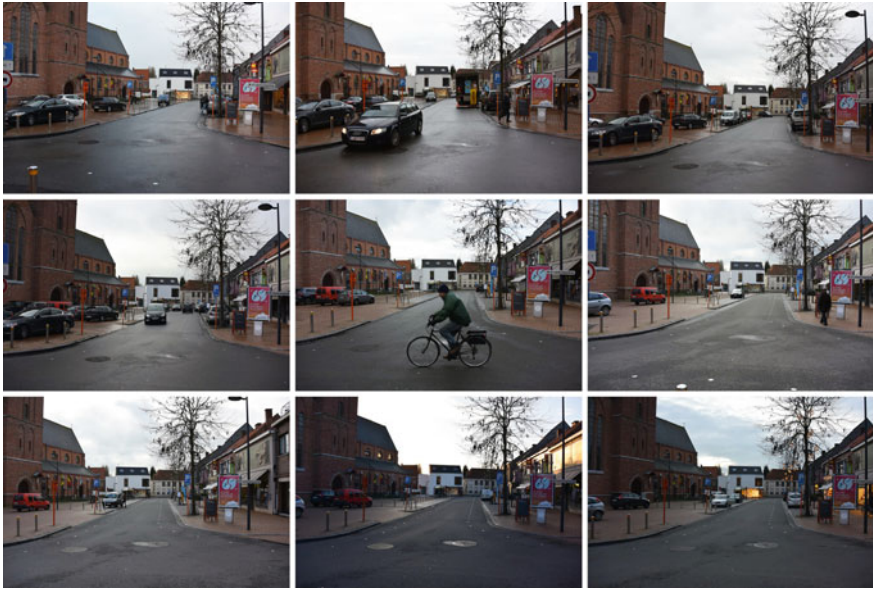
Recently, numerous infrastructural investments have been done in the Flemish territory adapting the road crossings ('doortochten'), sewage systems or enhancing the public infrastructures of municipalities. These projects were most of the time financed at Flemish governmental level in order to improve the mobility and safety, water quality and vivacity in the non-urban areas.

As a result, numerous Flemish municipalities renewed their village and centre streets in the last ten years. A small sample of these 'dorskernvernieuwingen'<sup>4</sup> showcases a similar approach in the design of public spaces throughout Flanders. When observing these renewals in detail it is striking to see how different municipalities have the same kind of project. There is an omnipresent use of large surfaces of cobblestone, the consequent use of Spanish urban furniture and numerous small trees. Although clean and functional, these interventions have no relation or reflection with the context of the Horizontal Metropolis. Instead, the intervention

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<sup>3</sup>In 'Gardening in the urban field' a connection is made between urbanization, the city and the ecology of choice. Elaborating the research of Jean Remy, Michiel Dehaene reflects upon the city as a condition in which the possibility to choose is primordial (Dehaene 2013, p. 30).

<sup>4</sup>'dorskernvernieuwingen' is an investment project to upgrade a combination of public infrastructures. It includes the renewal of the public domain, sewage system, improvement of the mobility issues and refurbishment of the public buildings.



**Fig. 1** Observation of the historical village square of Hulste (B) on an hourly base, Maarten Gheysen 2016



**Fig. 2** Observation of the historical village square of Lendelede (B) on an hourly base, Maarten Gheysen 2016



**Fig. 3** Renewal of different village centres in Flanders, collage, Maarten Gheysen 2015

results in large dimensioned paved areas resembling an urban square but without the pedestrians and urban surroundings (Fig. 3).

## Urban Concepts?

A recent design competition for the centre of Spiere (B) revealed another missing part of a critical discourse and coherent design approach. One of the competitors made a project in which large cobblestone sidewalks are used, thus reducing the impact of through traffic. In the visualization, an urban ambiance is created with pedestrians, a small grocery with a fine selection of fruit and in the back a kind of festivity attracting people; all referring to an urban context. However, reality in this part of the Horizontal Metropolis is different: the grocery store closed down 7 years ago, there are not that many pedestrians in a context completely based on car-use and the urban ambiance is non-existing. An attempt in 2010 by the municipality to create a beach cafe with sand on the nearby square failed because of a lack of interest by the inhabitants.

Designing collective spaces in the Horizontal Metropolis needs other concepts and strategies than those used in the urban context of the traditional city.



**Fig. 4** The town hall (1993) as historical artefact, Nieuw Centrum Spiere, 2015

### **(Mis)Use of Historical References**

An evident option to deal with the uncertainties of the Horizontal Metropolis could be in citing historical references. In 1993 a competition was held to build a new town hall for the merged municipality of Spiere-Helkijn. Instead of developing a new or adopted typology the designers came up with a historical reference for the building: the farm with a thatched roof (Fig. 4).

Similar attempts to re-use traditional forms of (public) space have resulted in the use of urban plazas and commercial main street as fragments in the Horizontal Metropolis. But these forms only flourish in a context and (a historical) way of living that relies on pedestrian movements, discourages long-distance commuting and limits social diversity. All of these are contrasting the essence and conditions of the Horizontal Metropolis (Fig. 5).

### **Conclusions: Guidelines for Interventions**

Collective spaces in the Horizontal Metropolis can not be read with the urban instrumentarium. The parameters used to trace and map in urban contexts are not the ones of the Horizontal Metropolis (Borret 2001).

Collective spaces in the Horizontal Metropolis can not be designed using urban or historical concepts and references. They act as misplaced or anachronistic.



**Fig. 5** Visualization of the main road through Spiere, Winvorm competition, 2015

The need and the language for the intervention lies within the Horizontal Metropolis itself. The following guidelines could be used as the start in defining interventions on collective spaces in the Horizontal Metropolis.

### *Changing programs*

In the sprawled pattern of the Horizontal Metropolis, different episodes in the equipment of the territory have been written. Both state and church applied an equity in the distribution of their infrastructures. Since WWII literally every municipality has been building a church, school, sports hall, theatre, swimming pool, library,...

Nowadays these infrastructures are questioned. The necessity to equally equip the territory is no longer evident. Increased mobility, an aging population, the changed position of church, renovation costs,... all question the need and nature of collective programs in the Horizontal Metropolis. The definition of the collective challenges and the collective answer is a first guideline for intervention.

### *New reference points*

The Horizontal Metropolis is not a homogeneous territory. Throughout its development, varieties in centrality were developed. In addition to the market, station and square, new centralities are formed and expressed around infrastructural nodes and splits (Devoldere 2003). They act as reference points in the Horizontal Metropolis but are shaped as daily environments. Their centrality is not expressed in forms and shapes but rather in the number of terminals/services, parking spots and accessibility (Fig. 6).

The acknowledgement, localization and development of a spatial expression for these new reference points is a second theme of intervention.





**Fig. 6** An ordinary parking lot functioning on Sundays as meeting point and warming up for runners, Anzegem station, Maarten Gheysen 2015

### *Collective and Vivacity*

The livability of municipalities in the Horizontal Metropolis as a major concern for government. Due to the increased mobility, different kinds of services delocalize from small municipalities to small towns. The absence of daily services and consequently the vivacity of peri-urban municipalities has therefore become a policy issue.

However, research by Frans Thissen (Thissen and Loopmans 2013) revealed there is no correlation between the absence of daily services and the vivacity of municipalities. Rather than the number of inhabitants and services, the importance of a qualitative surrounding and the degree of social cohesion is important. The correct detection of collective spaces to create opportunities for social cohesion and a focus on qualitative housing and context are therefore the third guideline for intervention.

### *Momentum of Investment*

When working on collective spaces in the Horizontal Metropolis one is often confronted with a lack of investment capacity. The capacity to generate enough

means to invest in large-scale collective spaces is limited or non-existing. The presence of redundant infrastructures in Spiere can be lead back both to an absence of programmatic necessity for redevelopment of the redundant but also to an absence of means of investments in the redundant.

To be able to realize collective spaces two momenta of investment are detected: the vertical project and the micro public space.

The vertical project are those projects created by a higher governmental level and executed on a local scale. They include sewage projects, Flemish road crossings, river works,... Each of these projects are designed and financed by a supralocal governmental level but open the possibility to invest in collective spaces on a local level. The importance of the relation between the infrastructural project and its influence on the context is highlighted several times by Marcel Smets: “So from the beginning it is essential that any kind of transportation project is not seen as just an amenity but as an urban project and includes in its design thinking an area larger than just the transport amenity. The gains will be much larger and spread through multiple parties” (Kagner 2013).

A second momentum of investment is the micro public space (MPS). As defined by Atelier Bow-Wow, a MPS is the opposite of the vertical project: “The quality of public space is up to the people’s participation. If all the participants are just customers it is not a real public space. For example, in a shopping mall many people gather there and talk. It looks like public space, but they are just customers. They are all guests. They don’t have any responsibilities to maintain the space. I think that just being in a gathering space is different from participating in a space shared with someone. We have our own programs of what public space is within our body. In the projects on micro public space we try to activate this program by which individuals can participate in certain contexts. This might be around furniture or a mobile structure which we have produced. So micro means small, but at the same time individual. The smallest public space might be a public space for just one person” (Tsukamoto 2007).

The detection, definition and application of the momentum of investment is the forth guideline of intervention.

Although our knowledge and insights on the Horizontal Metropolis have grown over time, we still struggle to define and design collective spaces in it. The ordinary character of many of these collective spaces conflicts with the unlocked potential they have in resolving the challenges the Horizontal Metropolis faces in terms of changing programs, reference, vivacity or investment capacity. It is therefore essential to reveal the mechanisms of influence between the peri-urban condition and its collective spaces.

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# Building Horizontality? The Impact of Road Design Regulations on Urban Ecosystems



Antoine Vialle

Based on a corpus of specific regulations, this paper seeks to investigate the processes by which modern roads are conceived and realized. Such critical reading can not only contribute to identify some of the main spatial characteristics of contemporary urban settlements,<sup>1</sup> but it also enables to understand better how small-scale elements, such as infrastructural devices, impact upon environment, landscape and urban fabric on a large scale. It helps to reveal how this particular regulatory regime (in)directly conveys a more or less vertical/horizontal, integrated/fragmented conception of territories. In particular, revealing the legal base of the wide spatial/territorial footprint of the road allows one to reflect upon a large amount of open spaces that can be re-considered both as surfaces for accessibility and sociability and as functional soils, that is to say as part of a living, three-dimensional integrated urban ecosystem.

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<sup>1</sup>Recent studies, combining a reticular approach of infrastructure and an area-based approach of urbanized territories, have revealed that the road network and its interfaces are particularly representative of the new kind of physical and functional relations between the components of the non-dense urbanised territory (Viganò et al. 2016; Belanger 2006; Mangin 2004; Graham and Marvin 2001; Pope 1996).

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## Norming, Designing and Building the Road

### *Projects, Regulations and Norms*

In Europe, at least in the second half of the twentieth century, the global notion of infrastructure ‘design’ tended to lose importance in favour of standards conveyed by geometric formulas and reproduction of ready-made spatial configurations. The actual road design is essentially based on a corpus of laws and regulations serving both as reference for developers and as technical guide for designers.<sup>2</sup> It provides formal and processual ‘norms’.

In order to investigate the processes through which the road “ecology” (Banham 1973)<sup>3</sup> is conceived and realized, and how it could evolve, this paper analyses the regulatory regime of road-making, focusing on the French case. Which laws and technical rules apply to alignment and profile of the road? What are their stated objectives and what are their loopholes? From which explicit or implicit doctrines do they derive and how are they interpreted into design discourses and practices? How do they impact upon the space/territory and what alternative approaches could be envisaged?

In the French regulation, the most determinant factor is the road typology. A first level of this classification distinguishes urban and non-urban roads—qualified until recently as “*rase campagne*”, and now referred to as “inter-urban”. The second and third level of this classification are given according to road functions and determine a priori both the speed and morphologic characteristics of the road. Inter-urban roads have a significantly more precise normative framework than most of the urban roads.

### *Safety and Speed*

This paper focuses on the technical handbook corresponding to the most ‘common’ inter-urban road types: *Aménagement de routes principales—Recommandations techniques pour la conception générale et la géométrie de la route* (ARP). The most striking aspect is that the overwhelming majority of the articles mention ‘safety’ as the ultimate goal. Only a few articles mention other objectives such as user comfort, durability and maintenance of the roadbed.<sup>4</sup>

Another important aspect is that the vehicle’s speed is not considered as a variable, but as a given fact. The legal speed limit is fixed before the design project by

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<sup>2</sup>In France, the *Centre d’études et d’expertise sur les risques, l’environnement, la mobilité et l’aménagement* is in charge of the synthesis and update of this corpus: the *Documentation des Techniques Routières Françaises*—DTRF.

<sup>3</sup>The whole ‘ecosystem’ of roads is considered here, including not only the modern typology of roads and urban apparatuses related to intensive use of motor vehicle—from highway to service road, and roundabouts, traffic islands, dedicated lanes, etc.—but also the open outdoor spaces surrounding them—from vegetated road shoulders and earth mounds, to mineral roadsides, parking areas, etc.

<sup>4</sup>In comparison, building regulations not only address safety issues, but also a wide range of other important objectives, such as aesthetic, energetic and environmental concerns, landscape and urban fabric integration, etc.

the choice of road type. Therefore, there is no direct interaction between the speed limit and the road design process. Construction costs and technical difficulties, as well as topography—and rarely climate—of the road site are other constraints or invariants considered in the road design. Conversely, the geometry of the road, its surface coating and, to a lesser extent, the user's comfort are considered as variables.

### *Geometry and Context*

Geometry is considered as the primary means to achieve the all-pervading safety issue. Most of the technical handbooks structure the morphological description of the road according to three main geometrical features, namely transversal profile, longitudinal profile and horizontal plan.

The horizontal plan and the longitudinal profile of the road have to be designed in order to ensure visibility clearance and legibility of the road trajectory and, marginally, to facilitate ease of use and discharging of rainwater. Concerning the transversal profile,<sup>5</sup> lateral limits have to be designed almost exclusively to prevent run-off and all the entailing road risks. The regulation provides both a recovery zone,<sup>6</sup> including a hard shoulder and a vegetated verge, and a larger security zone, including benches, ditches and slopes, in which any obstacle must be avoided. Considering both sides of a four-lane new inter-urban road, the total surface occupied by the security zone (7.5 m wide minimum!) is equal, or even superior, to the carriageway itself (Fig. 1).

## **The Indirect Agency of Regulations**

### *Monofunctional Pipe: a Shape without Contours*

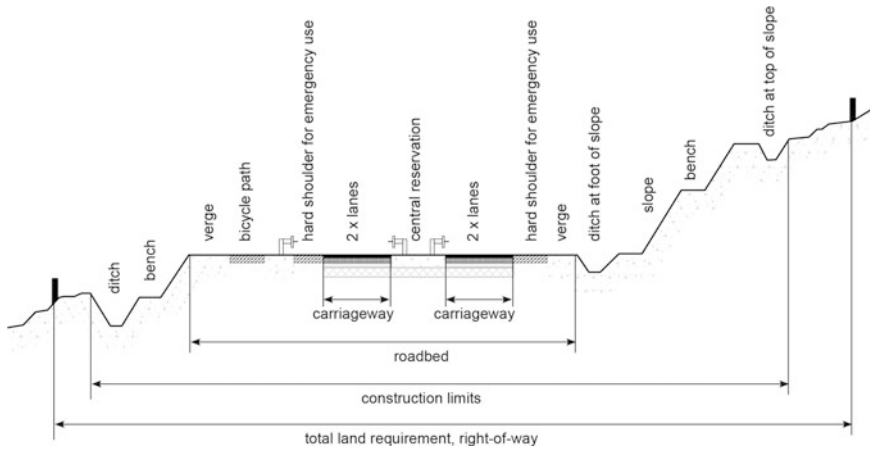
As legally and standardly defined, the road has limits that fade into vagueness. When defining road morphology at close scale, ARP considers essentially the carriageway and, to a lesser extent, the roadbed including hard shoulders and vegetated verges for emergency use. It also mentions some characteristics of the benches, ditches and slopes included within road construction limits. But, beyond safety zone requirements, there is no specifications for the significant area covered by the full right-of-way including other natural or pseudo-natural surfaces. The geometrical blueprint of the road considers the form of the road itself and not its interactions with other contextual elements (Desportes 2005).<sup>7</sup> Therefore, it does

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<sup>5</sup>The roadbed characteristics—i.e. number of lanes, with or without central reserve—are determined before the design project, when choosing road type.

<sup>6</sup>The texture of the recovery zone must be clearly distinguishable for the one of the carriageway—i.e. the asphalted path where automobiles normally drive—but stabilized enough and with no level difference to allow safe emergency use.

<sup>7</sup>For example, road profile adaptation to site topography is only envisaged as regard to critical contexts—such as mountainous areas—and concerns only visibility issues and readability of the road trajectory. In ARP, other issues regarding landscape visual integration or environmental impact are mentioned as basic principles, but they do not induce any concrete goal of the



**Fig. 1** Elements and spatial footprint of the road

not derive from a genuine design approach of the overall space traversed and altered by the road and cannot be considered as a plan or a vertical section.

However, the overall spatial dimension of the road should not be reduced to the geometry of the roadbed itself. Disregard of topography, parcel boundaries, building alignments or natural elements contributes to generating strongly anthropized or pseudo-natural “*délaissés*” (Clément 2014), in and out of the right-of-way. Along with maintenance services, building techniques of modern roads, such as cut and fill and earthwork, induce potential soil compaction/contamination and create new types of soils referred to as anthrosoils or technosoils. This human forcing on soil has a notable impact upon the soil’s ecosystem services—such as production, stock, filtration or dissemination of matter and energy. In other words, regulation produces formal and technical norms and contributes to modifying the relation between the road and the landscape, either productive or not—such as ornamental green spaces, agricultural fields, “*tiers paysage*” (*idem*) or natural reserves, whose functional and symbolic value is hence shifted.

Besides, the safety oriented legibility principle<sup>8</sup> also induces that the automobile path must be clearly channelled and as isolated as possible. Issues regarding the presence of soft mobility, biodiversity, as well as other productive or leisure

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regulation. No mention is made of energy topics. More specifically, the road impact on soils’ superficial quality is only taken into account as regard to driving safety, durability of the roadbed or discharging of rainwater.

<sup>8</sup>The legibility principle concerns both the visual aspect of the road itself and the haptic characteristics of its texture, but it only considers the relation to the surrounding environment in terms of contrast, in order to avoid any ambiguity regarding the road perimeter and trajectory.

activities that could take place alongside the road, are considered only insofar as they can affect automobile traffic and create a safety problem.<sup>9</sup>

*The paradoxical Logics of Urban Limits*

On a larger scale, French regulations, based on a dual urban vs. inter-urban road typology, obviously ignore all hybrid urban conditions—such as a non-dense urban territory co-penetrating the rural realm. The mutual influence between road design and urbanization is only considered previously to the design phase—by delimitation of urban perimeter and choice of road type.

The interaction between inter-urban road and built environment is only mentioned insofar as it disturbs the main road function—i.e. long distance travel or local transit—and creates a safety problem. This main safety objective induces various measures<sup>10</sup> regarding road access and transversal profile in order to indirectly neutralize any existing urban dissemination and prevent expansions. However, these measures increase significantly with the amount of soil surface dedicated to automobile use and accentuate territorial fragmentation. Paradoxically the formal patterns of the inter-urban road impact upon distribution logics, functions and buildings layouts alongside the road, creating an infrastructural in-between that strongly differs from dense and vertical urbanity or traditional rural context and that weakens the accessibility of the territories traversed.

*Infrastructural In-between: neither Vertical, nor Horizontal*

Summing up, the normative approach of road building regulations increases territorial discontinuity, accelerates spatial deconcentration and soil consumption and reinforces the spread of hardly adaptive urban patterns, in a way that does not correspond to a genuine vertical and hierarchized city-centre-oriented urbanism, nor to the isotropic agro-urban mix that forms the Horizontal Metropolis. ‘Frozen’ by the security zone on the smaller scale and by the dualist logic of urban limits on the larger scale, a large area of the right-of-way is thereby disregarded or, at least, underestimated in terms of potential human and non-human multi-functionality.

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<sup>9</sup>ARP only mention that pedestrians and bicycles can circulate on the hard shoulder and vegetated verge, that is to say in the automobile recovery zone! Similarly, the presence of animals is only referred to in terms of potential collision with vehicles and vegetation growth is strictly limited in the security zone: trees must be isolated or cut-down.

<sup>10</sup>Regulations aim at preventing direct access from isolated private properties to inter-urban road, sometimes generating an additional separated lane for local access. Planar intersections with perpendicular minor roads are also prohibited in the case of high-speed roads, to the benefits of minor road derivation or roads overlap, with or without vertical interchange. Similarly, some high-speed inter-urban road categories induce bypass road strategies in order to avoid confrontation in urban areas.



## From the Road to Its Soils: The Potential of the Right-of-Way Surfaces

### *From Speed to Integration and Sharing: Towards Recycling Scenarios*

These regulatory loopholes regarding the road's lateral portions, however, open up possibilities for the potential transformation and recycling of road network surfaces, addressing some major challenges, such as infrastructure proliferation and ageing in a globalized context, as well as responding to increasing aspirations in terms of mobility/accessibility improvement and transport modes diversification (Fabian 2013). First, more proactive management of vehicle speed (Loiseau 2005) could offer a key lever able to conciliate the safety concern to the other challenges of the 'road ecosystem'. Consequently, an innovative approach to road geometry itself, according to new typologies, could contribute to mitigating or drastically reducing car traffic flow, allowing alternative functionalities and uses of the right-of-way surfaces.

Beyond mobility issues in themselves, the wide spatial/territorial footprint of the road thus appears as a key lever for the sustainability of the Horizontal Metropolis. From being considered as anti-urban and land consuming, the road design could be envisaged as an opportunity to valorise the quantity and diversity of open spaces that characterize this non-compact form of city. A more integrative management of the vast unbuilt surfaces imbedded in the urban fabric way could therefore contribute to preserving urban soils as a resource and to optimize the ecosystem services and urban functionalities they potentially provide. In this respect, various research hypotheses rise: (1) redefining the concept of 'public space' according to a new environmental consciousness, (2) shifting from perceptual, spatial, social and biologic discontinuity towards a notion of "right distance" (Secchi 2013), (3) evolving from segregation and monofunctionality towards synergies and sharing of land uses and functions.

### *Redefining the Contours of Infrastructure: Re-describing Road surfaces as part of Open Spaces and Soils Integrated System*

Following the "wild cards" and "sites" that Keller Easterling identifies in the historic evolution of normative approaches about technical devices (Easterling 1999)<sup>11</sup>, it is thus possible and highly desirable to redefine the epistemological and spatial contours of infrastructure according to more contextually integrated spatial and territorial entities. In this perspective, the critical reading of road building regulations can be understood as preliminary observations of a research project aiming at analysing soils in the city-territory and particularly infrastructural soils in relation to the urban functions and ecosystem services they potentially support and

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<sup>11</sup>Based on William H. Whyte (*The last landscape*, 1968), Easterling envisaged that, combined with other infrastructural margins, the lateral portion of the Untied-Stats Interstate Highway could form national or transnational wide linear and transversal systems, able to support productive (agricultural), leisure or even commercial, residential and civic uses, as well as ecosystem services (Easterling 1999).

provide (Chenu et al. 2014). In order to consider how urban planning and design can contribute to the development of a more sustainable urban ecosystem, the Ph.D. research entitled *Our Common Soils. The Ecosystem of Infrastructural Soils in the Alpine-Lemanic City-Territory* consists in producing a series of soil maps, chrono-toposequences and profiles, considering urban soils as environmental agents and as a support for habitability. The research project will then envisage implementing regulations and normative approaches of infrastructure design with more comprehensive ‘ground design’ strategies and spatial prototypes. It will rely on Bernardo Secchi’s clam for a “progetto di suolo” (Secchi 1986), which can now be updated according to new concerns regarding soils three-dimensional qualities and ecological functions. The “progetto di suolo” allows going beyond technical solutions and restrictive actions, looking for renewed solidarities between urban, infrastructural and environmental land and soil uses on different scales.

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# Walkability After the Car: Looking into Low-Density Urbanity



Farzaneh Bahrami

Taking the recent decline in ‘automobilities’ as a departure point, in this article, we reconstruct the constant opposition of pedestrian and car that marked the theoretical debates as well as the urban projects throughout the last century, to better understand the implications and potentials of a possible inversion towards a post-car era, where a mobility based on corporeal capacities gradually takes primacy. We will trace the inversion through a historical path from car as an instrument of democracy –democratization of freedom of movement—(Sheller and Urry 2000) to current visions for ‘democracy on foot’ (Geipel et al. 2009). Questioning the status of walking, its metrics, and its capacities we focus specifically on low-density urbanity. Taking the case of the Lemman region in Switzerland, we will show that the territories of dispersed density, are slowly but progressively participating in the transition from car dominance, where an extensive network of public transport is provided.

## Introduction

Walking has recently attracted increasing scientific interest within different disciplines, in sociological studies, urban literature, as well as health and well-being; from walking as experience of the world via our feet, its techniques and rhythms (Ingold 2004; Vergunst 2008), to technologies and gadgets facilitating the same (Michael 2000), to walking as an essential part of the urban way of life and as a

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significant social activity (Demerath and Levinger 2003). The increasing centrality of walking and the figure of the pedestrian in mobility and urban discourses follows the strategies of modal shift and discourses of sustainability and ‘soft’ mobility as a response to energetic and environmental imperatives calling for an urgency to reduce car mobility and contributes, among other factors, to a phenomenon often described as car peak. Car peak marks a transition in mobility practices, mostly in cities that attract a growing population whose travel needs are increasingly met by investment in public transport (Metz 2013). Therefore car mobility, measured in terms of drivers’ licenses and household car ownership as well as average daily car travel distance, has significantly decreased (Kuhnimhof et al. 2012).

This article proposes to critically reconstruct the constant tension between the pedestrian and the car that marked the theoretical debates as well as the urban projects throughout the ‘century of the car,’ to better understand the implications and potentials—theoretical and in terms of projects—of a possible inversion towards a post-car era, where a mobility based on corporeal capacities gradually takes primacy. Questioning the status of walking, its metrics, its capacities and its characteristics we focus specifically on low-density urbanity.

Many cities are experiencing an observable rise of walking in their modal share, coupled with measures of public transport. Households increasingly abandon their cars in favor of pedestrian metrics. This trend, however, turns out to be much more modest when it comes to territories in-between cities. Walkability in low-density urbanity and in the contemporary fragmentary urban condition remains a challenge. “Considerations for pedestrians in the cities” wrote Jane Jacobs in 1961, “are inseparable from considerations for city diversity, vitality and concentration of use”. She reminds the reader “in the absence of city diversity and in large settlements people are probably better off in cars than on foot”. While a *Zwischenstadt* landscape could perfectly host an aesthetic promenade, it cannot easily accommodate the pedestrian as a ‘vehicular unit’ (Goffman 1972), which functions by integrating into a larger system of mobility.

In the first part we will trace a historical-critical path from the emergence of the car, when the opposition pedestrian/car was formulated as the opposition of body and machine, slowness and speed, to the following decades when the boundaries of the two were theorized in a more complex and overlapping way, sociability versus efficiency, active versus passive. Over time the opposition blurs and the notions move from one side to the other as in a recent approach to mobility, speed is redefined in terms of accessibility and connectivity related to flexibility inherent to pedestrian movement. Thus the individual freedom (of movement) once associated directly with democratization of the car is today sought through connectivity and porosity of the urban network.

In the second part, in the framework of an ongoing project on the Lemman region in Switzerland, envisioning a transition in mobility towards a post-car world,<sup>1</sup>

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<sup>1</sup>Post-Car World is an on-going interdisciplinary project between three federal universities in Switzerland: EPFL (Lausanne) ETH (Zurich) and USI (Lugano), see <http://postcarworld.epfl.ch/>.

we focus on pedestrian mobility in low-density urban areas. We take the Leman region in Switzerland, the area between Lausanne and Geneva, as a relevant case with an extensive supply of public transport, despite which it remains highly car dependent. Challenging the absolute values of what is considered as walking distance, we introduce and evaluate the efficiency and relevance of a system of ‘Accelerated Moving Walkways’<sup>2</sup> as an extension of the notion of walkability. What potentials and what horizons of efficiency and sociability?

## **Car Versus Pedestrian: A Tug of War**

### *Critiques of Car and Emergence of Public Space*

While the twentieth century witnessed the decisive triumph of the car as principal means of personal mobility and consequently the fervent development of its infrastructure, spatially and socially reorganizing the city, that very triumph ironically generated critiques of the car and quests for alternatives that continue to this day. The car dominance was first questioned through spatial concerns, for its colonization of the space of everyday life by the invasive character of its object and its accompanying infrastructure and for its territorial consequences, contributing, as it does, to a system of inhabiting that lowers the level of urbanity by reducing density and diversity. The space produced by the car and the observation of the “pedestrian cheerfully suffering the loss of all his amenities” (Buchanan 1958, p. 89) led to a quest for the qualities of traditional urban space and critiques of the proliferation of fast roads (Mumford 1958; Jacobs 1961; Lefebvre 1968). These observations and critiques, we would argue, triggered the theoretical reflections on the notion of public space, its elaboration within urban discourses and marked the beginning of a series of pedestrianization projects and car-free schemes both in Europe and in the U.S.

“One of the earliest efforts to discuss the issue of urban public space in the transformed circumstances of modern architecture after the war was CIAM 8 held in Hoddesdon, England, on *The Heart of the City* in 1951” (Mumford 2002, p. 215). Centred on the notion of human scale and the figure of pedestrian, it acknowledged “the right of the individual over the tyranny of mechanical tools” (Tyrwhitt et al. 1952). The core was discussed as a civic landscape, secure from traffic to provide opportunities for spontaneous manifestations of social life (Tyrwhitt et al. 1952).

Public space characterized as space of pedestrian becomes central to urban discourses and animates urban projects. It appears in this period in publications on urbanism as well as in interdisciplinary reflections on cities (Jacobs 1961; Gehl

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<sup>2</sup>The system is being developed as a part of our on-going research *PostCarWorld* by Transportation and Mobility Laboratory (TRANSP-OR, EPFL). They address specifically the technological challenges, such as energetic efficiency, network optimization and safety.

1971–1987 English translation; Lofland 1973; Whyte 1980; Appleyard et al. 1981; Lofland 1998). However, these publications discern the subject differently; from lamenting the end of public space as it becomes “a function of motion and losing any independent experiential meaning of its own” (Sennett 1977, p. 12), to setting theoretical grounds and identifying the characteristics and attributes of it through history (Lofland 1985, 1998) and further, to analysis and proposal of criteria and rules of thumb for a human centred approach to projects of urban public spaces (Gehl 1972). The studies and proposals of the material and typologies of space of pedestrian were later transformed into a political reflection on the relation of the body to the space of the city. It is important to note the relevance and influence of publications in political theory such as Arendt’s notion of *polis* as space of appearance; “where I appear to others as others appear to me, where men exist ... to make their appearance explicitly” (Arendt 1958, p. 198), as well as various social movements of this period in reinforcing the idea of public space as corporeal space of citizenship, the space of the pedestrian.

### *Pedestrian as Vehicular Unit*

During the twentieth century, *la règne de la vitesse*, man was looked down upon as the slowest of all species, as “the biped creature so ill-constructed for speed” and it was the advent of car that finally enabled man to overcome this deplorable condition (Moos 2009). The speed is a criterion of comparison of pedestrian and car on the basis of an absolute measuring unit, and guided a significant part of the functionalist planning (e.g. projects of expressways in cities). As mentioned earlier however, following the aggressive space produced by car and against the absolute value of the speed, with the critiques of hyper mobility (e.g. Virilio, *Vitesse et politique*, 1977), coinciding with oil crisis (1973) and social and energetic concerns of fast transportations (Illich 1974), the pedestrian gained attention.

The search for a criteria that allows direct comparability of car and pedestrian (and all other transport modes), gave rise to conceptual innovations particularly fertile in the long-term. Including the notion of ‘vehicular unit’, developed by Goffman (1972). Goffman, sociologist and interested in interaction order and behaviour in public, tended to consider the car/pedestrian as two commensurable modalities of transport within the spectrum of all the variety of existing means of transport. In his book *Relations in public* (1972), he considers the pedestrian as a ‘vehicular unit’, to be able to sketch out the similarities and differences between car and foot traffic that can be objectively measured and compared.

A vehicular unit, he explained, is a shell of some kind controlled (usually from within) by a human. Vehicular units vary according to the thickness of their skins. There are trains, and cars, all of which have thick skins, being guided by humans who are well hidden and in some ways well protected. There are buggies, open cars, sedan chairs, rickshaws, and bicycles [...], which leave the navigator relatively, exposed. Viewed in this perspective, the individual himself can be

considered a pilot encased in a soft and exposing shell, namely his clothes and skin. Thus the shell for Goffman is the most characteristic feature of any vehicular unit that defines a distance and affords protection from the environment and from the other vehicular units within it. He contrasts the soft skin of pedestrian with the car's hard iron shell. It is interesting to observe that, in the more qualitative aspects of the comparison, the pedestrian as well as other vehicles are analysed using an organic metaphor blurring the previous, intuitive oppositions as body and machine.

The speed of a vehicular unit and the material qualities of its shells afford or constrain interaction with others as well as the surrounding environment. Goffman also underlines the importance of the relation vehicular units establish with the infrastructure facilitating them, the more the relation between the vehicle and its infrastructure is exclusive, for example the train with the rail and the car with the road, the less it is flexible and 'accessible'.

This approach was further developed into what Demerath and Levinger (2003) called "pausability", the quality that makes it possible to quickly switch from unfocused interactions to focused face-to-face ones. The flexibility and opportunistic character of movement has been described by Amar (2010) as *adherence* that is at its maximum in a walk as opposed to an origin-destination movement with no grip or *adherence* to the environment it passes through. In case of car movement, it could vary from fast roads and highways with very little longitudinal grips to more capillary roads with opportunities to draw up to their sidewalks.

Thus the neutrality of the notion of vehicular unit allows articulating and fine-tuning in a qualitative manner of the specificities of different transport modes beyond the previous preconceptions and dichotomies such as speed and slowness.

### *The Importance of Being Active*

As already mentioned from 1970s–80s, walkability and its attributes became an important entry of the modal shift strategies and projects, driven first by social and spatial concerns and further by environmental and energy ones. Sustainability was sought through soft mobility, promoting, valorizing, and encouraging slowness. A first inversion of value from speed to slowness were the gentle mobility strategies; slow zones, familial zones, *zone de rencontre*, slowing down the traffic and road diet technics. The vocabulary nevertheless has recently shifted from soft to 'active', with a re-consideration of 'body' and metabolic energy. Walking is increasingly associated with well-being, 'active mobility' replaces that of 'soft mobility'. Several studies have pointed out the contribution of walking (and cycling) to the challenge of insufficiency of physical activity in adults and that encouraging active travel could be a promising way of meeting this challenge.

Today many researches and strategic plans, focus on the increasing share of 'active mobility' in cities. For instance, Peter (2014), landscape designer and architect, proposes, in collaboration with physicians and the city of Strasbourg, medical prescriptions of precise urban walks for obese patients. Such initiatives (see

also Vision 2030 in UK, developing visions for reducing car mobility to 5% of its current modal share by focusing on ‘active travel’, and Hamburg’s *Grünes Netz*, planning to create an extensive 70 km network of bike and pedestrian greenways to link the green areas of the city to the outskirts without relying on car) are grounded on the fact that today physical activity and the notion of effort take extra value.

Coming back again to pedestrian versus car, as we can see we have moved away from Lynch et al. (1964) approach to the car and its quality of effortless moving, and its visual approach to the landscape that launched a series of explorations on the relation between sight and motion. The value of walking as an exercise emphasizes more ‘tactile’ and ‘atmospheric’ aspects of landscape, walking as a multisensory experience.

The daily activity today is measured, registered and even shared through social networks by fitness trackers, smartphones and accessories (e.g. fitbit, iwatch, apple health applications, etc.). Smartphones that are considered as a significant rival of car culture (Thompson 2012; Weissmann 2012) measure and value the effort of the individual. As an important personal possessed object, smartphones provide invaluable real time information on travel trajectories and transport connections and modalities that are susceptible to compete with the car’s uninterrupted connectivity. Smartphones and other mobile technologies not only render the trip reliable and the trajectory imaginable, but also provide a connection to an outer world, family, work and friends’ network that changes the experience of the trip. The notion of active mobility thus could be interpreted beyond mere physical activity, sport and effort and can be defined as a new relation to time of travel; active use of travel time, both in short trajectories as well as long distances and within mobile life styles. Thus we move from “an obsession with speed to a mastering of time”.

The ‘active’ individual, the pedestrian, with their capacity to move between different scales, becomes the protagonist of city, breaking from the rhetoric of slowness, and rather focusing on inherent characteristics of pedestrian movement, its agility and ‘pausability’, contrasting with car’s ‘coercive freedom’ (Sheller and Urry 2000). Agility implies speed but in a smart way, it is the quality to move quickly and while having a resourceful and adaptable character and ‘pausability’ enables opportunities for connections and interactions. In this frame, the political dimension of active mobility becomes clear. Not surprisingly, reversing the traditional quality of car as an instrument of democracy—democratization of freedom of movement—(Sheller and Urry 2000), today urbanists envision ‘democracy on foot’ (Geipel et al. 2009) and the theme of porosity becomes fundamentally political besides technical.

### *Towards the Speeds that Matter*

Amar (2010) introduces the notion of *Reliance* as the new value of mobility that goes beyond the distance/time relation of the transport realm. In this perspective mobility is increasingly understood as creation of links, opportunities and synergies



rather than overcoming distances. New conceptions of mobility redefine the notion of speed. In *Ville pédestre, ville rapide* (2008) Lévy proposes the idea of ‘Contextual Speed’—that is access to people, places and social realities rather than movement through space in time—asserting that a pedestrian in a dense and diverse city that favors pedestrian metrics is ‘faster’ than for example a driver speeding up in a highway, that is to say the pedestrian has access to more relevant social realities. In a contextual approach therefore, “the urban masses, linked by ‘mobile’ elements become a variant of their velocity” (Lévy 2008).

It is important to note that this transition in mobility is happening within the context of a more profound evolution that is the emergence of mobile life-styles (Amar 2010), people whose daily life is extended over a large territory, commuting long distances for work reasons or family or couple dynamics—polytopic lifestyles (Stock 2006)—are more reluctant to use the car. High-speed trains and low cost flights enable them to travel fast and ‘active’, moving between different scales and different means of transport, their mobility is above all their competence. Thus individual as trans-scalar fundamental component of mobility, placed at the center of different modes, becomes co-producer of its own mobility and constitutes a fundamental component of the increasing multi-modality of cities. In the transition from car dominance and *automobilities*, to emergence of different modes, individual, collective and shared vehicular units, *heteromobilities*, the pedestrian, ‘augmented’ by seamless information and by his ‘Seven-league boots’ (bicycle, metro, etc.) (Amar 2010) becomes itself the infrastructure of the city of today; in this perspective speeding up the city is conceiving it for the pedestrian.

## Walking in Between

### *The Strength of Weak Signs*

Within multiple aspects of walk as the subject of research, an important body is dedicated to environmental qualities and correlates of walk, how the built environment and neighbourhood characteristics influence the willingness or reluctance to walk. A general consensus can be traced through the results of these studies both in transportation and urban planning literature as well as health and behavioural science literature that consistently correlate walking rates with higher levels of densities and economic activities (Cervero 2002; Saelens et al. 2003; Ravalet et al. 2013). This proves to be important particularly concerning the walk as a means of transport and as a part of the daily trajectory rather than recreational promenades or brisk walks (McCormack and Shiell 2011).

Low-density urbanity—considered, with some historical exceptions, to be the consequence of the car—continues to be strongly associated with car dependency both for those who inhabit these territories as well as visitors from compact city whose leisure activities involve car travels. Masbouni et al. (2015) addressing the

question of car in the context of *La Ville Territoire*, announces a lack of reflection, projects, methods and governance on the evolution of the car dependency in large territories (Masbouni et al. 2015, p. 150).

In the following section we will look into walking trends versus that of car in the Lemman metropolitan region in Switzerland, the territories between two cities of Lausanne and Geneva. In the context of Lemman region, in two cities of Lausanne and Geneva, shows a national mobility survey,<sup>3</sup> families are increasingly abandoning cars, with an 11% increase during the last decade; four families out of ten now move around without a private car. However, in the extended territories between the two cities, stretching to the Jura Mountains with mixed urban and agricultural landscapes, individual houses, farms and small villages, this number drops to less than a household out of ten (7% in Vaud and 9% in Geneva in typologies classified as peri-urban) while the rest have one and often more than one car per family. The number of car per household, as expected is strongly related to the typology of place of residence, increasing when moving away from dense urban areas. However, despite the prevalence of car ownership, the modal split of the car in these territories has decreased in the last ten years, therefore car ownership does not necessarily equal its constant use, walking increased within the same areas from 16 to 28% in the canton of Geneva and from 21 to 27% in the canton of Vaud. It is interesting to note that while modal split of car is reduced in peri-urban zones, the time of car mobility has increased. Given the decrease in the kilometres covered by car in general, the increase in time of car mobility could be interpreted as a reduction in car speed (Fig. 1).

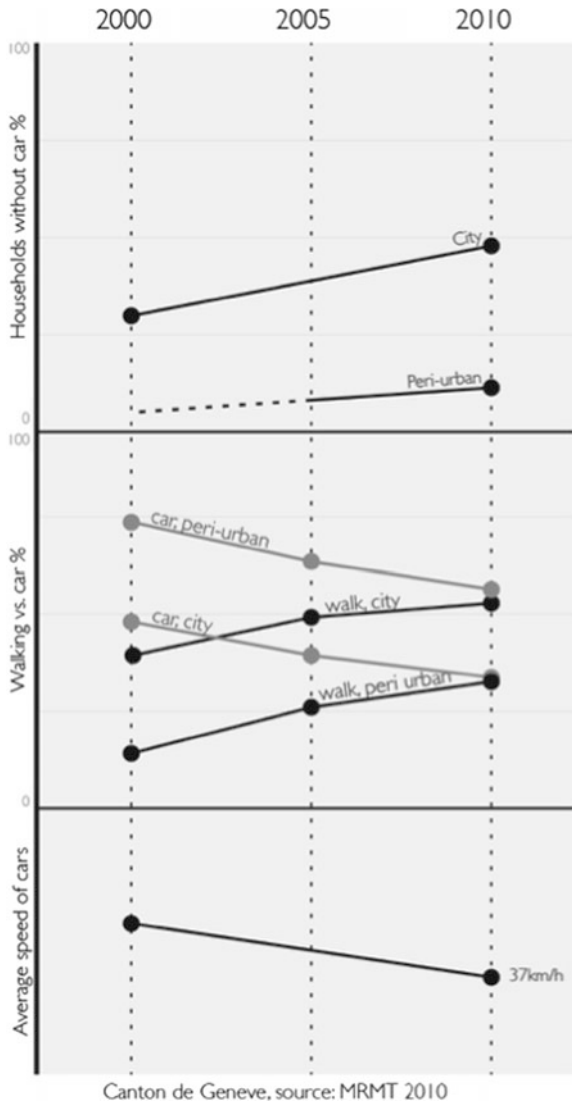
From this brief overview we can see that the territories of dispersed density in the Lemman region slowly but progressively participate in what we can call a transition in mobility practices. The question is whether these weak signs of change could be symptomatic of a thorough transition from car dominance, an inversion in use and place of car, especially within low-density urbanity. If so, what kind of walkability would emerge from the long tension car/pedestrian that has consistently defined one mode in relation to the other? What would be the place of public space, as concentration of density and diversity, and as space predominantly defined by pedestrian within the context of dispersion? What could encourage walking if low density is the quality to be maintained? What would be the value of *reliance* in the context of dispersion? How would the polarities efficiency/spontaneity, machine/body, active/passive be re-articulated?

While in the context of density and diversity (city), a project of walkability entails a re-programming of the surface to 'facilitate' the walk, in the territories that extend in-between, it demands new spatial configurations, e.g. rethinking large architectural volumes, creation of small centralities, intensification of services

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<sup>3</sup>Micro-recensement Mobilité et Transports; La mobilité des Genevois et des Vaudois, EPFL (Ecole Polytechnique fédérale de Lausanne) Transportation, Center and Observatoire Universitaire de la Mobilité UNIGE (2012).

**Fig. 1** Walking versus car mobility, trends in cities and in peri-urban areas with Canton of Geneva between 2000 and 2010. *Source* Micro-recensement Mobilité et Transports 2012



(increasing the contextual speed), as well as new infrastructural supports in terms of mobility (increasing the absolute speed).

In the last part we propose to explore the potential relevance of the application of a system of ‘Accelerating Moving Walkways’, as an extension of notion of walkability within these territories, as a possible instrument of overcoming the challenge of long, repetitive, walks in the absence of serendipity and spontaneity offered by an intense public space that renders the same trajectory a different

experience every time. We hypothesize that by increasing the absolute speed of the pedestrian within low density areas we can, beside decreasing the time-distance, intensify the experience of the public space and thus overcome its paradox in lower densities, beyond machine/body opposition and by displacing the boundaries of active and passive mobility.

We retake a particular field of experimentation, where the capacity of walking has been augmented to compete with car. With the conviction that “people will use automobiles as long as nothing better is available” (Gruen 1964) a series of explorations started in the 1960s proposing new innovative possibilities for the future that will give even more delight and convenience to the user. Given the considerable amount of studies and experiments on mechanical means of moving people prior to the mass motorization era, up to 1920s, urban projects in this period re-employed many of the historical schemes and examples to develop the future with the objective of reducing the role of the private car (Richards 1966). Among many transport systems imagined, such as mini-rail, self-driven mini taxis, automatic people movers and other non-stop moving systems, MWs were a promising recurrent scheme. Applied mostly within the transportations hubs and shopping malls, it was also imagined to be a viable transport means for intra-city movements, especially within the new developments. MWs, also called Pedestrian Conveyors, were thought not only as an aid to pedestrian movement but also as providing a new experience, with a view over the city at a different speed, not necessarily faster than that of the pedestrian. Such effortless, immobile walk of the Pedestrian Conveyors offered another vision of the city without regrets for the car; the city as a permanent *Exposition Universelle* (Rouillard 2013).

### ***Accelerating Moving Walkway; An Extension of Walking***

The use of Moving Walkways (MW) is a concept present in the history of transportation since the late 19th century, and it has fascinated science-fiction writers, urban planners and engineers ever since. Around the 1900s, already the use of impossibly fast (more than 100 km/h) and massive moving walkways as the transport system of future megalopolis was described in several science-fiction novels (e.g. *A Story of the Days To Come*, H. G. Wells, 1897; *The Roads Must Roll*, Robert A. Heinlein, 1940; *The Caves of Steel*, Isaac Asimov, 1954) while their real implementations were also presented in exhibition events (e.g. *World's Columbian Exposition*, Chicago—USA, 1893; *Exposition Universelle*, Paris—France, 1900; *42nd street*, New York—USA, 1923). Contrary to what was presumed in different moments of the history, today MWs are not used as a means of transport for a city network, but only on individual links with high demand, usually in large transportation hubs such as airports and metro stations and in few cases they are used in

hilly city centres to facilitate the access to elevated parts (e.g. Hong Kong, Medellin—Colombia, Perugia—Italy) (Scarinci et al. 2015).

In the contextual approach, as discussed earlier, the access of the moving element, pedestrian or car, to people, places, services and social realities—and not the distance it covers—in a given time determines its speed. However, the experience of density itself is also closely related to the speed of movement through a given environment (Ourednik 2010), therefore, the absolute speed in this sense becomes a variable of density or the perception of density; if the density is to be understood as the number of encounters with people, places, and social realities in a given time. We can therefore hypothesize that increasing the speed increases the intensity of public space, provided the means of increasing speed, does not de-densify the context by its very metrics. Thus the ideal would be a vehicular unit with higher speed than pedestrian that nevertheless maintains a high level of *adherence* to the immediate environment without de-densifying the context with its accompanying infrastructure, as does car.

An interesting technological development is the Accelerating Moving Walkway (AMW), installed at Toronto Airport (Canada) and Paris Montparnasse metro station (France). Unlike the traditional moving walkways, AMWs have an acceleration section at the embarking areas that accelerates pedestrians to a speed close to 12 km/h, adding up to the velocity of normal walk, which is possible on top of the walkway, it can reach 18 km/h. This technological improvement could allow the use of AMWs as an urban means of transport given that their speed is comparable to the current commercial speed in dense city centers, which is approximately 15 km/h) (Scarinci et al. 2015).

In a synergic approach within the framework of Post Car World research, as Scarinci et al. (2014) focus on technical aspects of the AMW, comfort, efficiency and the network design within the context of the city, we hypothesize, building on their technical reflections, that in a radical scenario of inversion of the place of car and pedestrian in the system of mobility, AMW could particularly be of interest in generating new urbanities within lower densities. However, as an infrastructure, although not very imposing in its visual and physical imprint, AMW has still the fundamental drawback of creating barriers and reducing the permeability of the network and spontaneity of flows. Therefore in the city center where spontaneity is a constitutive value, the utility of AMW becomes questionable whereas in the low-density urbanity, along the existing limits, within long segments of the fragmented urbanity, a network could be imagined. The pedestrian leaving the system of MWs is liberated from the means of transport, i.e. he doesn't have to park the mobility device nor return back to it at the end of a journey. The experience of movement of the body and the exposure to the surrounding environment is close to that of the pedestrian. Running in an ongoing fashion, it eliminates the waiting time and therefore generates a feeling of continuous flow particular to the pedestrian experience of space, creating a space of continuous and unconstrained flow of social interactions.

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# Inventing a Common Home: An Experiment in the Ave Valley



Nuno Travasso

[...] there is no territory without an imagining of the territory. The territory may be expressed in statistical terms [...] but it cannot be reduced to the quantitative. As a project, the territory is semanticized. It is 'discoursable'. It bears a name. (Corboz 1983).

There cannot be a social spatial project without the imagining of landscape. There cannot be an imagining of landscape without there being a discussion about it. (Dehaene et al. 2014, p. 9).

## Introduction

'Territory: a Common Home' is the name of a research project aiming to trigger public awareness and debate on the territory of the Ave Valley (NW of Portugal) and to stimulate the collective invention of a shared imaginary of this region.

The Ave Valley is covered by an extensive diffuse settlement that finds its roots in ancient times (Sampaio 1892–98; Ribeiro 1945). In 1762, the whole region was already described as a 'continuous city' (Castro 1762, 48), and since then its occupation has been continuously and progressively intensified, always following the same pattern, even though the last decades of the 20th century witnessed a faster and sudden growth. Today, the region presents a complex and promiscuous organization that defies all canonical urban models and traditional dichotomies, being often pointed out as unintelligible and chaotic.

Here, spatial planning practices and urban design interventions seem to have little positive effects. This cannot be justified by the technical quality of the involved actors, nor by the characteristics of the urban structure in itself. We argue

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**Fig. 1** The diffuse urbanisation of Ave Valley. Photo of an area of V.N. Famalicão. *Photo* Nuno Travasso

that, to a great extent, it is due to a misapprehension of this territory's own logics (Portas 1986) that seems to persist despite decades of research.<sup>1</sup>

In fact, shared perceptions of what this territory is, and shared visions of what it should be, seem to be lacking. The need is for the creation of 'conceptions of place and territory' able to mobilize, guide and coordinate the interventions of the numerous actors involved in the urbanisation process. And if we want such imaginary of the territory to be widely shared and, in this way, to actively shape the urban space, then it must arise from a broad, open and continuous debate.

The aim of 'Territory: a Common Home' was to stimulate and participate in such collective process (Fig. 1).

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<sup>1</sup>In Portugal, the Ave Valley has been the main case-study for a trans-disciplinary research on diffuse urbanisation that has been conducted since 1982, accompanying the international debate on this topic. After the first years seeking an extensive description of this territory's urban pattern, and the understanding of its physical, social and economic structure, its functioning logics, its history and growth (cf. Magalhães 1984; Marques 1985; Portas 1986; Domingues 1986; Sá 1986; among others), more recent research has shifted towards a closer and more detailed view, mainly in the field of urban morphology, analysing urbanisation processes, and proposing new ways of reading urban space (cf. Portas et al. 2003, 2011; Domingues 2009; Sucena 2010; Calix 2013; Labastida 2013).

## The Need for a New Imaginary of the ‘Continuous City’

Territory is a social and political artefact in constant mutation: a product of the continuous assemblage of collectively produced actions, discourses, debates, narratives and imageries that grant reality its meaning(s). ‘Reality’, as well as ‘space’, do not exist by themselves. ‘Space’ is a subjective mental construct resulting from the interpretation of the perceived physical domain that provides it meanings to which we can relate. This interpretation is dictated by socially constructed protocols, lifestyles, beliefs and prejudices. It is equally determined by the relation each of us establishes with it—through use, routine, sense of belonging, social interactions, memories, etc.—which is, to a great extent, influenced by the techno-social apparatus that mediate our experience—glasses, car, TV, mobile, GPS, etc.—as well as by visual, social and symbolic images of such space, to which we have been previously exposed. We do not inhabit physical matter in itself: we inhabit representations.<sup>2</sup>

In this sense, to act upon space in order to make it more intelligible, implies not only intervening directly on the physical realm, but also working on the multiple factors that produce its meanings (Sievarts 1997; Petrin 2008).

In the Ave Valley region, representations are weak. There is no clear political identity of the region, no coincidence between the readings different actors make of the territory in which they live and operate, no shared goals or shared visions for its future.

Both in public and in academic forums, discourses on territory—its analysis, evaluation, interventions and regulation—are essentially guided by normative models (Choay 1980) which clearly oppose extensive urbanisation (Dehaene 2013). As a result, representations of the ‘diffuse city’ (Indovina 1990) seem to be absent, or based on negative identities of what this territory ‘is not’ (Domingues 2008).

Such weakness becomes clear in the daily procedures of the urbanisation process. The negotiation between different actors—and especially the guidance and coordination of the various development projects that public administration is expected to assure—becomes extremely difficult, as there is no common ground on which to base a discussion.<sup>3</sup> The only linkage between distinct actions of urban transformation is the one provided by generic national regulations and abstract quantitative municipal masterplans with limited adhesion to local contexts, both derived to a great extent from urban models alien to the diffuse urbanisation. The result is the proliferation of incoherences, discontinuities and disfunctionalities.

The ‘continuous city’ of the Ave Valley needs new representations: shared imageries and narratives able to reveal its own logics—how its components relate to each other, how they derive from the existing biophysical structures, from the

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<sup>2</sup>About the mechanisms of perception of space and meaning production, cf. Bollnow (1963), Lynch (1960), Lefebvre (1974), Certeau (1980), and Latour (2005), among others.

<sup>3</sup>This conclusion stands on an on-going Ph.D. research, by the author of this paper, based on systematic analysis of licensing processes of private urban developments in the municipality of V.N. Famalicão (Ave Valley region), complemented with interviews to some of the main stakeholders involved.

history of the area, from the ways of living and producing of its inhabitants—and to offer new meanings to this territory, making it more intelligible (Sieverts 1997).

According to Patsy Healey, the need is for the creation of new “conceptions of place which have the power to mobilise, co-ordinate and inspire” the actions of the various actors (2002, 17). Such ‘conceptions of place’ cannot be based on quantitative analysis. They are products of imagination, they offer interpretations—which are never neutral—and, at the same time, they develop visions of desired futures. In this way, they frame a ‘project’ that will guide future actions, fostering a new shared culture of intervention, which is not founded on models alien to this territory; on the contrary, it derives from the territory itself.

## A Collective Construct

In order to actively shape urban space, new imaginaries of the territory must be widely shared by its inhabitants and by all the actors involved in the urbanisation process, so that they can steer the different urban interventions and give them coherence and legitimacy. In this sense, such representations cannot be either the result of technical decisions nor imposed by political power: they must arise from a broad debate involving all willing citizens and institutions. The aim is not the construction of any kind of single fixed identity, which would always be too narrow, oppressive and incapable of evolving. On the contrary, the goal is to develop representations open to multiple possible interpretations, that foster “a shared practice of noticing place qualities” (Healey 2002, p. 19)—a rich imaginary, able to support the relationship inhabitants have with their territory and cultivate their sense of belonging, as well as becoming a tool for mediation and argumentative reasoning among different actors.

This collective construct becomes even more relevant in a moment when modern planning tradition—based on the principles of predictability and common good—has shown itself to be incapable of adapting to the uncertainty of urbanisation processes and to the diversity and complexity of legit views, needs, and interests present in contemporary society. In this way, public authorities are now losing both the ability and the authority to decide and design by themselves how future urban space should be. They are also losing the means to directly transform physical space on a broad scale, due to the gradual reduction of the welfare state.

Today, the daily shaping of the territory is increasingly seen as a collective action. New collaborative planning practices emerge, seeking to involve multiple actors in the decision-making processes. These are always spaces of conflict and discussion. However, they cannot be seen as a mere bargaining between the individual interests of a limited number of stakeholders; nor can they be expected to build general consensus between all the actors. As argued by Chantall Mouffe (2000), a comprehensive consensus without exclusion is not possible—conflict will always be present in a pluralist society, it is a fundamental feature of ‘the political’, a positive force to be managed, not eliminated.

Therefore, the aim is to establish a broad, inclusive and meaningful debate where citizens and institutions actively engage in a discussion about their territories—

about their mutual problems, the things they share, their views on what is common to them and on their ways of being together—seeking to reach compromises or limited and contingent consensus.

But, who are ‘they’?, what are the issues at stake?, in what terms and with what legitimacy can they be discussed? Today, these are very difficult questions.

In order for a serious debate to be possible, first it is necessary to compose a common arena (Latour 2005), which implies the establishment of a shared language, ‘matters of concern’ to be discussed, and a legit assembly. To a certain extent, this common arena can be assembled by the means of a long, continuous and open dialogue, where no decision is at stake, and where actors freely explore the complexity of the matters and exchange their distinct views in order to discover new shared readings (Mäntysalo et al. 2011). The goal is not to reach any conclusion, but to create the conditions for the discussions that will follow.<sup>4</sup>

During such a continuous interaction between actors, ‘exchange languages’ are created by sedimentation, enabling the communication between people with different backgrounds and different ‘cultures of meaning and value’ (Mäntysalo et al. 2011). Also, this dialogue allows the main issues to emerge, setting a minimum agreement on what are the issues that must be collectively discussed and under what frames of reference. Finally, creating a public debate on these matters will gather around it a group of actors—the ones who claim to have interests on the issues at stake, the ones who feel they deserve to have a say on them, the ones who feel they belong to that territory and are willing to participate. And if this dialogue is open, inclusive and transparent enough, held in various forums and able to summon different citizens and institutions, one can expect it to slowly stabilize a group of actors (even if maintaining it always open to new arrivals is essential) that will gain a certain political identity and recognized legitimacy.

The collective construction of the territorial representations is the construction of the territory itself as a political object and as a common domain. It is also the construction of the collective gathered around the matters under discussion, composed by those who find in the imaginary of their territory a shared platform for negotiating their own identity, interests, goals and representation. The collective imagining of a territory is the invention of a ‘common home’.

## **The Project ‘Territory: A Common Home’**

The aim of the project ‘Territory: a Common Home’ was to participate and encourage such collective construction process.

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<sup>4</sup>Mäntysalo et al. (2011, 264) insist in the difference between the notion of ‘dialogue’—as a means to explore complex issues and collectively discover new views—and the notion of ‘discussion’—in which different views are defended, aiming to reach a decision.



**Fig. 2** The exhibition ‘Territory: a Common Home’. Photo of the central room where the two parallel analyses and the synthesis map were displayed. *Photo Alexandre Delmar*

This project resulted from a partnership between the municipality of V.N. Famalicão—located in the Ave Valley region—and the research group Territory Dynamics and Morphologies of the Centre for Studies in Architecture and Urbanism of the University of Porto<sup>5</sup>; and it had as a central element the design of an exhibition that was held in Casa do Território, destined to the broad public. The main goal was to make the ‘continuous city’ of the Ave Valley public (Dehaene et al. 2014): to draw public attention to it, to explore its own logics, to stimulate the creation of shared imaginaries around it, to compose it as a political object and to promote a broad debate on this territory (Fig. 2).

### *Describing the ‘Continuous City’*

The exhibition<sup>6</sup> started with an introductory section presenting the project’s main ideas and goals, and displaying a possible representation of Famalicão’s landscape: a cloud of photos, concepts and links, highlighting the hypertextual nature of both the production and the perception of this territory (Corboz 2000; Kolb 2008). Right from the beginning, it was clear that no single, unitary or neutral image was possible.

<sup>5</sup>The project was coordinated by Álvaro Domingues and Nuno Travasso.

<sup>6</sup>For a detailed and comprehensive presentation of this exhibition, see Domingues and Travasso (2015).

The next section proposed an analytical reading of this territory. First, it presented the ‘continuous city’ as a legit urban model, with its own history, heritage, logics and values. Following, two parallel analyses were displayed.

The first one was focused on urban morphology, seeking to disclose the logics underlying the complex ensemble of structures, typologies and forms that compose this landscape, by dissecting an area of the territory and presenting it in six different thematic layers.

The second analysis aimed to illustrate the complex network of procedures, regulations, actions, scales of reference, actors, conflicts, etc., that drive the daily shaping of the territory. This was done through four boxes where four ‘stories of the territory’ were told. These ‘stories’ explored, spatialized and framed some matters directly linked to debates that had recently drawn public attention, mobilizing opposite interests and opinions. In this way, the territory was composed and presented as a political object.

At the end of the room, a  $6 \times 2$  m map proposed a synthesis of the two analysis by overlapping a representation of the morphological structures of this territory, and an extensive spatialized and quantified representation of some of the processes taking place on that same territory: one very small step towards a more intelligible reading of the Ave Valley without denying any of its complexity.

Finally, the ‘territory postcards’—with one image and one text each—offered fifty additional points-of-view on this territory for the visitors to choose and take home with them. Besides emphasizing, once again, that no single closed narrative is possible, they attempted to counter the most common views on the Ave Valley’s landscape, that consider it as chaotic, anonymous, or simply non-existent.<sup>7</sup> By presenting this landscape through postcards, we tried to bring it to the aesthetic domain—as proposed by Sieverts (1997)—and to foster a more subjective and affective relation between citizens and their territory.

### *Feeding a Continuous Dialogue*

The intention of the presented analysis was not to set any complete or closed narrative, but to offer new views and feed a collective debate on this territory. The third and last section of the exhibition was dedicated to this collective construction process.

It was a space of production: here everyone was invited to sit down, talk, discuss, write, draw, paint, cut, paste, map, represent what this territory is to themselves and what they think it ought to be. The contributions were then attached to the free panels surrounding the room that thus gradually became an extension of

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<sup>7</sup>During one of the actions conducted in a local school as part of this research project, a student exclaimed “Are you going to talk about landscape? We don’t have such a thing here.” In fact, landscapes are repeatedly presented as something only related to extraordinary places.



**Fig. 3** Critical mapping workshop. Workshop with a group of civil servants of the spatial planning division of the Municipality of V.N. Famalicão. *Photo Alexandre Delmar*

the exhibition where different views and projects for the ‘continuous city’ were displayed—an ‘open work’ (Eco 1962), just like the territory itself.

A number of initiatives sought to further stimulate the process by calling and involving a broader public in the dialogue. Once a month, the cycle ‘Walks and Talks’ offered a thematic guided tour through the territory—one for each of the four ‘stories of the territory’—followed by a debate with major local stakeholders on that same matter. Discussion and critical mapping workshops were also held with different groups of municipal civil servants, students, local associations and residents. Here, each participant’s daily practices, perceptions, memories and claims were mapped as a trigger to discuss and represent the values, conflicts, needs and expectations present in the territory.<sup>8</sup>

The final action of the project was a public conference bringing together a number of leading national authors from different fields—architects, urban planners, geographers, an economist, a historian, a lawyer, politicians, photographers, and a writer<sup>9</sup>—for a day of intense discussion around three main questions: how to

<sup>8</sup>This description corresponds mainly to the workshops held with residents. Both the procedures and intentions of the workshops differed slightly depending on the groups, even if all of them had as a final goal the production of a critical representation of the territory of Famalicão.

<sup>9</sup>Debates and presentations by: José Pacheco Pereira, Gonçalo M. Tavares, Álvaro Domingues, João Ferrão, António Figueiredo, Francisca Magalhães, Eduardo Brito, Pablo Gallego Picard, Teresa Calix, Marta Labastida, Helena Amaro and Nuno Travasso.

represent this ‘continuous city’; how to plan and regulate it; how it might be imagined and invented.

The project did not stop here. All the results of these initiatives were recorded and will now be published, returning them to the people who produced them, as a way of feeding and further stimulating the dialogue. This publication will be the first issue of a new periodical to be published by the municipality, whose mission will be to register the different moments of this continuous collective construction. And the next cycle has already begun: Casa do Território’s new exhibitions are following a similar structure, maintaining the thematic guided tours and the final conference.

Hence the project continues. But now it is no longer a project of an external research centre: it is definitely a project of the municipality and its citizens, and it will continue to be so (Fig. 3).

## **One More Step for the Collective Invention of a ‘Common Home’**

The project ‘Territory: a Common Home’ was able to attract great public attention and numerous participants. It gathered a broad and diverse number of actors, mixing residents, academics, practitioners, artists, policy makers, local associations, developers and other stakeholders in an open and exploratory dialogue on this territory; a dialogue that was not predetermined by any specific agenda, project or schedule which could create false expectations or impel actors to only defend their own interests. It was a free dialogue aiming to bring a small contribution to the creation of new views on the Ave Valley and more understanding and trusting relationship between different actors, that could support the search for more adequate and operative governance and planning practices.

It was only one more small step. Not the beginning or the end of anything. It was only one more action amongst many other actions that compose this incessant dialogue. Its main aim was to keep the dialogue going, and to stimulate and to symbolise this continuous and collective process of inventing a ‘common home’.

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# Metabolic Properties of Urban Systems: Changing Paradigms in the Cultural Evolution of Human Settlements



Peter Baccini

## Introduction

For his settlements homo sapiens has developed, over thousands of years, technical equipment to support and ensure sustenance of water, energy, biomass and construction materials, to maintain the flows and stocks of these goods and to manage the disposal of waste. This technical equipment, a prosthetic outer envelope of the biological skin of humans, evolved in urbanization to a complex artificial physiological system of densely settled and highly mobile human societies. The byproduct of globalization is a net of urban systems embracing Planet Earth. It is the anthroposphere with its own technical metabolism (Baccini and Brunner 2012a).

## *The Fallacy of Metaphors*

The notion metabolism is used mainly by biologists to comprehend chemical transformations in living organisms, from cellular entities to complex organisms. These transformations allow the organisms to grow, reproduce and maintain their physiological system. In architecture urban planners applied the term, comparing urban settlements with living organisms [e.g. Kenzo Tange in the 1960s, (Zhongjie 2010)]. In 1965 the engineer Wolman was among the first to quantify the energy and material flows of a city (Wolman 1965). The focus was on “the city” growing to a “metropolis”. However the metabolic aspects were kept as metaphors reminding only theoretically the urban designers of the essentials of the physical stocks and flows. Eventually regional and spatial planning took the lead for the management of large scale settlement areas, differentiating between rural and urban

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areas, introducing “space” as the main object, operating with geographical, economic, ecological and social parameters to achieve the targets of territorial use, set by political authorities. Urban planning was reduced to a subordinate discipline in administration.

In territorial planning the paradigm of the dichotomy “Urban and Rural” is still dominating. In the green movement there is still a strong belief that a strict distinction between “Nature” (the Biosphere without human disturbances) and “anthroposphere” has to be achieved. During the twentieth century in Europe, North America and in parts of Asia, affluent societies have transformed their urban settlements into large sized urban networks (“urban sprawl”, “*Zwischenstadt*”, “*Netzstadt*”, “Horizontal Metropolis”). The paradigm of the classical core city with its concentric rings around becomes obsolete in developed countries, but is still applicable in some developing countries.

The love for the metaphoric side of the metabolism coin hinders urban designers and spatial planners to grasp the relevant aspects of the “material and energy systems” as intrinsic properties of the new urban systems. New urban life is defined by the “accessibility of urban offers” within an hour, once reserved for only 10% of a population. It is an open system with nodes, connections and borders (Oswald and Baccini 2003). The urban system is a large system made up of geogenic (emergent with the earth’s crust) and anthropogenic (emergent with humankind) subsystems. It covers an area of tens of thousands of square kilometres and has a population density of hundreds of inhabitants per square kilometre. The anthroposphere becomes a globalized network of urban systems, a patchwork of regional entities, which include all types of territories (waters, forests, agricultural land, settlement areas, and fallow land). The paradigm of clearly separate territories (the urban, the rural and the wilderness) is abandoned. Severe shortages of territories in urban systems are mainly due to metabolically inefficient processes (Baccini and Brunner 2012a; Baccini and Oswald 2003).

### ***Making Urban Systems Metabolically More Robust: Three Illustrations***

How are such urban systems generated? Through human activities (Baccini and Brunner 2012a; Baccini and Oswald 1998). An activity is seen as an action by human beings designed to satisfy their needs. Four basic needs are chosen, namely “To nourish”, “To Clean”, “To Reside and Work”, “To Transport and Communicate”. They apply to all stages of human development and are thus independent of any particular place or time. They allow synchronic and diachronic investigations. They generate culture-specific subsystems, among them metabolic ones.

- (1) *Comparing two extremely different regional metabolic systems with regard to their perspectives in a sustainable development*

For urban systems there is a huge diversity of starting positions and boundary conditions on a global scale. In this spectrum a comparison of two extreme cases is illustrated in Table 1, a peasant society of Nicaragua (Pfister and Baccini 2005) and an urban society in Western Europe, namely an urban system in the Swiss Lowlands (Faist 2000). The distinct differences of the activity “To Nourish” are shown. The peasant society (A) consists mainly of farmers, grouped in families, practicing a subsistence economy. The region they are living in belongs to the poorest ones on earth. In contrast the urban society is rooted in one of the richest countries. The total energy consumption of U is approximately tenfold of A. For the activity “To Nourish” (including agricultural production, upgrading, distribution, consumption) A needs roughly 90% of its total energy demand, whereas U can manage with only 20% of its total. A’s energy source is from local forests (80% self-sufficiency). U’s energy carriers are mainly fossil fuels and are imported. U needs 80% of its energy demand for the activities “To Reside and Work” and “To transport and Communicate”. A’s food is mainly produced within the region (90% self-sufficiency). U needs, on the bottom line (taking import/export flows into account), a “global Hinterland” for approximately 40% of its food demand. In A the peasant household has to spend roughly 90% of its income for food, whereas the urban household can manage this activity with only 10% (average values) of its total income. In the comparison of the two cases the following additional insights must be stated:

- (a) The peasants in A have a reasonable strategy in their agricultural production. Due to their increasing population their system is neither economically nor ecologically sustainable. They need a “Hinterland” where they can sell their labor force. However their national “Hinterland” cannot offer enough labour. A second source of income is the cash crop coffee, a product to be sold on the global market that is mostly out of reach for poor farmers. Their main problems are thus population growth and the lack of a strong complementary region offering labor and/or good prices for agricultural products.
- (b) The people in U are economically successful in a global market, mostly due to their products in the second and tertiary sector. However, due to their strong dependence on non-renewable energy sources their system is not sustainable on the long term. Without reconstruction of their physical infrastructure from a fossil to a solar system within the next two to three generations, U will collapse.

**Table 1 Comparison of a peasant society A in Nicaragua (6) and an urban society U in Western Europe (7) with regard to their energy demand in the activity “To Nourish” (energy flows in Gigajoule per capita and year) and to their economic effort**

	Agrar A		Urban U	
	GJ/cap & y	Self-sufficiency (%)	GJ/cap & y	Self-sufficiency (%)
Energy total	19	80	180	10
Energy to nourish	17		30	
Regional supply		>90		60
Ratio of total income	>80%		10%	

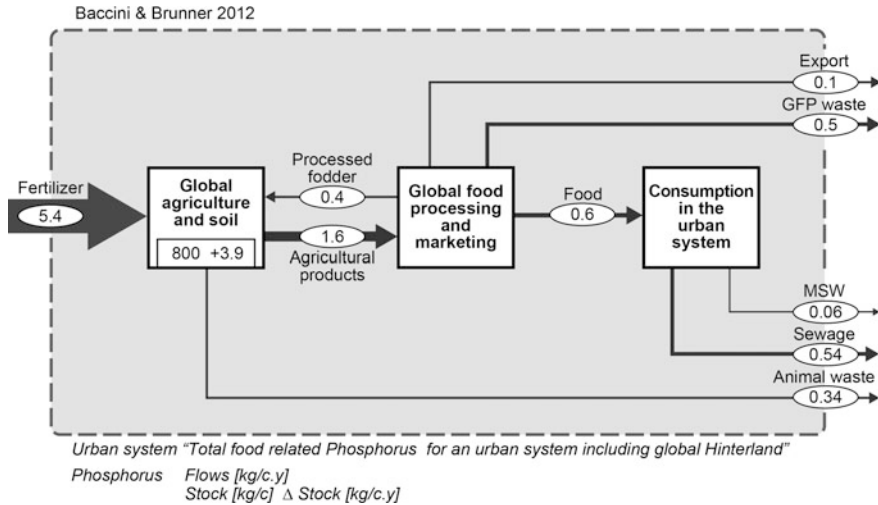
The starting positions of an A and a U society to enter an SD process are completely different, only seen from an ecological and an economic point of view. Here the various differences in political and social culture are not yet considered. Since the developed countries with their new urbanity consume about 80% of the demand of the worldwide anthroposphere, the focus in the resource management for a sustainable development is on these urban systems.

It follows that the dominant environmental protection paradigm with the two separate spheres (biosphere and anthroposphere) is superseded by a paradigm promoting the design of cultural landscapes, a procedure that asks for differentiated knowledge of metabolic processes (Baccini and Brunner 2012b).

(2) *Getting poor in Phosphorus: How do we prevent starving on a global scale?*

Phosphorus (P) is one of the key elements for sustaining life, an essential nutrient for human beings and the biosphere, and it is irreplaceable. It has hit the headlines in public debates, firstly as a “polluter” of aquatic systems (eutrophication), lately for a feared future paucity as a nutrient. Affluent societies in moderate climate zones show the following characteristics (see also Fig. 1): (1) P is mostly imported (5 kg per capita a year) from remote mining areas (phosphates), (2) the export of P is marginal, i.e. 90% are accumulated in the anthroposphere, (3) the largest P stock, steadily increasing (0.5% per year) is in the agricultural soil (content roughly 800 kg P per capita). It follows that a large global redistribution of P is taking place. P is extracted as mineral phosphate from highly concentrated, exclusive spots, and subsequently distributed in the soils of the anthroposphere, building up a long-term eutrophication risk for surface waters. Less than hundred years ago agricultural soils suffered from a scarcity of P and needed fertilizing to reach the desired yields.

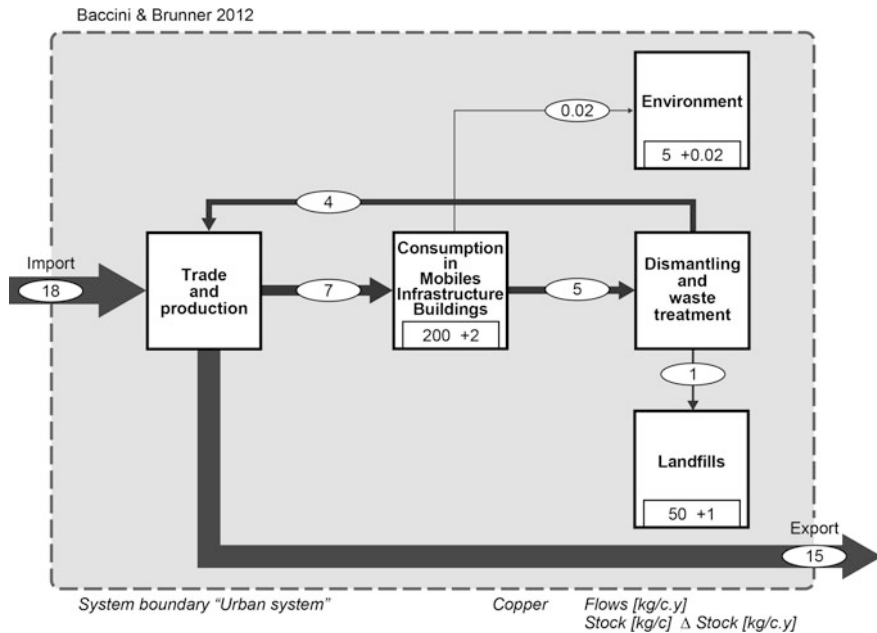
Only 11% of the total P input finally ends up as food on the table (about 0.6 kg per capita and year). In other words, the efficiency of anthropogenic P management is relatively low. This is mainly due to the two key processes of the metabolic P system, namely plant production and animal rearing. The following figures show the correct orders of magnitude: If the contemporary anthropogenic consumption of P of affluent societies (about 20% of the global population) is extended on a global scale, a P scarcity for food production would probably pose a sizeable problem in 100–400 years time. Too far off for some, dangerously close for others. What are the consequences for the design of a specific P-management strategy (in addition to the general principles mentioned below)? Despite the existing possibilities to improve P-exploitation and mining technologies, the first focus must be to change food production because the net efficiency of agriculture is much too low (output per input is only 28%), and large quantities of P are lost to the environment. New technical and economic ways of growing plants and animals have to be invented, maybe separately from the soil as the main carrier (e.g. in “urban gardening”). It’s a huge challenge, questioning thousands of years of human agriculture, and the period of transformation will span several human generations.



**Fig. 1 Phosphorus Stocks and Flows** (1, 8): The urban system, represented by the process “Consumption in the urban system” gets only 11% of the total P put into food production. The dominant actors are agricultural production and food processing. The main sink is the soil, storing and immobilizing more than half of the fertilizer applied, leading to an annual increase in total P content by approx. 0.5%. Current agricultural techniques are grossly inefficient in P management

(3) *Getting rich in copper: How do we prepare our growing stocks for urban mining?*

From a metabolic view the built infrastructure of the anthroposphere (buildings, roads, ports, pipes etc. and the installed commodities in and on them) is the result of a transfer and a transformation of material from the earth’s crust to the urban system. In affluent societies the material stock has risen to roughly 400 tons per capita and is still growing at an annual rate between of 1 and 2%. Approximately 80–90% of this stock is made of rock material, silicates and carbonates. Metals such as iron, aluminium, zinc, and copper form a group of widely applied construction materials. Their mean concentration in the anthropogenic stock is less than 2%. However their energetic and economic value is usually higher than in their original sources, the ores in the earth’s crust. In large-scale technical processes demanding energy, they are chemically transformed into the metallic state. Copper metal (Cu), the most expensive among the four mentioned above (between US\$5 and 10 per kg), has a mean concentration in the anthropogenic stock of only 1 g per kg. However, 99% of Cu is installed in “clusters” of high metal concentrations, depending on the applied function (electric wires, roof coverings, heating, water pipes, etc.). In developed countries the present copper stock varies between 200 and 300 kg per capita (see also Fig. 2). This stock is still growing at an annual rate of 1–2%. In developing countries this stock is an order of magnitude lower, but can be seen to be partially growing at higher rates. Comparing the present Cu stock in affluent societies with the explored copper ore stock in the earth’s crust, divided by



**Fig. 2 Copper Stocks and Flows (1, 8):** The urban system presented is without its own source of copper ore. All copper is imported, refined and inserted in various commodities, most of which (80%) are exported to external markets. Environmental spillage is very small (approx. 0.1%), the recycling rate is high (80% of consumer waste). The main stock, accumulated over the last hundred years, amounts to 200 kg per capita and is growing annually by 1%. This reserve has a high reuse potential. The stocks in the landfills are smaller, but they also growing, yet here the copper is strongly diluted, mixed with a complex variety of other substances materials and economically and energetically unsuited for reuse

the global population, we obtain the figure of 300 kg per capita that is left for the future. If we extrapolate the present copper input flow of affluent societies to a global scale, namely 10–20 kg per capita a year, an upcoming copper scarcity based on “primary copper in ores” could show up already in the second half of the twenty-first century. In comparison to Phosphorus, there are two main differences: (1) Only a very small fraction of copper is “diluted” in a chemically and physically complex ecosystem (like the agricultural soil); (2) due to its chemical “robustness”, copper maintains, its physical quality. It follows that copper is a good candidate for urban mining, a combination of urban geology and urban engineering.

At present this perspective has two major shortcomings. Firstly, the built infrastructure has, with very few exceptions, no systematic information available about the amount and location of copper in a building. The owners of buildings do not know how much copper they possess and where it is located. Secondly, we do not know enough about the dynamics of the accumulated stocks. Some of the Cu containing goods show short time usage (e.g. electronic devices like mobile phones). Their residence time in consumption is between months to a few years.

Long-term usage comprises goods (e.g. grids for electricity and information, piping systems for water and waste water in buildings) that stay in stock for many decades. Therefore “urban mining” is not just managing the copper waste the output of production and consumption. It is a highly sophisticated task to analyze, evaluate and design the dynamics of the stock in order to develop a long-term strategy which would if necessary allow us to rely mainly on reused copper coming from anthropogenic stocks. If the urban system learns to rely on the reuse of anthropogenic copper, little new Cu will be necessary.

In comparison with P, Cu has another important difference. This metal can be replaced by other materials. From a physiological point of view it is only essential in trace quantities proliferated in nourishment. In the event of it being replaced in the future due to technological and economic innovations, one asks oneself what is to be done with the anthropogenic stock of Cu when its carriers are replaced and demolished? From an energetic and ecological point of view it should be deposited and stored in as pure a state as possible in “copper monofills” to store the energy of the metal, prevent dilution and to secure an option for future generations for its reuse, for reasons we cannot imagine yet. A similar strategy could be adopted for P: If the recovery of P from waste such as sewage sludge is still not economically viable due to the low price of primary P, controlled accumulation in monofills and future large-scale reuse might also appear as an attractive solution for long-term P-management.

### ***How Do We Design Urban Systems with a Robust Metabolism?***

The three cases illustrate some aspects of the metabolism of the anthroposphere. It is evident that metabolic strategies have to become an integrated part of the development of the anthroposphere, whether a question of growth, shrinkage, or rebuilding to new qualities. The “urban system approach” has consequences for the design of the anthroposphere. This sphere is seen as a patchwork of “large sized regional urban systems”. The aim is to transform these patches into sustainable urban systems operating with a robust metabolism. Normative guidelines for such an operation require (Baccini and Brunner 2012b; Baccini and Oswald 2003):

- a long-term perspective (decades to a century);
- large-sized regions connected to their hinterland;
- a sound knowledge about the size, location, properties and dynamics of regional material stocks;
- only considering and designing metabolic systems that fit into the context of the development strategy of the whole urban system;
- consideration of the idiosyncrasies of every region (tailor-made design).



The metabolic approach taken here is independent of value systems. For instance, we do not talk of sustainable metabolic systems. The notion “sustainable” has experienced a disadvantageous semantic inflation. Goods and technical processes cannot become “sustainable”, not even metabolic subsystems. There are no such things as sustainable vehicles, houses, computers and pharmaceuticals. The better needs to replace the good, if the whole system can improve or neutralize negative impacts due to new boundary conditions. Attractive labels like “Clean Technology” and “Zero Waste” are only valid for strongly reduced production systems within narrow boundaries but are misleading for the development strategy of an urban system. Only the large-scale regional system as a societal entity can achieve a quality of sustainability. The advantage of our starting position in the twenty-first century is the fact that, on a global scale, we have a great diversity of urban systems at our disposal. A heuristic “Trial-and Error-Strategy” in a comparative procedure (omitting any tendencies in standardizing everything) is more efficient on the long-term. It gives small steps in new directions that offer a chance for a few and prevents large steps that might harm many.

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# Between Plan and Pragmatism: Families of Challenges



Joachim Declerck

## An Old Urban Ecology Living Contemporary Crises

Today, the Eurodelta-region is typified by a dispersed urban fabric.<sup>1</sup> It results in a Horizontal Metropolis where urbanisation is no longer in equilibrium with all of its specific natural surroundings. Policies of the 1960s and 1970s expressed the unwavering belief that we could detach ourselves from the natural and physical systems, and negate their logics and functioning. Space was nothing more than a product that could be ‘subdivided’ and that should be ‘distributed’ and made accessible to all layers of society. The consequence is that, in many places in Flanders, there is no longer any sign of a clear division between town and countryside. Today, the planning policy that is in place still enables further consumption of open space at a rate of up to 6 ha per day. The land-use plans drafted in the 1970s made sufficient reservations for housing and housing extension areas to accommodate the population growth this part of Europe might witness up till 2050 (Architecture Workroom 2012, pp. 14–17). But this abundance of land reservations for further and future urbanisation and sprawl comes, however, at the expense of valuable open space, and of an effective urban system (De Decker et al. 2010, pp. 43–46).

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<sup>1</sup>The Eurodelta region is formed by the river basins of the Rhine, Meuse and Scheldt. Generally speaking, it more or less coincides with the Low Countries, centering around Flanders, Brussels and the Netherlands.

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In Flanders, the 1970s zoning plans have effectively reduced spatial development to day-to-day pragmatism. There is a precarious absence of an operational vision for the environment, of methods to turn the incremental growth into a catalyst for the production of new living qualities. Plans, such as the Flemish Structure Plan (1997), with clear intentions but without a clear method for their implementation, have a limited impact. This also frames and helps understand the role and work of architects and urban designers. They have specialised in making incredibly qualitative and lucid exceptions to the urban context in which they work. The strong architecture culture for which Flanders is known today operates in an urban environment where all but pragmatism fails. Architecture might be able to radically induce change, but only in very specific situations, mostly within the confines of the single plot. While the architecture production is indeed of a remarkably high quality, it is essentially not contributing to the solution: it is exacerbating the problem, but not providing us with a true alternative. It is not changing the pattern and process of urbanisation in more systemic ways.

In the absence of vision and steering capacity, the building industry is propelled by economic interest only, from private to corporate, and has established a stable process of perpetual space consumption and further subdivision. The large individual villas and bungalows built between the 1970s and 1990s offer a perfect illustration of this. Many of these homes have aged, have become energy inefficient and therefore too costly (Loeckx and Martens 2009). Subdividing them into new parcels or constructing new apartment blocks is—in pure financial terms—the most sensible thing to do. It is argued that such “densification” of allotments and ribbon developments matches long-standing policy objectives. Nevertheless, the spatial quality and sustainability of these residential environments raises many questions. In recent years, town centres and highstreets have witnessed the apparition of numerous new apartment buildings. Leading Flemish academics (Ryckewaert and De Meulder 2009) have called these apartments *jumbo-fermettes*: monotonous stacks of ‘units’ hidden behind a façade that recalls the style features of the Flemish *fermette*. In short: ‘densification in dispersal’ is going against the basic principles of more rational and compact forms of urbanisation. Rather than being part of the solution, this sustains, prolongs and adds to the problems of the urban system and ecology we are trying to tackle.

So how can we reconnect plans with pragmatism, or intentions and real transformation, in an effective and qualitative way? In this paper, I would like to explore which tasks and roles the design practice can take up and/or organise for itself in order to make that reconnection. It is an exploration into how the profession can use its capacity to make the best of a given situation by spatializing and connecting the claims and intentions of different stakeholders (the agency of design), while at the same time revealing and provoking new synergies and coalitions in a complex field of actors (designing agency).

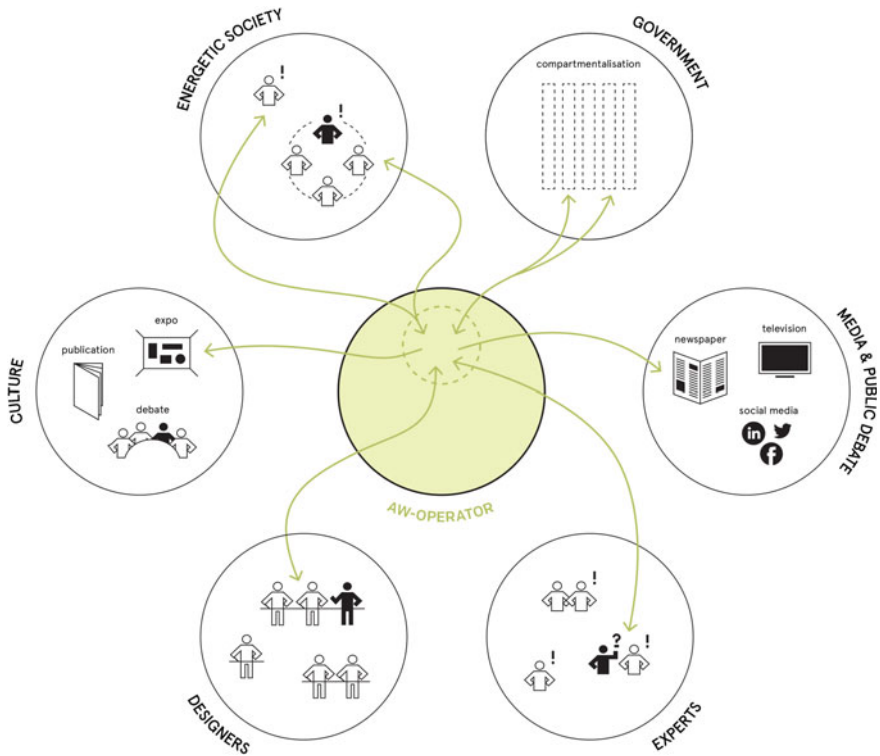
## **New Platforms and Practices to Explore Alternatives**

Regardless of where we practice, it is clear to all of us that bridging the gap between ‘good’ intentions and real transformations is our fundamental challenge. As ‘think-and-do-tank’, Architecture Workroom Brussels has positioned and programmed its ‘workroom’ so that it can perform as a productive setting for the exploration of alternative strategies and methods to bridge this gap. The core idea of such a cultural platform and initiative is to create a space where we are not merely in the intentional world or in the world of business as usual. Instead, with an independent agenda and in partnership with committed societal actors, we are constructing a free haven to address ‘wicked problems’ in concrete sites and situations, and stimulate the development of new practices and approaches. It is a platform to reconnect broader societal concerns with quality of urban transformations, architectural design and environmental change. It is a practice that consciously and deliberately sits and operates in and from the grey middle zone between established fields of practice: from there it actively engages and reconnects different sectors of government, social initiatives, economic innovations, public debate, media strategies, cultural activities and exhibitions, architects and urban designers, and scientific experts and research (Fig. 1).

While our challenges are increasingly complex and multi-faceted, society has organised a procedural and legal ‘wall’, with formatted procedures such as tendering or competitions, between those who pose the questions and hence set the framework, and those who are competing to provide the best answer within the set framework. In this set-up, the design practice is confined to producing the best possible answer to a given pre-formatted question. In such context, it is no surprise that architecture practice and education are increasingly oriented to the production of winning (sales) pitches, imagery and forms. This accentuates and even cements the gap between the challenges we face, and the solutions we need to come up with. If this procedural barrier continues to structure the design practice, investing design capacity in understanding and unravelling the deeper issues, new spatial potentials and possible coalitions behind our wicked problems, becomes increasingly difficult. To address rather than negate these challenges, we need to break through this ‘wall’ and reposition the role and practice of design: towards a design practice that invests its capacity in the iterative exploration and formulation of possible solutions *and* relevant questions or ‘commissions’.

## **Breaking the Code of Business-as-Usual**

If we look at the ecosystem of our urbanised planet, and especially the ones of delta’s, it is hard to believe that a housing strategy can work effectively when it is conceived independently from an agricultural policy or regardless of a water strategy. Still, today this is the conviction that is structurally embedded in our

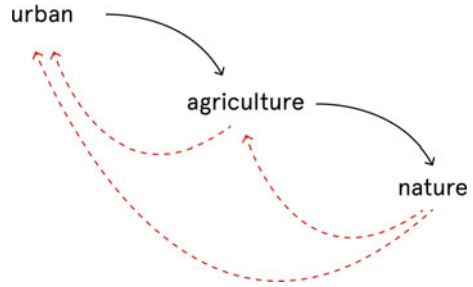


**Fig. 1** 'AW Operator'; a cultural/design practice that does not build, but connects and translates. *Source* Architecture Workroom (2012)

governmental system, and in our planning policies. Varying policies for every sector are operating in the same 'space' and 'system' without much awareness of one another, and of their undeniable interdependencies.<sup>2</sup> The land-use plans, which (until today) form the legal basis for spatial and urban development, are the planning instrument of a society trying to reduce complexity to juxtaposition of uses and users, rather than focusing on the interdependencies that are both centuries-old, and require a serious overhaul. Moreover, the zoning plans at once reflect and sustain the value chain that has produced and continues to produce the dispersed form of urbanization. The principle of subdividing the territory according to uses (and the interest groups related to these uses) assures that space is subject of negotiation, not of integration. And it leaves an open and fertile playing field for the typical cascade of land values: the value of urban land being higher than that of agricultural land, urban development can always eat up farming land, while farming

<sup>2</sup>This 'space' is equally set aside as a separate government sector, and divided between 'the urban environment' and another department authorized for 'the open space'.

**Fig. 2** ‘Engine of Urbanisation’; the value chain linked to land-use. *Source* Architecture Workroom and K.U. Leuven (2017), Brussels: Vlaamse Landmaatschappij



land has subsequently consumed much of the space that was historically occupied by nature and ecosystems. This is the current unidirectional engine of urban (and economic) growth. If we do not break this cascade, it will be impossible to find a new and necessary equilibrium between natural systems, food production and urban environments (Fig. 2). Flooding problems in villages, erosion or salination of agricultural soils, or rapidly declining biodiversity are some of the proofs that underneath urbanisation, our geological and hydrological systems are endangered and marginalized—and that they are increasingly ‘hitting back’. These concrete challenges provide an opportunity (and a necessity) to rethink and reconfigure the dominant value chain. During the past decades, the idea was to physically separate and even segregate agricultural, biodiversity, urban or mobility policies. But there lies the potential. When looking at a piece of territory, it is evident that one can only solve the problems of flooding if one finds compromises between the agricultural need for water and the necessary space for resilient urbanisation. It is at this crossroad that design comes in, as the medium for re-connecting the ins and outs of our urban landscapes’ metabolism.

## Designing the Setting of New Value Chains in the Horizontal Metropolis

We need to develop and design ‘settings’ for new value chains. As an example, I would like to elaborate on the 2014 study ‘*Atelier BrabantStad*’,<sup>3</sup> an IABR-atelier focusing on the Dutch province of North Brabant. It is a region dominated by five medium-sized cities. The network of those cities is, however, only the tip of the

<sup>3</sup>‘Atelier BrabantStad’ was a study conducted by Architecture Workroom Brussels, LOLA Landscape Architects and Floris Alkemade Architect as one of the Atelier at the 2014 International Architecture Biennale of Rotterdam (IABR). This IABR edition focused on Urban-by-Nature and was curated by Dutch landscape architect Dirk Sijmons. The results of ‘Atelier BrabantStad’ were published in Architecture Workroom et al. (2014) *Reweaving the Urban Carpet*.

iceberg. It is in fact, as the study referred to it, an 'urban carpet'. But its metropolitan municipalities do not see it that way. Cities are constantly placed in opposition to countryside and vice versa, whereas the true quality of the region lies in its carpet-like dispersed fabric, creating valuable proximity between living, natural systems and agricultural land.

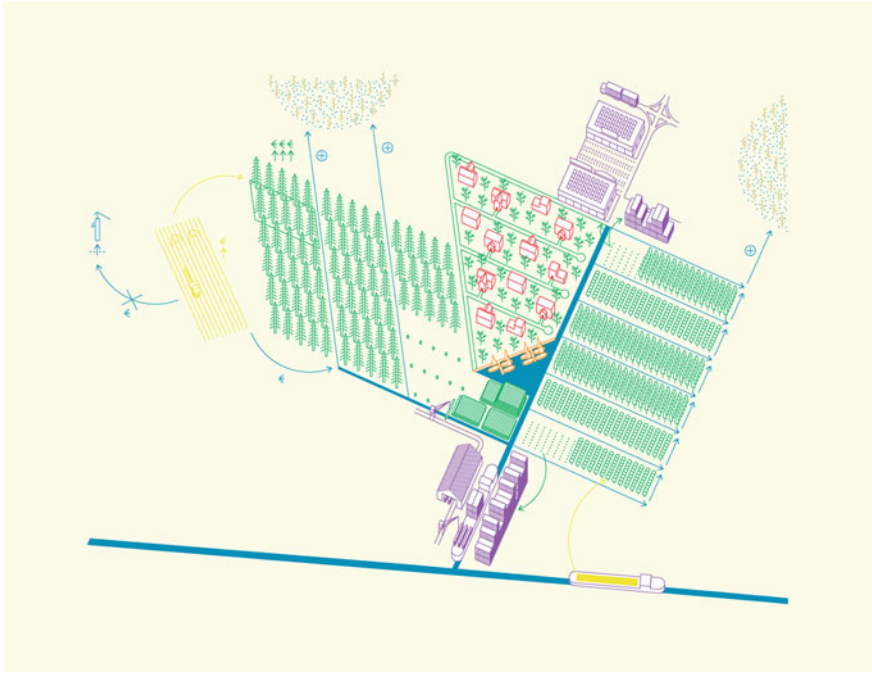
In the 1930s, Noord-Brabant was one of the poorest counties of the Netherlands. This misery led to the creation of an ambitious 'welfare plan' consisting of radical modernisation of agriculture through the decentralisation of inhabitants, industries and communities. To make one of the wettest areas of the Eurodelta fit for cultivation, an extensive drainage and irrigation system was put into place. This system, developed almost a century ago, is the reason for today's droughts. It now threatens groundwater-dependent companies like Heineken and Coca-Cola, making it not just an ecological problem but a pressing economical one as well.

Today, North Brabant is one of the most innovative regions in Europe. But it is only when mapping all the ins and outs of the area that the carpet-metropolis features as an 'industrial ecosystem'. Therefore, when developing a narrative and searching for strategies to activate its space, *Atelier BrabantStad* not only approached the region in terms of unlimited growth, but it included, as part of its reflexion, the opportunities and threats that define the strengths and weaknesses of the region's metabolism.

The key of the development strategy, which has been designed in cooperation with many different stakeholders, is to depart from the specific interdependencies in the metabolism of this carpet metropolis. By linking a nearby driver (for example a horticultural company that is growing), to nearby infiltration issues, we are producing integrative solutions for a broader scope of challenges. Through planning principles, we ensure that economic development at once (literally) finds a place, and helps improve and restore ecosystemic chains. The study tested this approach in six 'machines', with real actors and in specific situations (Figs. 3, 4 and 5). This new narrative inspired both the entrepreneur and the provincial government to collaborate and make use of an old planning instrument called the *Landinrichting*, which accompanies a development plan and sets out a process for a period of ten to fifteen years. By grasping specific problems together and by surpassing the short-term solution thinking, a programme of actions is able to change the Horizontal Metropolis, not from a top-down view, neither as an enclosed incident, but as a continuous strategy.<sup>4</sup>

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<sup>4</sup>The project in Noord-Brabant also literally resulted in a carpet. It served as an exhibit in the Biennale, but equally formed the setting for a debate with more than 20,000 people. Subsequently, it travelled through the province and was the incentive for more extensive talks with farmers, horticultural businesses and other local stakeholders. It is now leading to concrete pilot projects in the Dommel Valley, one of the central rivers in the province.



**Fig. 3** IABR–Atelier Brabantstad (2014): Machine 2; ‘Supporting the transition to a more sustainable crop production will increase both the profitability of farms and the quality of the landscape as well as instigate the slow infiltration of water into the soil in order to counteract the aridification of natural landscapes’. *Source* Architecture Workroom et al. (2014)



**Fig. 4** IABR–Atelier Brabantstad (2014): An accumulative development policy instead of one regional plan. *Source* Architecture Workroom et al. (2014)





**Fig. 5** IABR–Atelier Brabantstad (2014): The Brabantstad carpet hanging at the IABR–2014–URBAN BY NATURE exhibition. *Source* Architecture Workroom et al. (2014)

## Between Plan and Pragmatism: Families of Challenges

It is now clear that generic plans or planning, by setting ambitions and measures that do not correspond to or incorporate local specificities and coalitions, are not able to effectively reprogram our urbanisation processes and address the increasingly pressing challenges of our times. On the other hand, it is also practically unfeasible to develop site-specific solutions for every single point in our vast and complex territories. But what if we look at regional policy-making and area-specific development together, and identify ‘recurring challenges’? Such an inclusive understanding can form the basis for imagining greater possible synergies between users, detecting the valuable qualities in situ, pinning down the specific challenges ahead and exploring the possibilities to translate this method into a workable government tool.

The last example I wish to highlight in this paper is a study for the Flemish Land Company, which is working in the ‘countryside’ of our Horizontal Metropolis (Architecture Workroom and Bovenbouw Architecten 2013). The study started with the proposition of six new types of synergies between different users, interest groups, economic and policy areas. These propositions were conceived so that they could grow into transformation programmes for all situations where these



**Fig. 6** ‘Retables Open Space Offensive’, six scenarios for an offensive open space. *Source* Architecture Workroom and Bovenbouw Architectuur (2013), Brussels: Vlaamse Landmaatschappij

interdependent uses interfere (Fig. 6). Each programme dealt with a separate ‘family of challenges’ in order to attack the problem in a more performant and pertinent way. Like *AtelierBrabantstad*, this study showed that we are no longer solving a natural system’s problem. It is also, increasingly, an urban issue. While multiple challenges seem to be a more complex issue, it actually forms an opportunity for the government to develop solutions by connecting different problems and opportunities in new local development projects and in new local economic chains. Through intelligent swapping of land-use rights, governments have the instruments to densify at more desired locations, while at the same time making (public) space for water and biodiversity, and having offered an economically sensible response to the increasingly defunct stock of post-war villas and bungalows. The six narratives were debated with different policy sectors, politicians and local actors and formed the breeding ground to establish the integrated ‘Open Space Platform’. This collaboration unites all sectors of involved policy making (from water to agriculture and urban development) with a series of small initiatives in the field, farmers, unions, interest groups, nature conservation groups and other stakeholders. Now, the platform is gathering the knowledge on the ground and is testing specific cases. These parties actively joined the Platform because it is not focused on the elaboration of one single agreement or plan for the subdivision of Flanders into spaces for each of the uses and vested interests. That is the deadlock discussion they have with each other in other fora. The motivation is that the Open

Space Platform functions as a (design-driven) think tank that is committed to develop operational methods to exploit and renew the existing interdependencies between farming, natural systems and urban development. Not in one place, but as a program that can address recurring challenges—and hence multiply and accelerate the urgent transformations that this old urban ecology requires.<sup>5</sup>

## Designing Settings and Reconfigurations for an Old Urban Ecology in Crisis

In between strategies of planning and day-to-day pragmatism, the design world is presented with two major tasks. First, it must develop a grounded ‘setting’ to bring the necessary actors and stakeholders together beyond the scope of a single project. Secondly, the profession has a responsibility to design reconfigurations for this old urban ecology in crisis. Instead of only having qualitative isolated architecture on the one hand and top-down ineffective plans on the other (both confirming a business-as-usual scenario), we must look deeper into the metabolism of our urban landscape and find ways to illustrate and understand it, before we act. In doing so, people can visualise their common challenges together and literally be drawn to the table. Such a collaborative and inclusive problem-based approach will form the steady base for designing the reconfigurations of spatial uses around ‘families of challenges’. In that sense, between the challenges we face and the responses we give today, we can establish and design new reconnections with all actors concerned.

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<sup>5</sup>The insights of the Open Space Platform are compiled in the publication ‘Operation Open Space’ ([http://www.architectureworkroom.eu/documents/OOR\\_EN\\_lr.pdf](http://www.architectureworkroom.eu/documents/OOR_EN_lr.pdf)), which also explores a number of operational program. In October 2017, the first program for climate-robust, agro-water management has been launched, better known as ‘Water-Land-Scape’, which translates shared knowledge into specific action on the ground.

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# The Horizontal Metropolis Needs a Soul Rereading the Book “Zwischenstadt” After Twenty Years: Conclusions



Thomas Sieverts

Twenty years ago, as a fellow of the ‘Wissenschaftskolleg zu Berlin’ (Institute of Advanced Study), I wrote the small book “Zwischenstadt: zwischen Ort und Welt, Raum und Zeit, Stadt und Land”, the “City-in-between” published in English with the title ‘Cities without Cities: Between Place and World, Space and Time, Town and Country’.<sup>1</sup> It was almost a pamphlet, a critique of the ideology behind the concept of the so-called compact, well composed “European City” and a positive evaluation of the potentials of the predominantly dispersed City.

Immediately after its publication in spring 1997 I was heavily and I would say unfairly attacked by some colleagues, journalists and a high-ranking civil servant from the German Ministry of Housing and City Development, and accused of betraying the idea of the ‘European City’ and of being an advocate of the urban sprawl and the destruction of landscape. This group of journalists and colleagues dominated the public opinion of the time. They tried to ‘kill’ the book from the very beginning. I was so depressed, I even asked my family members to buy the book, just so as to guarantee that a few copies were actually sold, as I myself feared it would never recover from the attack.

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<sup>1</sup>Sieverts T. 1997, *Zwischenstadt: zwischen Ort und Welt, Raum und Zeit, Stadt und Land*, Bertelsmann Fachzeitschriften, Birkhäuser [eng. transl., 2003, *Cities Without Cities: An Interpretation of the Zwischenstadt*, Spoon Press].

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The original version of this chapter was revised: The Conclusion “The Horizontal Metropolis Needs a Soul Rereading the Book “Zwischenstadt” After Twenty Years” has been reissued as chapter of the book. This was previously listed as BookBackmatter without author attribution. No content within the chapter has been changed. The erratum to this chapter is available at [https://doi.org/10.1007/978-3-319-75975-3\\_45](https://doi.org/10.1007/978-3-319-75975-3_45)

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A few years before “Zwischenstadt”, Francois Ascher had written “Metapolis” (Paris 1995)<sup>2</sup> in France, and Bernardo Secchi had published his reflections on the *citta diffusa* in Italy. As I am neither capable of reading French nor Italian, I had to ask friends to convey me the principal contents. Both authors supported me in that difficult time: Bernardo invited me to a lecture in Venice, Francois visited me for a public discussion in Hannover. Both became friends, both have now passed away. I wish to commemorate these two pioneers of urbanism, I think of them with affection and gratefulness. I still hope that their important books will at least be translated into English!

To my surprise, the book ‘Zwischenstadt’ began to sell and still sells well, having run into several editions, and was soon translated, first into French, later into English, Japanese and now, after nearly twenty years, into Spanish! On the occasion of an invitation to Granada to launch the Spanish translation, I reread the book the first time since its first publication in 1997, and I myself was surprised how valid its messages still are. Many statements may be taken as ‘natural’ now—the controversy between idealistic ‘traditionalists’ and sanguinary ‘realists’ has cooled down, the development of a loose agglomeration of suburbs of one-family-houses dependent on the core-city and on a polycentric network of interdependent cities in the form of a ‘regional city’ has continued.

But the practical impact of the book on politics, administration and the reality has been minimal: Neither has it led to—at least not in Germany—a political administrative reform in the direction of regional governance, nor a cohesive development-policy for the urban-cultural landscape of this kind of polycentric city-landscape. The reality of the “Zwischenstadt” has not been turned into vital images and visions in the eyes of its inhabitants: the “Zwischenstadt” is still a cognitive abstraction!

This being the case, I here wish to talk about three topics:

The fundamental change in working conditions of architects and planners in the ‘Anthropozän’.

The unavoidable uncertainties in our profession and the necessity of systematic experiments.

The decisive role of culture and aesthetics in our professional field and the importance of cultural policies.

Twenty years ago, the word ‘Anthropozän’ had yet to be invented; it was created by the Nobel prize-winner Paul Crutzen and was published in the year 2000.<sup>3</sup> Its message: Mankind is influencing the structure of the globe and has to be held co-responsible for its fate. The fundamental difference between ‘culture’ and ‘nature’ is no longer valid. Man is shaping both nature and culture at the same time.

<sup>2</sup>Ascher F., 1995, *Metapolis, ou l’avenir des villes*, Odile Jacob, Paris.

<sup>3</sup>Crutzen P. J., Stoermer E. F., 2000, The “Anthropocene”, in *The International Geosphere–Biosphere Programme (IGBP) n. 41* (May 2000), A Study of Global Change of the International Council for Science (ICSU), pp. 17–18.

Just one example: Global warming—a ‘natural’ process, but caused by human behaviour and activity—will most probably lead to a rise in sea levels, forcing millions of people to leave the cities, especially in the big river-deltas. It will also lead to increased desertification, another reason why people will be forced to leave their cities. Combined with a 2–3 billion rise in world population, civil wars over food and water are liable to ensue.

These climate-changes will result in huge migration on a global scale of people (‘Völkerwanderungen’) to the rich and safe areas of the globe, mainly to the northern hemisphere, to Europa and the USA, but also to Russia. The streams of refugees, which Europe and especially Germany are experiencing at this very moment, might only be a foretaste of even greater events to come.

Despite the security fences set up at the borders, a good deal of these migrants will have to be settled in the prosperous city-regions of the ‘West’. As Middle Europe only has few ‘empty’ landscapes left, the migrants will have to be integrated into existing city-regions with their large labour-markets. With the entire globe cultivated wherever possible, there is no ‘new frontier’ anymore. There is only one path open, the path to densification. This task demands an enormous intensification of our urban-cultural city-landscapes, in housing, schooling, health, jobs, as well as in food-production, on a scale not hitherto experienced.

The ‘Anthropozän’, with its co-responsibility of mankind for the fate of the globe, will lead to many fundamental uncertainties, the consequences of which are hard to predict, even with the best scientific tools: Indeed I have long ceased to believe in the power of scientifically based forecasts, at least in the form of mathematical models, as I learned at Harvard in 1970.

At the current moment in time these fundamental uncertainties tend to cause anxiety, to stifle the courage to make farsighted decisions, even leading to a tendency to rely on the conservation of historical experiences.

This is not an appropriate attitude in my opinion. On the contrary, the present situation requires and demands an understanding of these fundamental uncertainties as a realm of intellectual freedom, as a challenge to be experimented! Our society needs real-life experimentation, with real-life pioneers, and a longer period of trial and error, accompanied by a systematic, democratic evaluation.

Such a period could be supported by a policy of radical decentralisation, fostering a peaceful competition of different models of living and working together under the conditions of the ‘Anthropozän’. Radical decentralisation would allow us to eliminate such experimental models and replace them with better ones, without having to change the entire system.

Just to give a few examples of real-life experiments:

Experiments in the field of living and working together on less built space, taking time into account as a tool for extending space. Here issues such as the mixing of uses and cultures as well of densities could find answers.

Experiments in the field of building and urban design, on the relation of heavy, long-lasting structures as a kind of local infrastructure, (incorporating most of

the ‘grey energy’), for producing renewable energy and food and complementary, structurally lighter adaptations responding to actual needs.

Experiments in the field of functional and cultural relations between decentralisation and centralisation, with the support of electronic media, including cooperation between highly specialised, capital-intensive institutions and simpler, local services.

Experiments in local food production, including the experience of ‘urban gardening’ and new provisions for growing plants in the context of buildings. In this field the cultural aspects are of special importance, as food production on a large scale in cities and urban landscapes will deeply change the very nature and characteristics of the urban.

To achieve experiments of this kind and scale, special political, administrative, economic, legal and spatial conditions are needed: special realms of exceptions from certain rules for a certain time are needed; as well as space without certain special legal restriction and not to mention organisational support.

If we would provide such realms of freedom for real-life experiences in the public interest, this could lead to a new productivity and to new ideas. In Germany the International Building Exhibition (IBA) and the ‘Regionale’ are the first modest experiences. Both events encouraged public discussion on the subject at European level!

As I already mentioned, the notion of the urban cultural landscape in the different forms of *Zwischenstadt* or of *citta diffusa*, or of the Horizontal Metropolis will remain a cognitive abstraction, as long as it is not experienced with emotions, in the form of visions and dreams. The notion of the Horizontal Metropolis will remain an abstract planning-phenomenon and will not become a lived-in space. And this means: It will never become an important part of the public cultural debate, it will never influence politics.

In the opinion of the general public, this kind of urban cultural landscape is regarded as ugly and as something that requires escape. It is ‘anaesthetic’, it is seen without emotions. If seen at all, it is seen instrumentally only.

Good architecture, good urban design and good urban landscaping is much-needed, but it is not enough, it must be supplemented and supported by cultural activities. Unexpected new forms of playfully discovering the city can already be observed, mostly supported by the smart-phone: city-treasure-hunts, city-runs, city discovery games, based on a kind of ‘flashmob’ and of course popular guerrilla gardening and other forms of spontaneous gardening in the city. These latter forms of appropriating the city, as well as the knitting of pullovers for trees and lanterns, contribute to a new emotional rootedness in the city.

Of course, popular sports like city-marathons, city skate-nights, city cycle-nights can also contribute to making people interested in their urban-cultural-city-landscapes, if these sporting-events also include the urban landscape.

Proven tools in this context are also carefully prepared guided tours through the periphery, for one to three days, passing through areas people never normally cross.



All this helps to discover the urban-cultural landscape as a field full of history, of surprises and unexpected beauty-spots!

Over time the polycentric urban cultural landscape might become a personality, with a character, which speaks to you and which invites you to experience it with all your senses: In the end it will acquire a soul of its own!

# 12 Points from a Roundtable: Afterword



D. G. Shane

First I have to thank Professor Paola Viganò and her excellent team for bringing so many people together around such a great theme. It is a great achievement and its documentation will prove to be an invaluable resource in the future. Many questions have been raised and opened, and have still to be answered.

The conference has been a fantastic experience. I feel like I have been lost in a flying saucer. Perhaps I should have known this would happen from the outside appearance of the strange, wedge shaped, free-standing building. Inside the spaceship the conference has been an extraordinary event that has transported us to another place, perhaps to another planet (so we can see our planetary urbanism?). In this strange other space we could examine in detail the concept of the Horizontal Metropolis from many angles. I will highlight three, given the beautiful tripartite structure of the conference. There were the multiple presentations of Ph.D.'s, several afternoon fiery round tables and then important keynote lectures by originators of the Horizontal Metropolis model.

Starting with the many Ph.D. presentations, the ample spaceship provided three separate rooms where discussion could take place simultaneously in the mornings. There was a wonderful array of research and researchers from all over Europe and the world. We have been in a totally immersive environment. Sitting, discussing in darkened rooms in the basement, looking at bright projections on the walls, shifting slides for recombinant critics, whose voices filled the darkened rooms with intense, highly personal discussion focused on specific research. In these session genera-

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tions and layers of the architectural, urban design and planning professions were talking to each other in extraordinary cross-generational exchanges. Sometimes tossing bombs to each other back and forth. But generally with a generosity of spirit and kindness, sharing knowledge, creating new research and findings. To me this will always remain one of the brilliant highlights of the conference, although as noted below, there were spirited differences of opinion in the passionate debates.

As well as these intense Ph.D. sessions each morning there were afternoon roundtable discussions. Here the opening of the accompanying exhibition on the Horizontal Metropolis with its videos, documentation and projects is important for setting themes of discussion. It is an amazing achievement to mount this exhibition and create this space for open discussion when we are in the midst of a pan-European urban crisis, both in terms of migration from outside, peripheral economic collapse within, zero growth deflation at the core and climate change impacts. In addition the Horizontal Metropolis theme allowed the inclusion of global informal settlements, as well as shifting urban morphologies and new means of communication.

To illustrate one of these fiery afternoon roundtables, I highlight a discussion with Professor Charles Waldheim about his term “the ecology of airports”. Of course we all understand that airports are part of a larger economic system and thus part of an urban ecology, as illustrated by Airport City at Schiphol Amsterdam. But I challenged the use of the term “ecology of airports” since the huge impact of the CO<sub>2</sub> emissions from mass air travel is far from ecological (and had been excluded from the recent Paris Accords). It is clear that these huge modern airports based on highly subsidized jet fuel and tourism flights will one day have to be repurposed for new uses, just as old steam age railway stations once had to be reworked in the age of the automobile or then for high speed rail.

Of course opinions differ and sparks can fly in the afternoon, but it is from a passion and conviction still with deep respect that leads to fruitful discussion. Professor Waldheim’s work in Landscape Urbanism, for instance, is very important for the Horizontal Metropolis. I have followed his work since the earliest Detroit studies. We share much and joined together in many discussions in darkened rooms over students Ph.D.’s. In these sessions the flying saucer magically transported us to East Asia—especially China, to Latin America and all over Europe. I also shared sessions in darkened rooms with Professor Sebastian Marot. In the Ph.D.’s from Italy and Spain I too was especially moved by the “motion/emotion” that he has spoken of at this final roundtable.

The third element of the tripartite structure of the Horizontal Metropolis conference was the evening keynotes. These were like major interchange nodes set in the network of Ph.D. presentations and smaller nodes of the afternoon roundtables. I will only highlight two of the keynotes for brevity’s sake, but they all questioned the terms of the Horizontal Metropolis. What did this contradictory combination of words mean exactly in urban terms? Thomas Sievert’s keynote presentation was very powerful, arguing for our care and feeling for the city and nature, beyond the rational analysis of his early *Cities without Cities: An interpretation of the Zwischenstadt* (2000). Sievert argued that as he aged he had come to see that it was

not just a question of economics and reason alone that made the “in between city” so important. He argued that it was an issue of ethics and communal emotions felt towards the stewardship of the land and city territory.

Similarly, Professor Peter Baccini in his keynote talked of the emotional drive behind his scientific research. His *Netzstadt; Designing the Urban* (2003) co-authored with Professor Franz Oswald, contributed to seeing Swiss cities and villages as networks in their Alpine ecologies, pioneering the mathematical modeling of the net city in the landscape. This emotional and ethical commitment resonated with my last visit to the EPFL when I heard Professor Terry McGee talk about his research on the ancient Asian “desakota” (village-city). McGee described how over the last 60 years occupants and immigrants has adapted this urban-agricultural system to the vagaries of globalization, using its flexible and “in-between” character as a hedge against fast changing economic shifts, big box retail, gated communities etc. Professor McGee was one of the speakers on video in the concurrent Horizontal Metropolis exhibit, as was the late Professor Bernardo Secchi, whose research had done so much to set the tone of the conference.

Reviewing the three parts of the conference I agree with Professor Marot that there is an important ethical and emotional component hidden in the Horizontal Metropolis question that lurks inside the super scientific EPFL spaceship. Of course the urban future is unpredictable and this is an underlying problem for any conference on urbanization. As Professor Marot pointed out, we aspire, since Cerda’s extension of Barcelona in the 1860s, to be scientific. Professor Kees Christianse reminds us of the scientific and humanistic basis of our endeavor to create urban form and codes, it is not all social geography, anthropology and market forces. Our work must also be hygienic and prevent the spread of disease, provide water and waste disposal, sustain and support life. Cerda projected a new system of urbanization in his block system, but also imagined an “urbanized countryside” surrounding his gridded city. This is the “in-between” world of the *Zwischenstadt* and desakota systems, also present in the Horizontal Metropolis model.

If the urban future is unpredictable then it follows that urban form is unpredictable as well. The age of great state and colonial master plans of whole cities authored by a lone god-like individual with a single, fixed, eternal vision and mono-functional building types is long gone. In its place we have a more strategic, small-scale, time based, micro urbanism of patch dynamics, shifting relationships and responsive inserts. Many more urban actors participate in negotiating spaces that sometimes succeed brilliantly but can also appear as deadly corporate sponsored symbolic wastelands. Urban form is inevitably going to change and have patchy future. As shown in Detroit by Waldheim, there may well be shrinkage and empty wastelands, as well fast growth, formulaic areas as in China and hyper dense nodes as in Hong Kong or New York. It is a shifting, flexible world where nothing is solid and much can melt into air. Flows of people, immigrants; flows of energy, petroleum and electricity; flows of information and urban DNA; flows of capital global and local; all these flows infect this strange space, whether in the abandoned lot of the town center or the periphery of its desakota belt. Here dissipative and

temporary structures can appear and disappear, while other structures have a longer duration.

Professor Marot always has the capacity to transport me to another more poetic realm, an important ability in these troubled times. I found the emotional component especially apparent in the countries in Europe that were most in crisis, in the student presentations from Greece, Spain and Italy. The Ph.D. descriptions of urban struggles and social disintegration there were especially moving, where conditions could drive you to suicide. Yet the Ph.D.'s found surprising new ways to create new commons and communicate against the repressive economic hegemony. New actors came forward in the city and found ways never imagined before to build social integration using means never tried before. It was very inspirational to see a new generation talking about how these new techniques could create a new urban condition beyond the current crisis. These new systems could work in the Horizontal Metropolis under study, but also in the vertical, heterotopic node, as these new strategies explored the informational dimensions of the city. In addition now we have the prospect of large, self-built, informal mega cities and village networks that will represent much of the urban growth in Asia and Africa, not to mention immigrant tent cities in Turkey or on Greek beaches. All this counts as urban and the model of the Horizontal Metropolis represents one seemingly stable and valuable, humanistic refuge in the face of so much flux and change.

We face a problem of poetics as well as coping in the face of this prolonged urbanization crisis. China predicts 370 million people, the population of the United States, will move to cities in the next 10 years. India is still 60% rural, although what constitutes rural and urban there in the *desakota* Asian model is a complex question. Africa represents the next urbanization frontier, perhaps 30% urban. I could be depressed at all these prospects, retreat into a bi-polar mode, walling the centers of our supposed "civilization" off from the world. But then at this crucial moment of potential depression the spaceship at this roundtable resonates with the voice of Professor Marot, reminding us not to forget our past, its transformations and inflections, detours and deviations. I value highly his philosophic and humanistic realm where the world seems to return to a viable, enjoyable place, conscious of the pain, but still with some small pleasures. Somehow the world can be seen whole and in its full complexity. This opening towards the world is essential and importantly overcomes our habitual, binary, compartmental, mechanistic thinking. This new, complex and magical thinking represents a refreshingly different viewpoint that includes complexity and multiple feedbacks, many models but also allows a new kind of urban poetics to emerge. It is deeply significant that the Horizontal Metropolis conference allowed this possibility to surface. Perhaps this model with its connections to the *desakota* in Asia could provide an open platform for a new urban poetics that is complex to develop? Perhaps this model could form a platform that can support the many contradictions of the current global urbanization process as well as a new urban poetic? It is a question opened at the conference, with further questions to follow and no easy end in sight.

# Erratum to: The Horizontal Metropolis Between Urbanism and Urbanization



Paola Viganò, Chiara Cavalieri and Martina Barcellona Corte

## Erratum to:

P. Viganò et al. (eds.), *The Horizontal Metropolis  
Between Urbanism and Urbanization*, <https://doi.org/10.1007/978-3-319-75975-3>

Incorrect chapter title “Genius of Utopia: The Evolutionary Nature of Genius” has to be corrected as “Genius of Utopia: The Evolutionary Nature of Genius Loci”.

The following Part Introductions “Horizontal Metropolis: Theories and Roots, a Transcultural Tradition: Introduction”, “Horizontal Metropolis: Spatial, Social and Natural Capital: Introduction”, and “The Horizontal Metropolis: Issues and Challenges of a New Urban Ecology: Introduction”, Conclusion “The Horizontal Metropolis Needs a Soul Rereading the Book “Zwischenstadt” After Twenty Years”, and Afterword “12 Points from a Roundtable” have been reissued as chapters of the book. They were previously listed as Part introductions and end matter without author attribution. No content within the chapters has been changed

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