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The **Journal of Biourbanism JBU** is a peer-reviewed, interdisciplinary, international online journal. The journal takes an incisive look into the bios/life of urbanism through perspectives in architecture, planning, environmental studies and other social sciences. The journal aims to critically review and define the notions of biourbanism. Assessing human-centered or need-based design sensibilities is a predominant concern, while attempting to address the disconnect between theory and practice in participating disciplines. The journal publishes cutting edge research, methodologies and innovative design approaches on biourbanism.

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REVIEWS

A Letter From JBU

The *Journal of Biourbanism* is pleased to share with you our new issue.

This latest issue compiles works and experiments by researcher, focusing on commons and participation as the core of contemporary planning.

In this frame, we selected a sharp paper on *Self-organization and the Potential of a Commons Place* by Iris Kühnlein, Loan Diep and Maya Ganesh that examines an experimental project led in Maastricht. The highlighted Landhuis project—a self-organized neighborhood center—is studied in the frame of Christian Fuchs' theories on agency in societies, and strikes the importance of *place* in the imaginary structure of a community.

Human experimentation is also at the core of *Biophilic Design Triggers Fascination and Enhances Psychological Restoration in the Urban Environment*, written by Rita Berto, Giuseppe Barbiero, Margherita Pasini and Pieter Unema. Their work based on Rachel and Stephen Kaplan's Attention Restoration Theory (ART), stresses the importance of cognitive design in urban environments.

This question of *place* or *urban place* is also investigated by Rachel Singer and Renanit Avitan Fein in their research led in the Jerusalem neighborhood of Kiryat Yovel. *Rings and Pulses* analyzes urban layouts through the principles of urban acupuncture to understand and regenerate the complex urban area where historic and modern patterns are interwoven.

Monuments are also part of a community's commons. In this frame, Jaap Dawson invites us to discover the deep spatial explorations of the Dutch architect Dom Hans van der Laan in his paper *Building to Sustain Body and Soul*. The architect's research on patterns and measures structuring space by methods based on human perception is still very contemporary.

Sara Bissen invites us to meditation and poetry through the use of our senses to explore the city in her text *The City Smells of Decay*.

With his singular approach, Gökhan Karakuş invites us to rediscover the mastery of ancient geometric patterns as a community's common heritage, and their reinterpretation through technological tools in his paper *Hyperarchaic Tectonics: Looking Back to Move Forward in the Making of Form and Space*.

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Self-Organization and the Potential of a Commons Place

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ABSTRACT

In the light of various socio-environmental issues faced today, there is an urgent need for a holistic form of sustainable development that focuses not just on economic growth, but also on social and environmental aspects. This paper advocates for self-organization within communities through the notion of place to successfully transition towards sustainability. The concept of self-organization offers an insightful understanding of ways by which innovation can be fostered to support such transition. Social self-organization is analyzed through Fuchs' theory on agency in societies. The concept is also explored through its relationship with the idea of place. The Landhuis, a social center located in Maastricht, is used as a working example. The case highlights the opportunities and limits of social self-organization in the broader context of sustainable development. The analysis of the Landhuis leads to the idea of what the authors refer to as a 'commons place'—a shared spatial configuration managed by those who created it.

***Keywords*:** Social Self-organization; Sustainable Development; Place; Commons Place; Social Change; Top-down; Bottom-up; Social Movements; Social Center.

INTRODUCTION

There is a growing need for qualitative change in our present form of development which is at the cost of future generations and fundamentally unsustainable (Hopkins, 2008; Schor, 2005; Singer, 2004). While today's society is largely consumerist, competitive, and individualistic, the present socio-political system tends to curtail bottom-up initiatives and encourage top-down dominance (Besley & Coate, 1998; Bauman, 1997; Bauman, 2005; Ritzer, 1997; Salecl, 2003; Leydesdorff, 2012; Agnew, 2014). Civil society often lacks incentives or support from the government for community-led sustainability initiatives (Martinez, 2008). Citizens are usually excluded from key decision-making, and community initiatives often lack institutional support (Kemp & Loorbach, 2003; Kemp, Loorbach, & Rotmans, 2007). This critical lack of public participation has aggravated several economic crises and socio-environmental injustices (Gargarella, 2002; Lombard, 2014). Therefore, it is necessary to strategize on transitioning to a participatory and sustainable society (Raskin et al., 2002; Kemp & Loorbach, 2003; Kemp et al., 2007). The paper argues that self-organizing systems present opportunities in the achievement of this transition, by the way local interactions trigger initiatives that can lead to a change in social structures. This rationale is based on the recognition that self-organization, through spontaneous grassroots co-action, enables the emergence of stable coordination and order (Fuchs, 2003).

During the 1990s, a turning point was expected following the adoption of the Brundtland Commission's definition of sustainable development in 1987 and the increased global awareness that accompanied it. This initiative called for a synergistic relationship between the social, ecological and economic dimensions, thereby advocating for change in societies' models of development. Among others, Baker (2006, p. 47) revisits this definition and argues that "sustainable development is about the long-term transformation of basic aspects of the present industrial economic system. Promoting sustainable development is about the construction of a new development paradigm, framed within the ecological limits of the planet". There is a growing consensus that neither the conventional top-down forms of governance nor the liberal free market approaches are effective governance models for sustainable development, yet, both are integral for societal change (Jessop, 1997; Meadowcroft, 2005; Pierre, 2000; Scharpf, 1999). Therefore, new ways of participatory governance are sought where there is bottom-up participation supported by top-down administration to reduce the lack of direction and coordination associated with a one-sided approach and increase long-term change towards sustainable development (Loorbach, 2010). To achieve this synergistic relationship, transition strategies need to be sensitive to the three dimensions of sustainable development, and could be distinctly constructive if they involve the grassroots in the process of shaping a new societal paradigm to address direct needs. According to Biel, "in general, the point is for the raw material of future socio-economic development to continue to emerge from the base" (2000, p. 324). He further adds that, "the source of new ideas and new practises must be mass initiatives, the real social movement, and this must continue under a new social order" (Biel, 2000, p. 324). The concept of self-organization is central to this paper in the context of top-down and bottom-up approaches working in tandem towards sustainable development.

The Dutch model of transition management, developed by Rotmans et al. (2000) is useful in bridging the gap between top-down planning and bottom-up incrementalism. This model attempts to strategically utilize innovative bottom-up developments by coordinating various levels of governance and fostering self-organization with new kinds of interaction, learning cycles and action for radical innovations that can be sustainable (Kemp et al., 2007). The novelty of transition management is that it aims to deal with socio-environmental problems by incorporating ongoing forces which are relevant for sustainability transitions (ibid.). It offers a prescriptive approach of governance, where self-organized projects are recognized as part of the operational phase of a broader strategy, through the mobilization of actors and the execution of experiments. In the context of the paper, operational activities are conducted in-line with short-term objectives of

triggering innovative transition management, with the longer-term purpose of achieving sustainable development (Loorbach, 2010).

The transition management model is worth exploring and testing as the search for novelty is crucial for dealing with critical situations (Westley, Carpenter, Brock, Holling, & Gunderson, 2002). Transition management encourages innovation that meticulously focuses on learning by doing and doing by learning (Sondeijker, Geurts, Rotmans, & Tukker, 2006). It also suggests supporting micro-level initiatives, where the valuable ones are scaled-up to bring about structural change (ibid.). Innovation is key for a transition towards sustainable development. Moreover, self-organization not only deserves to be examined as catalyst of innovation networks and actions, but also as a valuable process that addresses socio-environmental problems that top-down governance often fails to approach or takes too long to tackle. Self-organization does not merely entail novel emergence in social structures, but also engages with principles which the authors recognize as intrinsic to sustainable societies. This includes participation, an integrated notion which itself builds on co-operation, self-determination, and inclusion in multiple dimensions (Fuchs, 2008, p. 1). Therefore, it is important to understand the meaning of self-organization and the conditions necessary for it to develop in a positive manner, and thereby contribute to the process of social change. The key research question emerging out of this is as follows: how can social self-organization be developed to successfully foster the transition towards a more sustainable society?

We begin with an overview of self-organization by distinguishing two different types of social self-organization conceptualized by Fuchs (2003). In a third part, we analyze the mechanisms that enable self-organization by exploring its relationship with place. The Landhuis case study from the Netherlands helps explore the relationship between self-organization and place, as well as to introduce the idea of 'commons place'. This paper also argues that for self-organization to be successful in relation to place, there needs to be a synergy between grassroots initiatives and governing authorities. Biel explains the role of people's empowerment in the new capitalist political economy by stating that "capitalism cannot be fully successful unless it can build the grassroots into a systemic, self-reproducing system of capital accumulation within which actors will spontaneously find their own niches" (Biel, 2000, p. 289). We conclude that self-organizing systems and commons places present a promising strategy for a long-term transition towards sustainable development.

Self-organization

Used differently across disciplines, the concept of self-organization describes a natural phenomenon pertaining to all living things. In chemistry and physics, self-organization is a spontaneous emergence of order out of conditions of chaos in thermodynamic systems (Prigogine, 1980). In the 1980s, complexity theorists and researchers from the Santa Fe Institute in New Mexico studied systems with diverse interacting components, and coined a new domain called 'complex adaptive systems' (Heylighen, 2001). An ecosystem is one such example where diverse organisms compete or cooperate with each other in a shared physical environment (ibid.). Although the behavior of such complex systems tends to be unpredictable, they adapt and self-organize (ibid.). Self-organizing systems are complex adaptive systems with many interacting components that undergo constant change within themselves as well as while interacting with their environment (ibid.).

Capra (1996) summarizes self-organization with three main underlying characteristics. Firstly, self-organization refers to the spontaneous self-structuring of forms and behavior which emerge in open systems, far from equilibrium (ibid.). Secondly, it results in feedback loops, where the outcome amplifies the original cause (ibid.). Thirdly, self-organizing systems have a non-linear

causality, where one cause can lead to several effects and one effect may have emerged from several different causes (ibid.). Biological concepts demonstrate there is a 'self-making' feature ingrained in all living systems. This makes them self-structuring and self-maintaining, with the relationship among the constituting physical components giving rise to the structure (Maturana, 1980).

Flocks of birds, shoals of fish, swarms of bees or herds of sheep tend to move together in a synchronized pattern when avoiding danger, or changing course (Heylighen, 2001). Interestingly, just as biological, chemical or physical phenomena self-organize exhibiting a spontaneous collective behavior, so does society. In sociology, social systems also present self-structuring and self-maintaining characteristics. Each system's components interact with each other, resulting in qualitative characteristics to emerge from these relationships, and then maintain and reproduce themselves (Bausch, 2001). Nevertheless, an important distinction between general living systems and social systems is that the latter has the ability to be consciously self-creative (Fuchs, 2002). This implies that individuals have the freedom of conscious creation of different and new structures, which may change established norms, values and behavior. Social self-organization may also entail intention or purpose, where a group of individuals deliberately engage in self-help, self-empowerment or self-determination in order to change their own social condition (Kemp et al., 2007).

According to Fuchs (2002), there are different ways in which social self-organization is conceptualized, and can be classified into two types: self-organization I and self-organization II. Self-organization I corresponds to the general functioning of society. It is applicable across various social systems and its meaning most closely resembles the concept derived from biology and physics (Capra, 1996). Conversely, self-organization II has a subjective political meaning, where there is cooperation, participation, and specific socio-political goals to transform social existence (Fuchs, 2002; Kemp et al., 2007). Self-organization I is useful in understanding how society functions. However, it limits the analysis of society and how it ought to function, which is more evident in self-organization II. For the sake of conceptual clarity, this paper introduces the concept of social self-organization in part I, and goes on to focus on social self-organization II for a more comprehensive understanding of the ways transition can be conceived I.

Social Self-organization I—The Self-reproduction of Society

Social self-organization I is a broad conceptualization of self-organization and concerns a general process which is applicable to all societies and social systems (Fuchs, 2002). This process is the basic re-creation or self-reproduction of society, where through a dialectical continuum between agency and structuring, society maintains and reproduces itself (Westley et al., 2002). To substantiate this process, we examine it through the lens of Giddens' structuration theory (1979). Society is seen as dialectic of social structures and actions, and of systems and individuals. Actions and interactions carried through by individuals create and reproduce particular social structures, including political, economic or cultural sets of norms, values and behavior. This is a bottom-up process commonly called 'agency' in sociology. Conversely, social structures become established and in turn, shape, or pre-condition agency itself. This top-down process where norms, values and actions of individuals are a result of the milieu is called 'structure'. In this manner, the theory of structuration describes a synchronous phenomenon where individuals have agency in constructing social structures, while these structures simultaneously constrain or enable the actions of individuals. Furthermore, Fuchs argues that society is a self-organizing system. The author refers to the permanent and continuous interplay between structure and agency which enables society to maintain and recreate itself. Put simply, people are the product of society and

people reproduce society. Actions are enabled and constrained by established structures which reproduce similar patterns of action. For example, this is seen in societies where the same practices particular to a social class are repeatedly reproduced.

However, this assumption presents the risk of falling into over-determinism. Individuals' actions are not always a direct outcome of their social condition. While order is maintained when individuals re-create themselves in these structures simultaneously, there is room for agency to shape these structures. As mentioned above, individuals are self-conscious beings and can reflexively monitor their actions, change them and ultimately change social structures. People have the ability to change their social condition through social interactions and struggles. From these, new qualities may emerge, leading to new structures, which in turn will adapt, maintain and again reproduce themselves, thereby creating a cycle.

Although these theories explain how society functions and how it is re-created, it can be problematic to state, in certain cases, that this is in fact associated with self-organization. For example, it may be implied that class stratification is an aspect that spontaneously emerges. The theories leave some space for agency, yet they run the risk of 'naturalizing coercive practices, where, if we understand society as a self-organizing system, antagonisms might be justified. Thus, stating that society is self-organizing may be misleading. It may generate the assumption that the way in which the status quo is maintained and reproduced is congenial. To address this, Fuchs describes a second concept of self-organization, which implies a subjective and agency-based meaning (i.e. bottom-up self-determination). This second concept is often used to counter the top-down structural reproduction associated with the first concept. To overcome this confusion, Fuchs consigns self-reproduction for self-organization I and self-organization for self-organization II.

Social Self-organization II—Self-governance and Cooperation

In this context, self-organization II is explored focusing on the agency aspect. It concerns social self-organization as self-determining, participatory and democratic forms of social organization (Fuchs, 2002). The term self-organization is commonly associated with notions of self-management and autonomy. In this sense, it is a collective enterprise, for these conceptualizations require shared self-governance instead of centralized hierarchical rule. Relationships become the central point of attention, as self-organization invites for a qualitative change to how people relate with each other.

In civil society, social self-organization II is often the means for people to express their values and beliefs. It is, in point of fact, closely related to social movements (Bryant, 1993; Fuchs, 2006). Since self-organization II stresses the importance of self-determination, social movements become a corresponding concept. Therefore, regardless of their cause, the idea that all social movements are self-determinant implies that their objective comes from within the assembling of individuals who organize themselves under a particular directive (Fuchs, 2006). Although typically social movements manifest as protests and demonstrations, it is important to note that co-operatives, interest groups, particular associations and NGOs, self-help groups and grassroots movements are also forms of self-organization.

A common characteristic of self-organization movements is that they form a dynamic which is often directed at highlighting the flaws of social structures and finding solutions for social problems to bring about change. Surely not all social movements aim at achieving goals which are considered commonly desirable by the rest of the society. Nevertheless, what they most often manage to achieve is addressing problems that the government fails to address (Fuchs, 2006). In

this manner, self-organization II plays an important role in transitioning to a better society, as it communicates alternative and often innovative opinions, values and beliefs.

In the context of complexity thinking, there is no linear causality in events (Holling, 2001). One cause may lead to different effects and one effect may be the outcome of different causes together (ibid.). In addition, a small cause can lead to huge effects and large causes to rather small effects (ibid.). If we apply this logic to self-organization II, we can say that it may rise from several different initial conditions combined (ibid.). Social antagonisms would therefore be a plausible condition, but not a sufficient one (ibid.). In this sense, it is a complex outcome which may not even need an external determinant for it to emerge, but its emergence may be its own cause (Fuchs, 2006). Like social movements, self-organization II is a combination of chance and necessity and the result of its emergence is indeterminable. Zeyer (1997) argues that there is hope in examples of self-organization such as grassroots movements, NGOs and civil disobedience, for their practices may intensify and sprawl, eventually leading to structural changes. Most importantly, Fuchs points out that "the way out of this crisis can only be conceived in terms of gaining competence in subjective self-organization and releasing the powers of this principle" (2002, p. 64).

While the concept of self-organization II has been outlined in light of the existing literature, it needs deeper and more specific explanation from its broad meaning, and thus to make the term more concrete (Fuchs, 2002). Therefore, a case study that highlights the specificities of the working of self-organization becomes significant. As mentioned above, we have particularly delved into forms of self-organization II that are cooperation-based in organizational character. Top-down internal arrangements in self-organization II may be efficient, but it does not necessarily provide a new insight on how self-organization II can take place in a novel way, with greater participation, democracy and efficiency, while continuing to serve a specific social cause. If self-organization II is a bottom-up emergence in relation to a society which runs through the agency or structuration dialectic, and if through its emergence societal flaws can be acknowledged and corrected, it is important to analyze what enables self-organization II to emerge in the first place. In this regard, it becomes useful to examine real life examples on what may stimulate and nurture such a principle. Henceforth, we will use the term self-organization to refer to what so far has been described as self-organization II.

We now refer to self-organization as to agency or self-determining groups of people who deliberately and pragmatically address needs and aspirations in a cooperative, participatory and democratic manner in order to fulfil socio-political aims. However, when needs are addressed deliberately and pragmatically in a participatory and democratic manner, there is an element of control in the form of self-governance and it is no longer explicitly self-organization. While in both self-organization and self-governance, information about the whole affects the behavior of the parts, there is a subtle difference between the two (Ismael, 2010). In Ismael's words, "in self-organization the joint activity of parts generates a field that guides the behavior of components in a manner that is not mediated by centralized processing. On the other hand, in the case of self-governance, information distributed across the components is collected and re-represented in a way that separates objective and self-locating information, allowing the system to make use of information stored in a context-independent format and exercise flexibility in choice of means. It is really the extra layer of processing that distinguishes self-governing from self-organizing systems." Complex systems that self-organize with elements of self-governance produce a powerful integration of top-down and bottom-up control (ibid.). The following part explores the idea of place, in specific social centers, as a potential catalyzing force in terms of inducing and sustaining self-organization.

Place

Place matters. People influence places but places too influence people (Gustafson, 2001). From a sociology perspective, three elements make a space into a place: physical setting, activities and meanings (Relph, 1976). 'Meanings' are particularly important as they create a sense of place. Besides, meaningful places are a product of the social context and social relations in which they take place. Relph describes place as, "the focusing of experiences and intentions onto particular settings … full with meanings, with real objects, and with ongoing activities" (1976, p. 141). Place is the real life embodiment of social meanings and constructions (Gieryn, 2000; Gustafson, 2001). Considering the 'outside world' or general external social context of places is of crucial importance to understand the meaning of places (Massey, 1994). Places are directly bound by time and space, i.e. a place is seen with respect to the social momentum it is immersed in. As a result, places are not static because meanings change when society changes. According to Massey, places are always an ongoing process, and not a final product (1994).

Since places take form through the meaning people attach to them, and in turn, this embodied meaning influences how people perceive a place, people influence places as much as places people (Relph, 1976; Gustafson, 2001; Pred, 1983). A place is made when qualities are attributed to the built-in environment that may be partially abstracted through the observation of people who frequent it and how they use the place (Gieryn, 2000). Although stigmatizations such as good/bad dichotomies are individual subjective interpretations, some perceived qualities may become 'fixed' representations (Gustafson, 2001). The dynamic also works in the reverse, where places make people. Places are the embodiment of often intangible norms, values, practices and identities. These may or may not be materially manifested (Relph, 1976). Nonetheless, places have the ability to secure and stabilize meanings and practices (Gieryn, 2000).

The qualities of places affecting peoples' behavior is not new (for example, see Canter, 1977). Many neighborhood interventions are based on place-based approaches (Nowell, Berkowitz, Deacon, & Foster-Fishman, 2006; Smock, 1997; Chavis & Wandersman, 1990; Driscoll, 2001). Although these initiatives differ in constitution, ambition and targets, they all recognize that altering places is an efficient way to change specific behaviors (Nowell et al., 2006). Studies on the perception of place in neighborhoods show that place aspects provide indications suggesting the profile of its residents and other users, including their level of wealth. Physical characteristics may also define norms and behavior. For example, socio-psychological behavior dynamics attributed to physical aspects of places were identified, such as "evidence of caring inspired further caring" and "evidence of neglect invites further neglect" (Nowell et al., 2006, p. 44). A place is also considered positive when it is accessible and when there is a sense of belonging associated with it (Proshansky, Fabian & Kaminoff, 1983). When people feel enabled to interact with a place and if they tie their personal memories, stories and experiences to it, a sense of belonging is created and the place becomes significant to the individual (Proshansky et al., 1983; Canter, 1977). A place may also be crucial in reviving citizenship by shared use of community places and practices "which rely on old-fashioned civic virtues of trust, honesty, justice, toleration, cooperation, hope and remembrance that get nurtured" (Kemmis, 1992, p. 119). While places designated for communities facilitate a bonding amongst like-minded people, places designated for political activity instigate political engagement (Kemmis, 1992). Considering that social self-organization is closely related to civil activities, which in turn exist where place offers opportunities for them to occur, the link between self-organization and place becomes evident. The following section explores ways in which such dynamics exist.

Self-organization and Place—Autonomous Geographies and Social Centers

As mentioned earlier, places have the potential to inspire specific types of behavior. Not only because of the physical attributes attached to them, but also the context in which they exist, the meanings they are associated with, and the type of previous practices that are reproduced through them. When self-organization is associated with this approach to place, it becomes worthwhile to analyze the extent to which place reinforces self-organization and vice-versa. With this logic, we can explore the concept of 'autonomous geographies', coined by Pickerill & Chatterton, where autonomous geographies are "those spaces where people desire to constitute a non-capitalist, egalitarian and solidaristic form of political, social and economic organization through a combination of resistance and creation" (2006, p. 1).

A well-known example of this conceptualization is the Zapatistas movement in Mexico, a self-managing and self-determining social movement where Zapatistas activists used pragmatic autonomy to claim their right over a particular geographical area. For the Zapatistas, striving for autonomy was a means of moving away from the capitalist social model. Examples of practices and organizational processes that belong to the category of autonomy building would include "social centers, ecovillages, alternative currencies, food production, housing co-operatives and self-education" (Pickerill & Chatterton, 2006, p. 2). Autonomy is the foregrounding principle that is attributed to reluctance to heteronomy, as well as experimentation with alternative organizational practices. Such practices include direct democracy, non-hierarchy and consensus, which make autonomy a normative politically-loaded term (Pickerill & Chatterton, 2006).

Autonomy and the concept of social self-organization are closely related as both focus on the importance of self-sufficiency, determining one's own path and style of self-rule, freedom and independence, and reject heteronomy. Autonomous geographies could have an ephemeral character, like convergence spaces created via campaigns or events, or a more established aspect such as in the case of social centers. Social centers are interstitial places which strive for building autonomy through resistance, creation, and experimentation with non-capitalist forms of living (ibid.). Social centers are most commonly related to 'squatters' which refers to the occupation and renovation of abandoned buildings. These re-established places become a social center through a variety of voluntarily organized activities such as not-for-profit oriented food cooperatives, sustainable and eco-friendly shops, documentary screenings, art exhibitions, workshops and gigs (Pickerill & Chatterton, 2006).

Self-managed social centers (SSCs) in the 1980s in Italy are an excellent example of a powerful relationship between self-organization and place. SSCs were formed as a reaction to increasing rents, lack of exclusive places for political discussions and activity, and a growing dissatisfaction with the neoliberal system (Mudu, 2004; Virno & Hardt, 2006). These were often initiated by radical leftists groups for political expression and were organized voluntarily. Although the SSCs were most commonly seen as marginal, they were frequented by diverse segments of the population (Mudu, 2004). The Italian SSCs are a good example of self-organization, as they were created by groups who organized themselves in a way they could address their own needs, thereby using decentralized and non-hierarchical forms of self-coordination.

However, autonomous geographies and social centers are often suggestive of a confrontational disposition. The concern here is that resistance is emphasized over creation (Holloway, 2002). This approach is common among radical social activists and creates resistance over resistance. According to Chatterton & Hodkinson, "by challenging the very logic of capital, and the assumed right of the capitalist class to monopolize space, autonomous spaces will inevitably face efforts to

repress, shut down and reclaim them" (2007, p. 210). Therefore, autonomous spaces face challenges such as ensuing legal manoeuvres, stringent checks, and unreliability such as last minute event cancellations. Nevertheless, it is important to notice that feeding a confrontational rhetoric against the 'capitalist classes' will not necessarily lead to legitimization of these places. Perhaps it is more constructive to reverse the focus from the problems to the solutions that have succeeded. The case study of the Landhuis in the next section aims to investigate how self-organization and place relate to each other and this, beyond their confrontational character as a social center.

CASE STUDY

The Landhuis

To elucidate the idea of social self-organization, we examine the case of the Landhuis by critically assessing the aspects that constitute the concept and more importantly, those which are believed to enable it. The Landhuis is a social center located in Maastricht, The Netherlands, formerly an empty building and a makeshift social center commonly described as a squat. It was renovated in 2010 and transformed into a two-storeyed structure as an open place for different activities, such as workshops and festive events. It has been successfully self-governed and used by different organizations like student associations and youth groups, for knowledge sharing sustainability workshops on permaculture, herbalism, wood carving, and bread making, among others. The choice of the Landhuis case study is related to the interesting characteristic of self-organizing initiative it represents: it has been built and created as a shared space, principally by volunteers and with the help of donations. Its organizational structure has no hierarchy, and it is based on self-help and self-determination. This initiative has in turn helped implementing several sustainable initiatives including urban agriculture, a local currency initiative, and a Do-It-Yourself (DIY) culture. Interestingly, it has also cooperated and collaborated with external institutions and organizations.

METHODOLOGY

The research methodology that has been used is qualitative primary research. This is descriptive to help in grasping the dynamic and subjective character of the elements in the case study (Hesse-Biber & Leavy, 2010). Two in-depth and semi-structured interviews were conducted for substantial collection of information in the way the Landhuis is perceived and on its relevance as a place. The research sample consists of three individuals who initiated the project. The interviews consisted in the collection of in-depth information on the project, and particularly on the way it is considered by the interviewees as a self-organizing initiative, and as a place to sustain activities. One interview was conducted simultaneously with two individuals to induce a discussion between them. Interviews were recorded and transcribed with notes to record the participant's observations. A 'meaning collection', was also carried out during which 32 people involved in the Landhuis' activities were asked to choose five words to describe the initiative. This approach aimed at assessing the different meanings attributed to the Landhuis to understand the subjective perception of the place.

With two semi-structured interviews, participant reflexive observation, informal conversations and meaning collection, our research strategy is considered as a 'bricolage' (Denzin & Lincoln, 2007). Analyzed together, the findings form a comprehensive panorama of answers to the following main questions:

1) What makes the Landhuis an example of self-organization?
2) How is the relation between self-organization and place reflected?
3) What clues does it give for the in-the-making concept of a commons place?

RESULTS

Questioning the interviewees about the context in which the Landhuis project emerged led us to different stories. An unplanned emergence came about when its founders conceived that the unused space ought to be productively used. This initiative came from the perception that the city lacks places that are open to the public, and which can enable dynamic and meaningful interactions, and from this emerged the idea of creating a meeting place for people to engage and participate in different activities. Throughout the building's renovation, the objectives and execution of the project were decided based on brainstorming sessions attended by the project's volunteers, most of them being individuals from the same social circle, interested in supporting such an initiative. These factors led to the conception of the Landhuis in its present form, which spontaneously emerged from a collective action.

The research findings highlight characteristics of the interconnected relationship between place and self-organization in the Landhuis. This is a project in which founders and volunteers have worked without governmental financial support, and achieved a high degree of autonomy. It is a low-cost and creative initiative intended to integrate ecological objectives, for example by the way it uses recycled material. The initiators of the project received funding from two associate organizations, namely, the Landbouwbelang and the Student Workforce for Development & Sustainability. The Landbouwbelang has been instrumental in influencing the not-for-profit philosophy of the Landhuis, and is an example of self-organization with no profit-making, self-governance without hierarchy, and democratic participation in decision-making through a consensus.

Despite Landbouwbelang hosting varied activities, it was initially considered a relatively closed group that was not open to the general public. Therefore, it became important to have a more accessible and inclusive place that could be used in diverse ways. The Landhuis' participants wanted people to directly engage and realize their own project. This inclusive and empowering discourse of the Landhuis has shown to be true in practice. Participants have been encouraged to take responsibility themselves for organizing small events or minor maintenance-related tasks. At early stage, one of the co-founders became overburdened with the administrative tasks he was solely handling, and thus asked help from other volunteers to share them. This has directly illustrated a quick integration of feedback loops. Noticing that there was a tendency to centralizing tasks, a solution was sought in order to keep the initiative a collective effort, and not an individual one. Throughout the development of the project, when a problem was raised, it was discussed and a solution was found through open discussions in the participating group. A significant aspect here is that a particular self-organizing initiative aims at nurturing further self-organization and serves as a platform for different organizations—including NGOs and associations—to conduct, host, and participate in workshops, trainings and various team-building activities. Their primary objective has been to remain open and encourage people to manifest and act upon their needs and aspirations.

When asked about the culture associated with the Landhuis, one of the interviewees explained that the most important characteristic of the project is that people keep awareness to the possibilities of an open culture, and are eager to exchange knowledge that is generally not present in mainstream society's culture. Thus, the self-organizational character of the Landhuis has quickly become

evident. The openness that the Landhuis promotes is significant, as clearly noticeable in one of the co-founder's discourse on the associated vision, and in which the word 'open place' is emphasized. 'Openness' can be interpreted in different ways, but in this particular case, it specifically implies an open and inclusive attitude amongst people. For example, 'Landhuis Sundays' events are open to the public, and demonstrate a will to invite newcomers to take part in activities. The co-founders envision the need for places that are free from stereotyping, and for people who are not seen as consumers or simply not associated with reductive clichés. Although the concept of self-organization suggests a non-hierarchical and decentralized form of organization, it is nonetheless necessary for a few individuals to be committed towards sustaining a particular vision. In the case of the Landhuis, one of the founders took up the role of vision bearer. They affirm this by stating that the initiative runs the risk of falling into chaos without a 'project leader'. However, this does not imply that all the decisions are only taken by the project leader who is essentially a facilitator ensuring the smooth functioning of any initiative.

The inclusive and participatory character of the Landhuis is a remarkable feature. Organizationally, the open meetings and transparent budget management give the participants an opportunity to express their opinion and provide suggestions on the functioning of the Landhuis, thereby emphasizing their sense of belongingness. In addition, when analyzing what created a bond between the people besides similar interests, it is evident that food played a key role. As simplistic as it may appear, the cooking activities and communal meals were moments when special social bonding happened.

The relationship between self-organization and place in this has become evident in different ways. This is not only because the Landhuis emerged out of the Landbouwbelang self-organization context where individuals took the initiative themselves to renovate a building and redirect its purpose, but also because it serves as a space for more self-organization to emerge. During the renovation period, those who volunteered were already oriented to the DIY principle. They were living or had lived before at the Landbouwbelang, and were accustomed to building using recycled materials with a bricolage architecture style. This creates a positive representation which one of them summarizes as, "you can very clearly see the amount of energy and love put in it, which means you have a good example of the people, you can understand they put their energy and a phase of their lifetime into it, only for giving back something to the world" (Interview, April 25, 2013).

The fact that many people participated in the renovation process has not only created a unique relation between the people and the place, but has also resulted, through physical aspects, in people's perception of the building as meaningful to them, and associated with an interesting history. Specific elements of the building also suggest certain norms and values to be followed such as payment for food and beverage being done on a trust-based system, where individuals serve and pay on their own initiative. A small corner serves as an open library, where individuals are invited to donate books. The books' subjects tend to relate to alternative lifestyles and critical thinking, therefore reflecting the cultural inclination of those who visit.

Although the Landhuis claims to be open, there is still a preponderant cultural trend shaping the place. In the attempt to describe what exactly this culture was during interviews, the founders argued that, despite the fact they made the choice of not following mainstream mechanisms, they do not have a counterculture that could be interpreted as confrontational. To better understand people's perception of the Landhuis, we asked 32 individuals who had visited the Landhuis to write down five words they associated with the place. We collected the meanings and clustered them according to topic similarities, thereby forming 'meaning clouds' or 'word clouds'. The

number of times a word was cited determined its font size. For example, words cited only once appeared in font size 12 and each time they were cited again, the font size increased by a number. 'Community' was the most cited word (13 times) and was attributed a size of 25 (i.e. 12, initial size + 13 times = font size 25). Results are shown below in Figure 1.

Figure 1. Word cloud generated from interviews with 32 individuals asked to select five words describing the Landhuis (Source: Authors).

The analysis of the word clouds reflects some coherence among the concepts. It shows that despite the fact that the Landhuis discourse involves being open for different themes as much as possible, it is still guided by the trend of an alternative lifestyle. 'Community' was the most cited word followed by 'creativity' which was cited nine times. This reflects the spirit of the place where a community was formed through creative activities. The bottom-right cloud reflects the importance of community-related concepts that express cooperative relations within the initiative. The upper-right cloud reflects the types of practices associated with the Landhuis, including the DIY rhetoric, evident in words such as 'hands-on', 'craftsmanship' and 'handmade'. Words like 'self-reliance', 'sustainable culture', 'self-sustaining', and 'self-organization' suggest that it represents a place where the transition towards a sustainable society could happen. Finally, it must be noted that the upper right and upper left cloud show praxis: the combination of theory and practice.

ANALYSIS OF KEY FINDINGS

As explained earlier, social self-organization refers to self-determining groups of people who deliberately and pragmatically address their needs and aspirations in a cooperative, participatory and democratic manner to fulfil socio-political objectives (Ismael, 2010). While inspecting whether the Landhuis fits into this social typology, several aspects were identified to affirm it. The spontaneous self-organized process emerged—and the concept of the Landhuis with it—when

voluntary social actors realized the building could be transformed into a valuable place for non-commercial purposes. More fundamentally, the group identified a lack of socially inclusive places for valuable trends to take shape in the city, and where the general public could be invited to take part in creative activities. They preferred fixed locations in the way they can provide continuity to initiatives, and for people to have a place to go back to and hold meetings on a regular basis.

Networking becomes easier when people can exchange ideas and learn from each other, and jointly experiment innovative social projects. As a result, the emergence of Landhuis was not only due to spontaneous emergence, but also due to the powerful outcome of a collective grassroots desire to trigger change.

It is interesting to note that in this case, while a majority of the activities is related to sustainability, the concept of sustainability is not part of the main discourse, but instead focuses on community-building. This leads us to the question of whether sustainability is a process or an outcome, and what is needed to work towards it. The founders argue that the first step towards sustainable development lies precisely in community-building. Sustainable development and community-building are closely related because in a situation where a sense of community is created, community members become more aware of their environment and more responsible towards its protection. Conversely, when all solutions are top-down, it merely becomes an order to be followed. Perceiving the lack of community and shortcomings of top-down solutions, pro-active measures were taken that involved different actors in the enterprise. This self-determining, agency-driven and inclusive character makes the Landhuis an example of self-organization, as it is a group that determines its purpose in a bottom-up fashion and builds community through its activities and openness. It promotes self-reliance through the praxis of the DIY principle that empowers individuals and groups. The structuration dialectic becomes obvious here along with the potential of self-organization to fill perceived structural gaps with immediacy.

The vision bearers and its inclusive character are key attributes for the positive functioning of the Landhuis. It is fundamental for self-organizing initiatives that there is awareness of roles that individuals take up, as well as the value and purpose of the social unit. Additionally, since it is a place which embodies meaning and specific messages, it also stimulates innovation. For example, as the building shows that the principle of self-organization is followed, it inspires individuals to engage themselves in the concept. In other words, the place sustains the vision. As already noted, most activities at the Landhuis are aligned with the goal of achieving sustainability. For instance, the idea of creating a local currency in Maastricht emerged out of unpremeditated social encounters, but in a context stimulating sustainability ideas. While this highlights innovative social dynamics at the Landhuis, the place was created by people with specific cultural orientations. This is reflected in the way the building was renovated and where a sense of place was created, which in turn, now guides the behavior of people thereby creating opportunities to trigger transitions.

Interestingly, the founders acknowledged during the interviews that focusing only on sustainability tends to exclude other options and prefer to emphasize openness for diverse themes, so that it can grow with the needs of the people and as a place that creates possibilities to bring people together. This creates a favorable position for the Landhuis due to several reasons. On the one hand, authors like Pickerill and Chatterton (2006) argue that there is an ever-growing necessity for places outside the patterns of capitalist relations to emerge, so that everyday practices can be altered and challenged. On the other hand, although it is important to be critical towards the status-quo, antagonistic attitudes and representations of social centers may trigger resistance and denial from the government.

The Landhuis is a positive example in the sense that it is open and engaged with different cultural possibilities. The not-for-profit norm remains a broad guideline to conserve the uncommercial aspect it wants to safeguard, and yet in case a proposal for fundraising comes up to support a cause that is convincing enough, its possibility will be considered. The structure is dynamic and the rules change according to the circumstances. This flexibility may suggest inconsistency at first, but at the same time it is a source of strength and continuousness, as many other possibilities and experiences would remain unexplored. In this manner, it shows that the creative, experimental and innovative character of social centers can be rendered without struggle as an initiatory condition. The Landhuis demonstrates a top-down and bottom-up synergy, as in the case of the Proeftuin sub-project. For this project, the wasteland area allocated to the Landhuis for urban agriculture was provided by the 'top', which in turn enabled bottom-up emergence. This case made it evident that if institutions support self-organization, they are in fact supporting communities to meet their own needs. Furthermore, this gives creative agents a chance to manifest their potential for innovation. It also illustrates the prospects of the transition management theory, with multi-level coordination where top-down decision-making stimulates bottom-up initiatives, favoring the emergence of novelty (Kemp & Loorbach, 2003).

Such synergy may also be a solution to the problem of marginalization of social self-organization. Often, social centers and self-managing initiatives are represented as a marginal ghetto of alternative lifestyle. This is not only a narrow and limited view of these social processes, but it may also curb the potential of the concept of self-organization. This leads us to the question of how people from different cultural orientations can organize themselves and attend to these in a way that is determined by them. According to the founders, in order to disseminate the concept of self-organization, people's will is needed along with cooperation from the government, particularly in relation to re-used buildings.

In line with transition management, the Landhuis and its sub-initiative Proeftuin, both represent valuable social innovation projects happening at the transition management operational level that bring new practices and lessons that contribute to sustainability goals. According to the transition management theory previously mentioned, there is a need for interactions to exist at all levels. Synergy between bottom-up agency and top-down is enabling and is inspiring many other similar initiatives to emerge. Without the land allocation from the governmental authorities, it would not be possible for the initiative to exist, and without the agency of the 'bottom', it is doubtful whether the initiative would have been as creative and noteworthy as it is. In this context, we introduce the concept of the commons place, referring to open places that enable self-organization.

MAKING THE CASE FOR A 'COMMONS PLACE'

There is a lack of open places in cities that facilitate civil participation, and expression of local needs and desires, alongside community-building. The Landhuis project is a good example of how such places can take form, without having the confrontational attitude with which social centers are normally stigmatized to have. Inspired by this case, the idea of 'commons places' refers to open, dynamic and self-managed places, where people can address their needs and aspirations. In other words, a commons place serves as hub for self-organization. We introduce here the concept of 'commons place' to refer to this particular situation where a place is commonly built in order to serve a common purpose. The term 'commons' used here, is based on existing sustainability debates (see Hardin, 1968). However, 'commons place' as used here differs: instead of emphasizing on the fact that individual and rationalistic behavior leads to a situation of tragedy (i.e. resource depletion), a cooperative, inclusive and creative attitude that is supported by a community place, can lead to innovation and community building.

A commons place is open and at the same time self-determinant and is not directed towards any one single concept such as sustainability. It embraces the diversity within its reach, where dialogue can happen between people to ideate on ways of meeting their needs and wants. In the case of the Landhuis, its vision encourages the DIY principle and empowers people to act. While at the Landhuis the focus is on community and sustainability related activities, it is unclear and improbable that all commons places will result in creating sustainable solutions. Nevertheless, they serve as a hub for people to share their interests and skills, which in turn fosters the creation of community.

As we learned from the Landhuis case, the 'building of community' appeared as essential for transitioning towards a more sustainable society. Not only is this beneficial in face of the individualistic character of today's society, but it also encourages innovation. This case shows the importance of the involvement of people in the building of the commons place versus a top-down approach. The potential of a commons places is that it induces self-organization and as a free and open space, it allows individuals to manifest their needs and take action. Continuity can be guaranteed as regular, and convenient meetings are made possible. A fixed space ensures continuity, facilitates the inclusion of newcomers and networking. New ideas and projects emerge through this process, leading to further self-organization. The concept of 'commons place' is surely under development. It may be acknowledged that the success of the Landhuis is context-specific and that similar initiatives might lead to different outcomes elsewhere. The extent to which place embeds practices and influences behavior, and this to the point of sustaining and triggering further self-organization needs further study. Moreover, it is important to question the plausibility of inclusive places. The Landhuis case made evident that despite the existence of a discourse on openness, a preponderant cultural trend might limit the openness of the place. Nevertheless, inspired by the Landhuis case, we recognize the potential to further explore the idea of a 'commons place', as it nurtures self-reliance, bottom-up and top-down synergies which are highly relevant in the context of today's economic crises and socio-environmental injustices.

CONCLUSION

In times of growing needs to identify strategies that facilitate transition towards a more sustainable society, self-organization plays a significant role. There are several reasons that support this proposition. Firstly, self-organization allows people to self-address their needs and aspirations and act on it. The analysis of the drivers and enabling mechanisms of self-organization highlight the need for a fixed place to allow continuity and stability. Most importantly, it emphasizes the crucial need for direct public participation in the building of such places. When places are specifically directed at self-organization, positive outcomes such as community-building, creativity and innovation emerge. The combination of the concepts of self-organization and place is translated into the commons place. The commons place provides a niche for self-organizing initiatives and is conducive for people to manifest and act upon their ideas.

The transition management model proposes a synergy between top-down and bottom-up which is the best way to respond to economic, social and environmental issues. If bottom-up initiatives are elements of innovative agency, local authorities may support them. The outcomes which emerge out of places having a strong sense of community are often related to sustainable initiatives and solutions. Therefore, it becomes important to recognize commons places as a space that fosters creativity and innovation. Such places should be legitimized along with exploring possibilities on how to disseminate such a concept. This requires further research to assess the feasibility of implementing a commons place in diverse neighborhoods. This paper is limited to a grassroots

perspective and for in-depth elaboration on a commons place, other perspectives would be useful. Kemmis (1992) reminds us that politics should be the 'art of the possible' which implies comprehending the possibilities of reality, while at the same time also bringing to reality what otherwise remains in the realm of dreams. The field research shows that there is a perceived lack of places where transition is factually embodied. Hopefully, social centers like the Landhuis will inspire authorities to acknowledge that there are existing examples of transition, and that these are models for many more similar initiatives to develop.

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Biophilic Design Triggers Fascination and Enhances Psychological Restoration in the Urban Environment

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ABSTRACT

This brief communication wants to draw greater attention to the role of physical environment in the psychological restoration process. Given the benefits deriving from contact with Nature, urban designers should also attend the human need for psychological restoration. According to the *Attention Restoration Theory*, performance, mood and well-being benefit from exposure to environments attracting effortless involuntary attention and demanding little voluntary attention; this process called *fascination*, mostly occurs in natural environments though our exploratory studies showed that also urban settings/buildings can be high on fascination. Using knowledge of our affinity for Nature, experiences of well-being can also be generated through the environments we create (biophilic architecture). Fascination with Nature is derived not only from natural elements, but also from the *qualities* and *attributes* of Nature people find appealing and aesthetically pleasing when reproduced in the built environment as well. "Cognitive comfort" resides primarily in the relationship among natural and built landscape elements rather than intrinsically in the elements themselves. To know that also urban settings may be highly fascinating can be of great help to city planners to promote psychological well-being as one aspect of public health. Urban environments should not compromise people's need for psychological restoration whereas contribute to providing an opportunity for physical, cognitive and emotional restoration from environmental stress.

***Keywords*:** Attention Restoration Theory; Biophilic Design; Lempel-Ziv Welch Lossless Compression Algorithm; Perceived Restoration Scale.

The purpose of Environmental Psychology is to understand the complex relations between people and the environments around them; though interest in human transactions with the natural world remains a priority, concern for optimizing human relations with the built environment is growing (Gifford, 2009). Since *design* requires knowledge about how the physical environment affects people's preferences, behavior, moods, etc. there is a direct connection between the needs of designers and the work of environmental psychologists. However, within its own domain, designers have struggled with the proper role of design since the mid-twentieth century (see Hoppenfeld, 1960); the tension revolves around two different notions: design as a physically oriented search for ideal urban form, versus design as a more process-oriented discipline. To some extent, the concern for design has been replaced by a concern for *place* (Johnson, 2009), although the two notions are difficult to disassociate. Thus designers might be engaged in an effort to discover how physical aspects of places affect human feeling, thoughts, and behavior (Nasar, 1997; Lund, 2003; Rodriguez, Khattak & Evenson, 2006; Dumbaugh & Rae, 2009), or whether design matters at all (Ryan & Weber, 2007). Researchers have shown that people make inferences from the physical appearances of places and these inferences are often accurate. A visual feature, such as grilles on windows for instance, serve as a useful probabilistic cue for a non-visual attribute of a place, such as fear of crime (Craik & Appleyard, 1980). This process helped our predecessors to survive: they had to be able to recognize what it is, evaluate it, and act on that evaluation. Visual-formal qualities refer to physical properties and relations, such as shape, proportion, scale, and complexity, to which humans respond quickly and "for their own sake" (Lang, 1987). Observers would notice formal qualities that may benefit or injure them or that may support or interfere with their activities (Gibson, 1979).

In Western society people are often overwhelmed by a wide variety and large amount of sensory information (Lipowski, 1970), which can cognitively overload their limited processing capacity. Information overload can have negative consequences on behavior: to process too much information often results in stress-related diseases and mental fatigue, i.e. confusion, distraction, cognitive strain and other dysfunctional or unfavorable conditions (for a review see Berto, 2014). To prevent this, modern urban environments should be more "cognitively sustainable", i.e. to serve psychological restoration playing a role in coping with *mental fatigue* (Berto, 2011). Actually, using knowledge of our affinity for Nature[1], adapted and refined over millions of years, we can generate experiences of health and well-being through the environments we create (Barbiero, 2011). The experience of Nature through human evolution has left its mark on our minds, our behavioral patterns, our physiological functioning, in what we pay attention to in the environment, how we respond, and what that experience means to us (Barbiero, 2014). The *biophilia hypothesis* and supporting research tell us that, as a species, we still respond strongly to Nature's forms, processes, and patterns (Kellert & Wilson, 1993; Kellert, Heerwagen & Mador, 2008). A number of studies have demonstrated that attentional performance improves through exposure to natural as compared to urban scenes (Tennessen & Cimprich, 1995; Hartig et al., 2003; Berto, 2005): thanks to their content, natural scenes do not overload the attentional system, further undermining cognitive performance, unlike urban scenes. According to the *Attention Restoration Theory* (ART; Kaplan, 1995), performance benefits from exposure to environments that attract effortless involuntary attention, known as *fascination*, which demand little voluntary attention. Environments perceived as natural tend to trigger more *fascination* than environments perceived to be urban or artificial; artificial environments containing natural analogues or biomorphic ornaments can also trigger fascination, but not to as great an extent of "restorativeness" (see e.g. Herzog et al., 1997; Hartig et al., 2003; Staats, Kieviet & Hartig, 2003; Purcell, Peron & Berto, 2001), and a few have forwarded hypotheses about how the process may work (see e.g. Berto, 2005; Berman, Jonides & Kaplan, 2008; Berto et al., 2015).

[1] In this paper we will use "Nature" with the capital "N" to indicate the biosphere and the abiotic matrices (soil, air, water) where it flourishes, to avoid confusion with the "nature" understood as the intrinsic quality of a certain creature or certain phenomenon.

Succinctly, mental fatigue is associated with effortful voluntary attention and occurs because it takes considerable effort to stay focused. In contrast *fascination* is based on interest, resulting from *process* or *content* and it can be conceptualized along a dimension, from *hard* to *soft*: *hard fascination* is mainly concerned with activities, events, etc. whereas *soft fascination* has to do with environments, places; in both cases fascinating stimuli attract people and keep them from getting bored (Kaplan & Kaplan, 1989, p. 184). Unfortunately, everyday settings call for voluntary attention and the price paid is mental fatigue, which is the manifestation of the cumulative effect of distractions that must be inhibited for voluntary attention to function efficiently; mental fatigue indicates that the inhibitory mechanism is fatigued. By contrast, fascinating settings/patterns are inherently gripping and people do not spend energy in suppressing distracting stimuli because they do not have to pay attention to less than interesting stimuli.

Berto, Massaccesi and Pasini (2008) showed that images of natural scenes with a high level of *fascination* (rated on the *Perceived Restorativeness Scale*) are characterized by a different pattern of eye movements than images of built environments with low *fascination*. This study provided initial evidence that in watching fascinating scenes people shift effortlessly from one feature to another, although results did not make clear whether the voluntary vs. involuntary attention was engaged by the naturalness category or by *fascination* itself, i.e. from *content* or *process*. Berto et al. (2010) focused on the possible relationship between human need for attentional recovery and patterns of stimulation provided by the environment. They showed that in mentally fatigued participants, the cost of performing an *ad hoc* attention-orienting task in the "high fascination" condition (i.e. viewing scenes of natural and built environments that engage effortless attention) is smaller than in the "low fascination" condition (i.e. viewing scenes of natural and built environments that engage effortful attention). Only in the high fascination condition, where people can function in the involuntary mode, participants showed a benefit (in terms of reaction time reduction) from shifting attention between trials, independently of the environmental category. From Berto et al.'s study (2010) it turned out that in certain cases the particular combination of natural and built elements is more important than the amount of visible natural environment (see also Zacharias, 1999), and *fascination* is a process that can take place in attending both natural and urban scenes. Accordingly, the involuntary process can also be engaged in viewing urban scenes if *environmental information is fascinating*, i.e. if it does not overload the attentional system (see also Kaplan & Kaplan, 1981). Actually, scenes high on *fascination* have in common the engagement of a process that affords psychological restoration.

To verify whether *fascination* is linked to the amount of information to be processed in a scene independently from the environmental category, we tried to address this question at a basic level using a simple method that allows the quantifying of image information: the Lempel-Ziv Welch lossless compression algorithm (LZW). The LZW-algorithm has practically become the standard compression procedure (commonly referred to as "zip"), and constitutes a simple but reliable method of comparing image information. By removing *redundancy*, compression leaves the compressed file with only the actual information content; images often contain quite some redundant information, or have multiple sections containing identical information. The LZW algorithm determines the amount of unique information in the information source (for more details see Unema et al., 2005; Itti, 2006). The compression *ratio* is expressed as a percentage; the higher the ratio, the more *redundancy* the image contains. The compression ratio was calculated for the thirty-eight scenes used in Berto et al.'s study (2010) because those images depict both "high" and "low" *fascination* scenes (nineteen each) spanning the entire naturalness range (from totally built to totally natural). Since the LZW algorithm does not take into account any pre-existing knowledge about the world, it can be safely assumed that the procedure of compression affected all images similarly. From our analysis it turned out that ratio predicts *fascination*, with

less redundant scenes (lower ratio) being rated more fascinating. Scene naturalness also weighed in on the prediction of *fascination*, with nature scenes showing the highest *fascination* score; nevertheless, the naturalness category alone was not enough to explain *fascination*.

In fact, the perception of *fascination* does not rely on *naturalness* only, on the contrary it depends on a series of "sensorial semiotic aesthetic attributes" such as *openness*, *mystery*, *complexity*, *order*, *vegetation*, *maintenance*, *style* and *perceived use* (Nasar, 1994, 1997). There is some evidence of preferences for certain building and skyline arrangements (Smith, Health & Lim, 1995): people have clear preferences for combinations of building shape, color and arrangement, etc., and they may also have preferences for certain combinations of buildings and natural elements (Zacharias, 1999). Actually, our *fascination* with Nature is derived not just from natural elements, but also from the *qualities* and *attributes* of natural settings that people find particularly appealing and aesthetically pleasing when reproduced in built environment as well. Wohlwill (1983) suggested that the difference in preference between natural and built environments might arise from *formal* differences between them; he theorized that built/artificial environments have "regular lines, rectilinear edges, sharp discontinuities, abrupt transitions, and highly regular, smooth surfaces", whereas natural environments are characterized by "irregular lines and irregular, rough textures". Exactly this combination turns into *fascination, that is not engaged merely by random sequences of interesting objects, but it is connected to a larger framework otherwise it would be only a momentary diversion or distraction* (Kaplan & Kaplan, 1989, p. 185). However the restoration process is a mixture of *fascination* and pleasure, not only settings that encourage *fascination* have an important aesthetic component involved, but environmental preference and psychological restoration are also strongly related (Kaplan & Kaplan, 1989; Hernandez et al., 2001; Purcell, Peron & Berto, 2001).

The goal of biophilic design is to create settings imbued with positive emotional experiences, enjoyment, pleasure, interest, *fascination* and wonder, which are the precursors of human attachment to and caring for place (Kellert, Heerwagen & Mador, 2008). The goal can be achieved including actual Nature or symbolically referring to Nature in architectural environments, this will inspire interest in and appreciation of Nature, while an effective way to obtain restoration from mental fatigue (Kellert, 2005; Joye, 2007; Van den Berg, Hartig & Staats, 2007). To this end, we wanted to verify the relationship between psychological restoration, the so-called *perceived restorativeness*, environmental preference and the presence of several physical-aesthetic attributes (see Hidalgo et al., 2006) across buildings with different degrees of biophilic design (low-medium-high). Perceived restorativeness was assessed on the *Perceived Restorativeness Scale*-11 (PRS-11; Pasini et al., 2014) that measures the individual perception of four restorative factors: *being-away* (a setting that allows physical and/or psychological distance from demands on directed attention), *fascination* (the type of attention assumed to be effortless and without capacity limitations drawn by interesting objects, namely a setting that allows an individual to be curious about and fascinated by things), *coherence* (a setting where activities and items are ordered and organized), *scope* (a setting large enough with no restrictions to movements, a sort of world of its own). Though all buildings were characterized by the presence of vegetation, only for the "high biophilic design buildings" there was a positive relationship between *vegetation* and attributes like *visual complexity* and *distinctiveness*, which in turn were correlated with environmental preference and perceived restorativeness. High biophilic design buildings were the most preferred and scored higher on the PRS-11, in particular on *being-away*, *scope* and *fascination*. By contrast the "low biophilic design building" scored higher only on the forth restorative factor *coherence*, which was positively related to attributes like *order* and *congruency* and negatively with *distinctiveness*; moreover the low biophilic design buildings turned out to be the most familiar and least preferred among buildings.

To know that urban settings/buildings can also be highly fascinating is of great interest to city planners in order to promote psychological well-being as one aspect of public health. Urban environments should not compromise people's need for psychological restoration. Research shows that urban design can be employed as a tool to improve human health (see Gesler, 2005; Van den Berg, Hartig & Staats, 2007), though most of this research has focused on hospitals and health facilities and to a lesser extent to everyday urban design (Verlade, Fry & Tveit, 2007). Urban environments/buildings have an impact on people perceiving them, affecting aesthetic appreciation, psycho-physiological well-being and mental fatigue. "Cognitive comfort" resides primarily in the relationship among natural and built landscape elements rather than intrinsically in the elements themselves (Zacharias, 1999; Berto et al., 2010). The question therefore is not whether the concomitant depletion (or presence) of natural elements has only a negative (or positive) impact on mental restoration, but to design urban environments that are "cognitively sustainable", i.e. that do not put a person at risk of experiencing mental fatigue or environmental stress (Berto, 2011). Appreciation for urban settings relies on the relationship between buildings and psychological wellbeing, i.e. on urban settings that, like Nature, do not overload the attentional system. In modern living environments, opportunities to experience psychological and physiological well-being are often in decline, therefore to reconcile Nature with architecture by integrating real Nature and/or natural forms/elements into the built environment and architectural design can make information processing less cognitive demanding and enhance *fascination*.

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Rings and Pulses: The Route to Regenerating the Jerusalem Neighborhood of Kiryat Yovel

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ABSTRACT

A Graduate Design Studio served as a platform to explore potential applications of ideas associated with Biourbanism to revitalize the Jerusalem neighborhood of Kiryat Yovel. These ideas served as a conceptual guide for the development of a design approach and strategy to trigger a process of regeneration. Relying on analysis of both a top-down and a bottom-up hybrid approach to activities that create urban place, as well as utilizing urban acupuncture methods, the city was mapped as a means to understand the neighborhood's context in the larger framework of modern-day Jerusalem. The historical background was also taken into account as it has shaped the present day situation, from which a proposal for a site intervention based on the findings was generated.

***Keywords*:** Urban Acupuncture, Kiryat Yovel, Jerusalem, Top-down, Bottom-up, Urban Place, Urban Organisms, Pulses, Rings.

IN SEARCH OF URBAN PLACE—A CONCEPTUAL INTRODUCTION

The research on the Jerusalem neighborhood of Kiryat Yovel began with the following question: "*what is an urban place?*" The project sought to identify the value of place, as attributed by those who live there and how they perceive their surroundings based on the expression of their personal vision and narrative of both their daily life and sense of belonging to the place. In first attempting to understand what constitutes a place, we might contrast it with absence of place, or a state of placelessness, as Relph (1976) defines it. As a working definition of *urban place*, it is the hybridization of both a bottom-up and top-down approach to urban activity. Beginning as a response to a particular spatial socio-economic situation, the bottom-up approach organizes space more intuitively according to need and wish by the inhabitants of a place, evolving and strengthening a local culture. In the top-down approach an external group determines the division and function of spaces, imposing standards, regulations, and infrastructure. Top-down interventions can make the city far more accessible to its citizens and may open up a wide range of public spaces that the population can utilize for its own purposes and activities (Goheen, 1998). As the two processes combine within a specific space, it begins to accumulate the evolving layers of conflict and struggle, providing a new depth and vitality to the space as it translates into an urban place. Urban place is the hybridization of both top-down infrastructure that includes bottom-up processes, which can further benefit from the reciprocal guidance and frameworks provided by the initial top-down approach (Figure 1). Enabling a bottom-up approach encourages people to feel vested in a place; this creates a sense of ownership over a particular area and formulates a more secure investment from users in both a financial and an emotional sense.

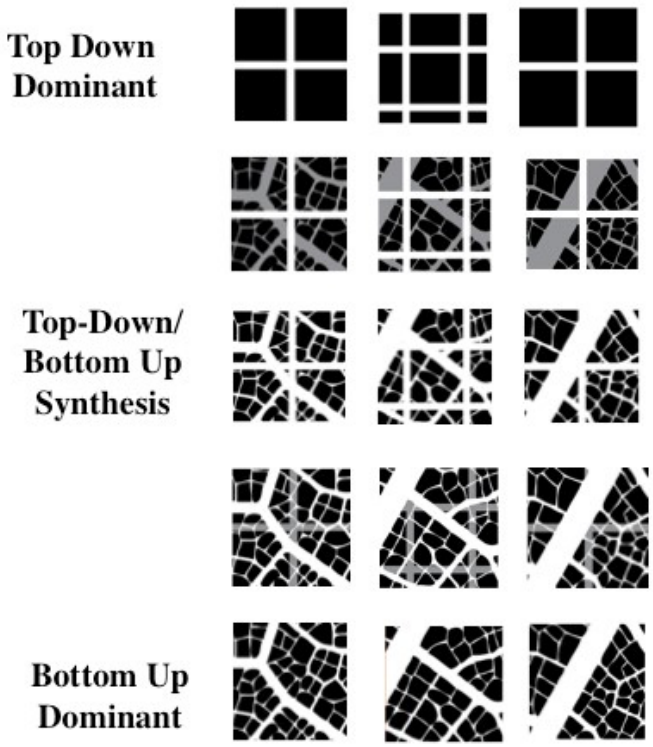

Figure 1. Urban place diagram.

The critical question at hand is how to create urban places within an established built environment, characterized by placelessness and a lack of dynamic and unique qualities found in places that evolved through a bottom-up process. One answer for urban revitalization may be found, through "urban acupuncture", as theorized by Jaime Lerner (2011) and Marco Casagrande (2013). This approach sees the city as a living organism, and as such is susceptible to some of the same principles that guide the field of acupuncture where there are precise critical points that when activated may have immense ramifications on the entire urban organism. As these "points" are triggered, they can release energy and infuse spaces with new vitality:

> *Strategic punctual interventions can create a new energy and help the desired scenario to be consolidated. This is 'Urban Acupuncture': it revitalizes a 'sick' or 'worn out' area and its surroundings through a simple touch of a key point. Just as in the medical approach, this intervention will trigger positive chain-reactions, helping to cure and enhance the whole system*. (Jaime Lerner, 2011)

While top-down planning processes are capable of generating physical order, they lack the ability to provide meaning for inhabitants, a sense of ownership that is vital in keeping residents invested in a place; therefore, contributing to its maintenance and long-term sustainability by personal choice. Top-down processes can also encourage passivity on part of the individuals inhabiting the urban space. Taken to an extreme, this leads to a sense of alienation and fear, and greatly harms the ability to create urban place where people actively shape their surroundings and imbue them with new meaning:

> *Boiled down to a simple statement, 'urban acupuncture' means focusing on small, subtle, bottom-up interventions that harness and direct community energy in positive ways to heal urban blight and improve the cityscape. It is meant as an alternative to large, top-down, mega-interventions that typically require heavy investments of municipal funds (which many cities at the moment simply don't have) and the navigation of yards of bureaucratic red tape. The micro-scale interventions targeted by 'urban acupuncture' appeal to both citizen-activists and cash-strapped communities. Using this concept as a bridge to help us formulate a strategy for a smaller scale intervention that we hope will have a 'ripple effect' and succeed in penetrating deeper and deeper into the neighborhood with the introduction of bottom-up inspired spaces.* (Marco Casagrande, 2013 p. 7)

A bottom-up process based on internal local codes develops over a period of time, adjusting itself to the needs and requirements of inhabitants. There are aspects of variation as each place is created as a response to a very particular situation. Bottom-up processes are a product of community experiences based on day-to-day occurrences that form the local urban discourse, forming a local visual language vernacular. This type of system has a certain threshold; when the population size and density surpasses a certain level, the equilibrium of the system is no longer sustainable. Bottom-up systems have a relatively low threshold for horizontal and vertical development. At a given point, dependent on a large number of variables, the system will begin to collapse into itself, as it will no longer be able to retain the inner sense of order that derived from the consensus and supporting culture that self-regulates the initial system.

Successful examples of places that emerge from a bottom-up approach will contain a set of rules, which allows individuals or groups of individuals, to act on the basis of their own knowledge as they apply idiosyncratic elements and actions into a space that can mutate and change over time. Such models permit understandable, enduring, and enforceable commitments, and establish a framework within which people can operate in a more dynamic way. Examples of this can be

found in traditional Islamic morphologies, which place great importance on protecting the private living space from external visual intrusion. This principle served as a self-imposed construction guideline between community members (Hakim, 2008). Building spaces or specific elements that respond to the distinctive needs of a culture or community are key to a successful bottom-up approach in building urban places.

Top-down processes originate from an external central source. Actions taken by external bodies can be very effective in a variety of areas including: sanitation, infrastructure, management and control, as well as planning and design (Batty, 1994). Top-down processes incorporate elements that are vital in providing contemporary standards of living, including electricity, communications, water, safety requirements and the construction of public structures, such as, but not limited to, airports, hospitals, and manufacturing, which require very precise control. Top-down processes can develop macro views that are generally beyond the scope of bottom-up processes. This is particularly evident in the physical aspects of city planning based on modern technology and needs, such as maximizing vehicular speed and building density.

Further, top-down and bottom-up processes do not generally occur simultaneously. The origins of the development (a top-down process vs. bottom-up process) will dictate the nature of the meeting point and the places that develop as a result. The urban fabric generated by a bottom-up approach may serve as the surface that later supports top-down intervention and vice versa. In a situation where the top-down process was instrumental in the development of the space it may allow for a bottom-up reaction to follow; however, the nature of the resulting urban place will be radically different in terms of the characteristics and the feeling of the place than one that has its roots in a bottom-up process.

Using this framework to inform our design we approach the neighborhood of Kiryat Yovel with the goal of applying an urban acupuncture solution that incorporates the top-down bottom-up synthesis towards the creation of urban place.

THE NEIGHBORHOOD OF KIRYAT YOVEL

Our neighborhood of focus is Kiryat Yovel, located in Southwestern Jerusalem. To the North lies Mount Herzl and Yad Vashem. To the West lies the historic neighborhood of Ein Kerem, currently a proposed UNESCO site. The neighborhood covers an area of 1,200 hectares with approximately 6,200 units. Kiryat Yovel was built on the ridge of the mountain at a height of 810 meters, making it one of the highest points in the city. It was established in the early 1950s as part of the plan to absorb the flood of immigrants flocking to Israel following the establishment of the state on the ruins of the village ‘‘Beit Mazmil” (Jerusalem Municipality, 2014).

> *Kiryat Yovel went up in one go, planned and built within a short period as a single entity. Such construction had an impact beyond its size, mainly due to its dominance of land allocation, housing policies, planning, subsidization and inhabitation. The story of Jerusalem’s physical-geographical expansion, in terms of territory and volume of construction, is primarily the story of the state-built housing projects and neighborhoods. The temporary Ma’abara (shanty-town) of the 1950’s was replaced by the standardized neighborhood of ‘projects’ such as the giant ‘bridge buildings’ in Kiryat Yovel.*
> (Kroyanker, 1999)

The current demographic population of Kiryat Yovel is quite varied. There are upscale and established areas in juxtaposition with poor areas and low-income housing. The current population stands at 25,000 residents, the original immigrant demographic has shifted over the years, with young couples and professionals moving in with additional waves of immigrants from the former Soviet Union (Figure 2) (Jerusalem Municipality, 2014).

Figure 2. The neighborhood of Kiryat Yovel.

20TH CENTURY VISIONS: TOP-DOWN PLANS TO SHAPE THE CITY

Collective memory has immense power in sustaining and reproducing perceptions of how places look as imagined by outsiders, inspiring centuries of art and architecture. These perceptions were greatly internalized by British planners during the Mandate Period (1917–1948) in relation to their understanding of sacred sites and significant parts of this legacy, which greatly influence the city of Jerusalem. Imperial heritage and stewardship were widely cultivated, as well as the emphasis of landscapes considered picturesque. This was apparent in publications that featured Jerusalem and their environments, encouraging viewers to envision a biblical landscape. Such publications generally ignored the development of the new city expanding beyond the Old City (Pullen & Gwiazda, 2010). The issues here are further intertwined with regime change and its ramification on collective memory of disparate groups (Benton, 2010). On a conceptual level, British planners McLean and Geddes had differing views on the Old City's relationship to the new city expanding beyond its walls. The 1918 McLean plan saw Jerusalem as "Fuori Le Mura" (outside the wall), as a means to preserve the Old City. The vicinity surrounding the Old City was to have no new buildings as the goal is for this area to be cleared and left as a natural space. The buffered area includes the Kidron Valley, Gethsemane, Pool of Siloam, Mount Zion and the Valley of Hinom.

While in 1919, Geddes developed the concept of "Urbs Ante Mura" (the city facing the wall), in which the plan proposes development to concentrate on the North as a "natural amphitheater" (Amiran, Shachar, & Kimhi, eds., 1973). The expansion plans are laid out to the North and the East, in direct contrast to the prior McLean plan. Similarly, both plans had a radial concentric view of

the city in which the open space concept around the Old City was to be preserved as an area where buildings are prohibited. Both plans had focused on the road network, which tries to follow many of the natural contours of the landscape (Kendall, 1948, pp. 6–8). Similarly, the 1944 Kendall plan for Jerusalem had a very high degree of technical quality, including detailed surveys, and plenty of data. The framework of arterial roads formed four "urban cells" spread out in a three-quarter circle that left the Southeastern part of the city open and only developed the Southwest, as well as the New City. It maintained the original McLean ideology of "Fuori Le Mura" (outside the wall), thus preserving the Old City view. This plan advanced the neighborhood unit vs. the McLean grid. (Kendall, 1948, pp. 20–34) (Amiran, Shachar, & Kimhi, eds., 1973) (Efrat, 1993, p. 384).

During the 1948 War of Independence, Heintz Rau created a master plan for the city of Jerusalem, which encompassed the entire city and diverged from the tradition of making the Old City the focal point. The 1949 plan was rather conceptual and it concerned itself with physical placement of planned elements but lacked details pertaining particularly to zoning. The urban center shifted westward by positioning a capital compound in the vicinity of an area called Givat Ram as it was envisioned as a counterpoint to the Old City. Furthering this concept of duality, part of the Mountain of Remembrance, Mount Herzl, a site designated as a national cemetery, was seen as a parallel to the Mount of Olives, the ancient cemetery adjacent to the Old City. The Rau plan is considered to have some innovative components and disregards the traditional mode of planning. The green areas in the valleys were maintained and building was planned on the remnant areas, such as on the ridges and on the slopes (Amiran, Shachar, & Kimhi, eds., 1973 pp. 147–149) (Efrat, 1993, pp. 386–388).

The 1959 Shaviv plan utilized aspects of the 1949 plan as a basis for the plans drawn up for the Western part of the divided city (the city of Jerusalem was divided between Israel and Jordan from 1948 to 1967). Primary aspects of the plan are the Westward focus, away from the Old City under Jordanian control through the establishment of a new urban node. As Jerusalem is the capital of Israel it needs to reflect this reality through its public institutions and spaces. The city also needed to have a respectable amount of inhabitants. Shaviv greatly expanded Rau's concept of the government quarter and situated the university on the site as well as the Israel museum at a later stage. The plan implementation was problematic due to the political reality and the plan was considered unbalanced as a result of the artificial division of the city (Amiran, Shachar, & Kimhi, eds., 1973, pp. 149–151) (Efrat, 1993, pp. 386–388). Until today the last approved masterplan for the city of Jerusalem is the 1959 plan. Even though the 2000 plan was completed it is only used as a guideline (Jerusalem Master Plan 2000, 2007). The typologies of plans described are still an important point of departure for approaching the city and it is important to understand both the worldview represented through a top-down approach, as well as, the role of the collective memory in forming the city that is visible today.

FINDING THE SITE

> *Good acupuncture is about understanding places better. Understanding that one city is not like the other, understanding what is missing in a neighborhood before designing.*
> (Jan Gehl, 2014)

Our mapping process sought to understand the city and pinpoint the most desirable site for an effective intervention. Conceptually, a subjective platform was sought as a means to describe and experience the city as it defines different urban organisms, their contextual integration and the interconnected relations between them. Oftentimes the varied urban organisms have few linkages

between them; they are bound together by the urban continuum, lines of transportation and cultural institutions. We identified three *primary organisms* (Figure 3), the Old City, the Government Quarter, and the Mountain of Remembrance (Mount Herzl and Yad Vashem) that serve as important focal points. These urban organisms have national and international importance that exceed the boundaries of the city, despite their different content and values. We attempt to understand these forces on the urban fabric through the pulses that emanate from each organism and their impact on their surroundings. Our focus is on the Western part of the city, in this analysis we have not accounted for most of East Jerusalem as it has a different planning history that is beyond the scope of this paper to address.

Figure 3. Three primary urban organisms–the Old City, Kiryat HaLeom, and Mount Herzl with Yad Vashem.

Each organism generates a different pulse (Figure 4). We recognize that two pulses emanate from the *Old City*, the first seed of the city, and the most potent. These pulses are extremely resilient and sensitive, they carry a pluralism of styles and layers that reflect thousands of years of inhabitance and remain a vital cornerstone of global importance. The spiritual energy vested upon the place is immense and even though there is an overabundance of religions and denominations occupying this small geographical space, there is a sense of holistic unity, which contains a sense of flow, energy and movement comprised of small segments. The Mandate era planning established strict preservation guidelines for the Old City to maintain its traditional character while encasing the perimeter with a green belt that frames the site (Kendall, 1948, Amiran, Shachar, & Kimhi, eds., 1973, Efrat, 1993). The new central business district gained traction to the North of the Old City, while the green belt provides expansive vistas of the Ottoman era walls. To some degree it ruptures the urban continuum and isolates the Old City from the surrounding neighborhoods. The first pulse extends beyond this buffer toward the new City Center, while the second pulse beats to encapsulate significant sections of what is known as the "Historic City", the Jerusalem neighborhoods that were established outside the Old City walls from 1860 to 1947 (Avrahami, Arnes, Yadin, Melamed, & Sivan, 2008). Many parts of the Historic City fall under our definition of urban place, as they contain the desired synthesis between top-down and bottom-up activities.[1]

[1] Throughout the past decade intensive top-down activity has taken place to revitalize decaying sections of the Historic City, including an upgrade of infrastructure that are presently beginning to bear fruit (Bar Dor, 2012).

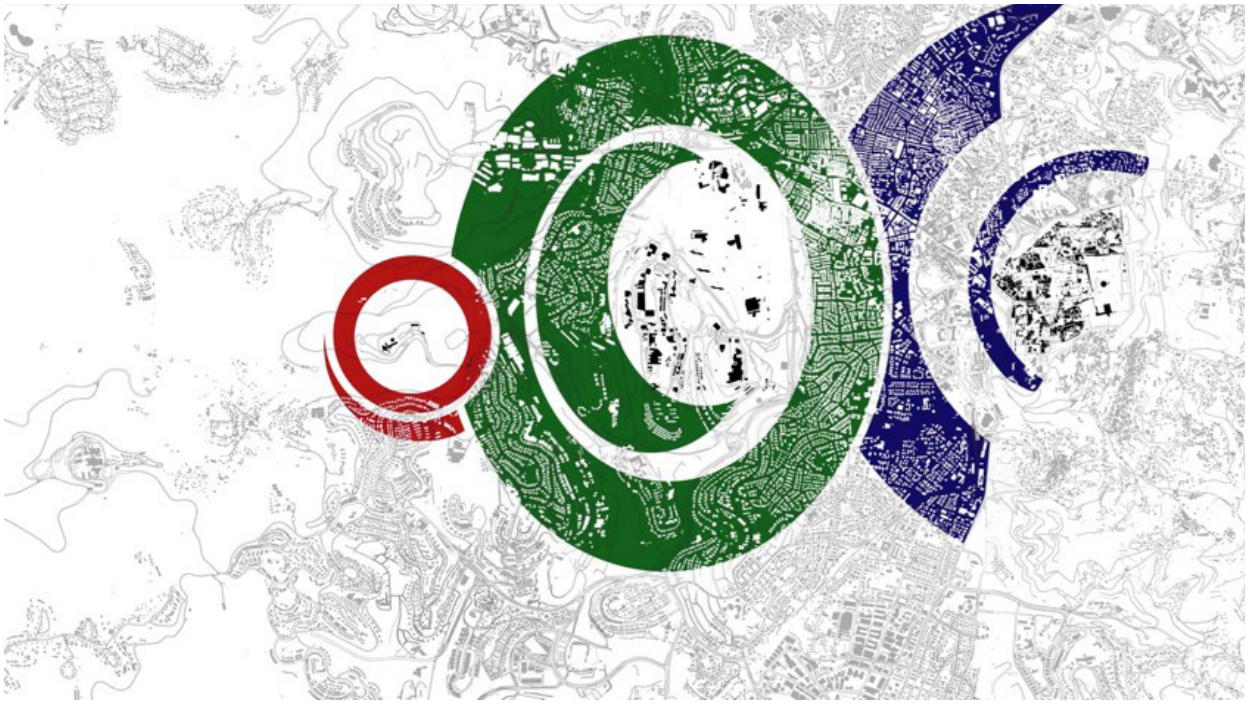

Figure 4. The three pulses that emanate from the urban organisms.

The second organism is the *Government Quarter*, which carries the national institutions, including the Knesset (Parliament building), government offices, the Israel Museum, the Hebrew University campus and the National Library. The primary secular function of the hill is apparent in its pulse on the surrounding area, and serves as a contra to the vitality of the pulse that emanates from the Old City. Contemporary Jerusalem is found in the interplay between the pulses of the ancient spiritual and religious center of the Old City and the political, intellectual, cultural and administrative anchor found on the Government Quarter.

The third organism is the *Mountain of Remembrance*, comprised of Mount Herzl and Yad Vashem. They serve as symbolic and physical resting places for national remembrance.

> *Yad Vashem was to gather the memories, if not the absent bones, into the nation. It was to be a substitute Western Wall, which remembered loss as hurban,[2] a national catastrophe, but also pointed to future collective redemption through the State, which granted all Holocaust victims honorary citizenship. Hence, it was to be built next to the military cemetery, on ground consecrated by the bodies of fallen soldiers. The adjacent site could thus endow Yad Vashem with some of its aura, announcing that the dead "did not fulfill their mission as individuals, but through a community of comrades".* (Mosse, 1979, p. 6 in Feldman, 2007)

This organism generates a pulse that creates a barrier in the urban continuum; these sites are devoted to commemorating immense tragedy and loss. Even though, they fill a much needed and necessary social role, they also create a pause in the City's flow and contribute to the disconnection of the Northern entrance to Kiryat Yovel (Figure 5).

[2] Hebrew term for national catastrophe.

Figure 5. The Northern Entrance to Kiryat Yovel–Herzl Boulevard. Last stop on the Light Rail.

Following visits to the neighborhood and a series of mappings that included the collection of mental maps from a number of neighborhood residents, provided an important observation of the strong impact on the neighborhood caused by the nearby sites of Yad Vashem and Har Herzl (Figure 6). Vistas of these sites are constantly visible through buildings and trees, and are felt by some to be an extension of the neighborhood. One of our key findings through these mappings was the lack of urban continuity between the Kiryat Yovel neighborhood and other parts of the city. The roads leading into the neighborhood enhance this. There are two primary entrances to the neighborhood and neither of them encourages a seamless urban flow. We observed that Kiryat Yovel functions as an independent unit that is detached from the wider urban fabric. Kiryat Yovel serves as a passageway between different parts of the city and is intersected by a road system that directs a significant volume of traffic throughout the day (Jerusalem Municipality, 2014).

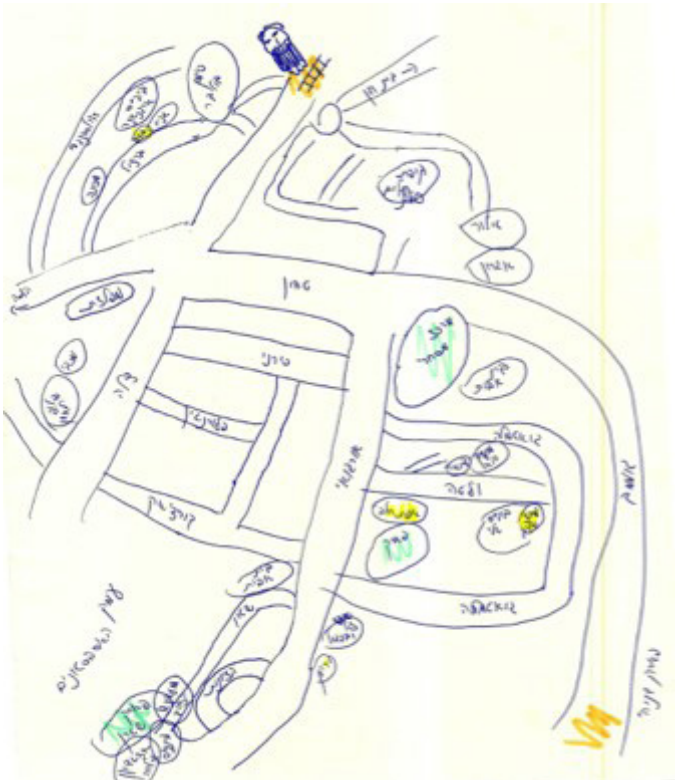

Figure 6. Mental map of Kiryat Yovel resident. Note the relationship to Herzl at the top of the map.

The Northern sides of Mount Herzl, Yad Vashem and the Shaarei Zedek hospital sites delineate the upper section of Herzl Boulevard, which creates a vacuum at the entrance to the neighborhood. This massive shift in scale results in a disconnection of places that have monumental attributes. This produces a lack of transition into the residential space, creating an undefined and blurred space. On the South side of Kiryat Yovel the high speed road from Golomb has a swift ascent that quickly shifts to a different scale upon entering the neighborhood marked by a traffic light and a massive block structure that houses the shopping center. The steep topography is a major contributing factor to the obvious disconnection at both entrances.

In order to better understand the linkages to the rest of the city a change of scale was analyzed in order to understand the neighborhood as a component within the city-at-large. A *Ring* (Figure 7) was identified as it emanates from the Mountain of Remembrance, Mount Herzl and Yad Vashem, and continues down Herzl Boulevard. Then it meanders down Jaffa Road to the Old City walls, as it continues to traverse up Agron Street, and down Azza Street along Herzog Boulevard to begin the final ascent up Golomb as it returns to the Kiriyat Yovel neighborhood. The neighborhood is the final link in this Ring that does not close; yet it allows us to view Jerusalem as a single unit. The entrances and exits along the Ring provide a tool to analyze the city and better understand the inner connections between multiple urban components. Different tempos, topography, views, scales and densities can be found along the Ring. However, when approaching the neighborhood there is a pause on both of the main arteries that join Kiriyat Yovel (Golomb and Herzl) with the rest of the city. The question that emerges is *how do we create a transition to the neighborhood in a manner that supports the establishment of an urban place?*

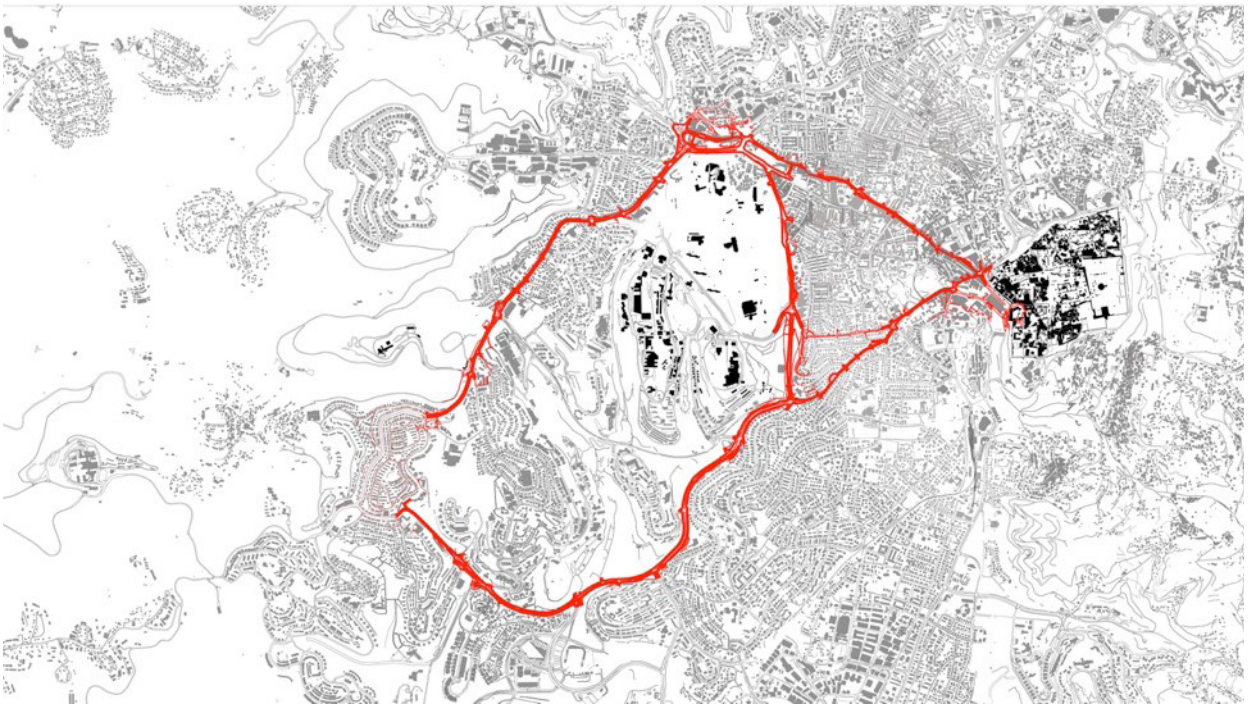

Figure 7. Identification of the Ring.

A mapping method inspired by *The View From the Road* (Appleyard, Lynch, & Myer, 1964) was coupled with a topographical model and two-dimensional maps to elucidate the urban dynamics and examine different aspects of our theory about the Ring and its components. The method factors in the scale of the road, topography, edges and “bridges” that connect the internal spaces created within the Ring with those found outside of it.

INTERVENTION: APPYLING URBAN ACUPUNCTURE TO ACHIEVE URBAN PLACE

By examining the overlay of the Ring and the pulses we noted areas of particular intensities and importance to other spaces in the city, which we labeled "link" (Figure 8). The intersection of Shaarei Zedek hospital leading up to Herzl Boulevard (Shmuel Beit) is a point that has potential to serve as a link. If strengthened it can activate movement to the stagnant sections of Herzl Boulevard. Through our analysis of the city of the Ring, it was observed that Kiryat Yovel does not link to Herzl Boulevard. This is due to the pulse coming from Mountain of Remembrance, Yad Vashem and Mount Herzl, which renders the space unapproachable. This raises both spatial and philosophical questions in an attempt to link Kiryat Yovel to the city in a meaningful way (Figure 9). We suggest three points of intervention along Herzl Boulevard as our urban acupuncture solution. Herzl Boulevard contains the light rail line, and vehicular traffic, as the surrounding spaces consist of walls that separate Mount Herzl from the street and parking lots. Our intervention aims to connect the city to Kiryat Yovel through the creation of an active urban situation along Herzl Boulevard. Our strategy strengthens the Ring, and increases urban continuity.

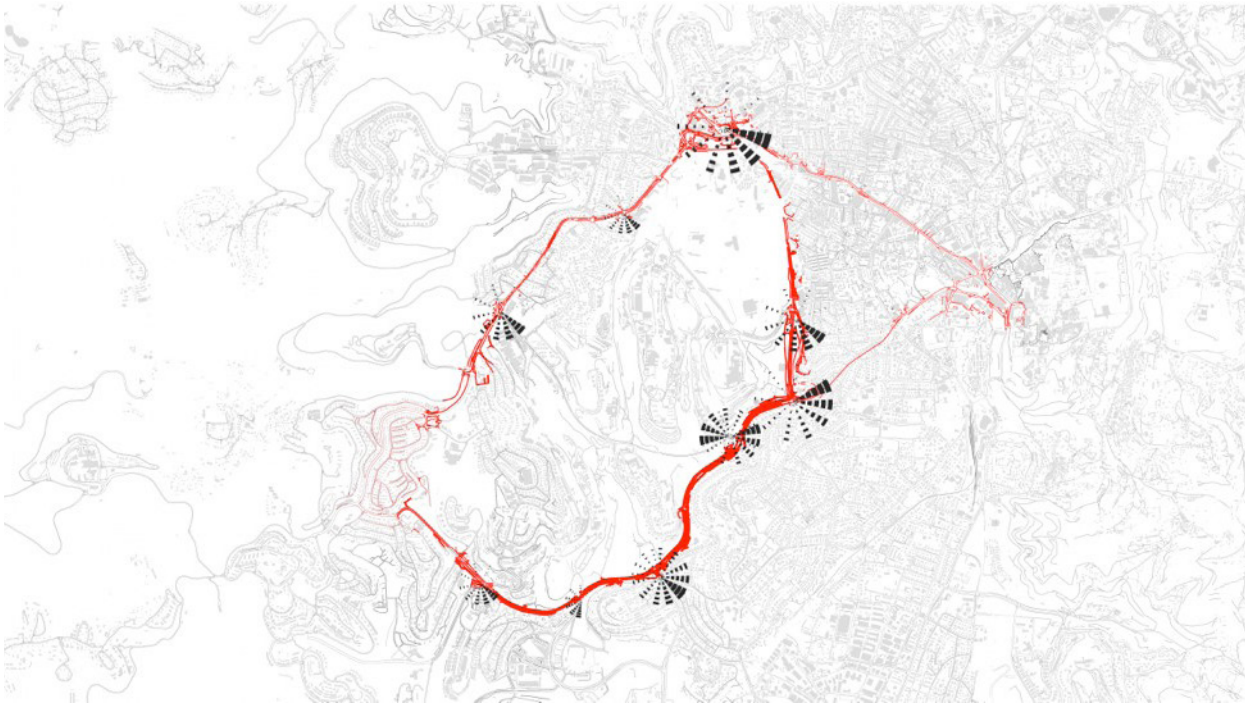

Figure 8. Major "links" in the vicinity of the Ring.

As a result of these observations we decided to situate the start of our intervention at the intersection of Shmuel Beit Road and Herzl Boulevard and strengthen the "link"; thus, adding a source of energy to Herzl Boulevard. Creating space for the medical facility to have an urban front along the boulevard can achieve this. While across the road, we set aside a space for bottom-up activity to penetrate the unapproachable space and seek to reconnect it through spaces for personal memory (Figure 10). The action defines the space, crosses the road and sets aside a place for memory and personal ceremony, as well as, utilizing a bottom-up approach to the engagement with the place. The space becomes a part of the design concept to individuals who can claim and shape the site reflecting their relationship with this critical urban organism, despite its deep complexity. This synthesis is a requirement for the achievement of urban place. As we continue up the boulevard, an additional intervention to encourage accessibility and connectivity through a diagonal movement

that again breaks the linear movement of the road and generates a link between the neighborhood and the sites is also intended for other bottom-up activities to take root and breathe vitality into the space. The last intervention, at the top of the boulevard seeks to transition the boulevard into a more intimate scale and continue the active urban front to funnel vitality and movement into the neighborhood supporting its connection to the rest of the city.

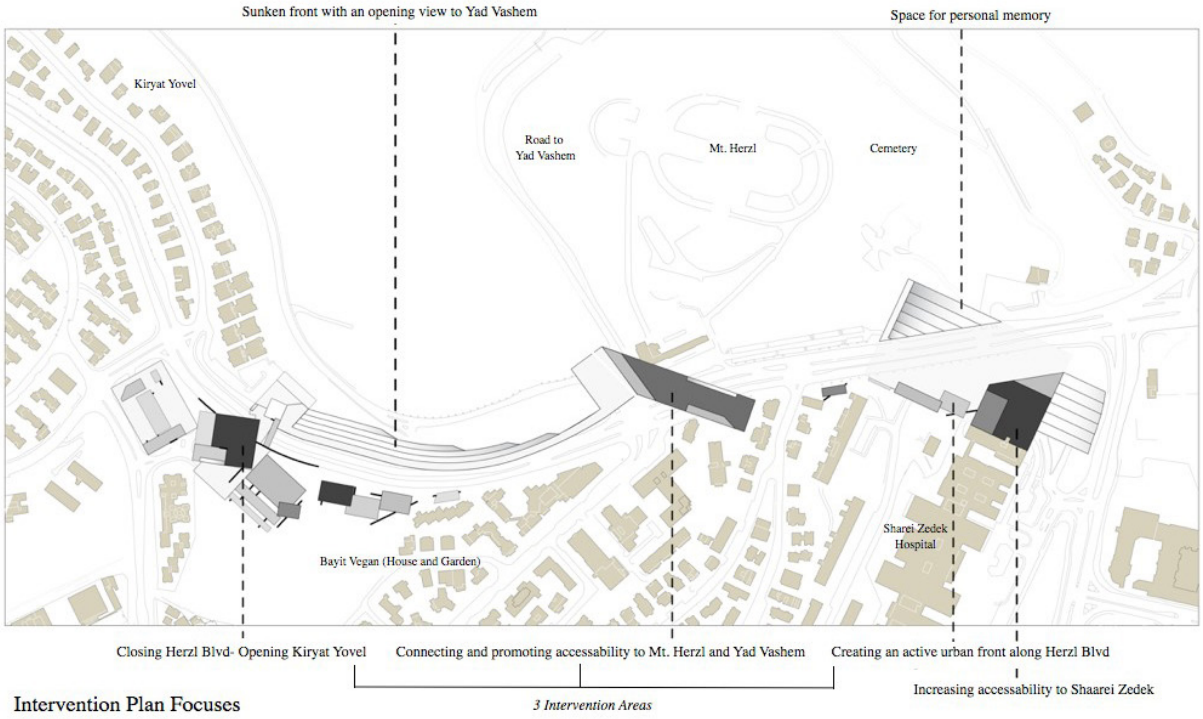

Figure 9. Focus of plan intervention.

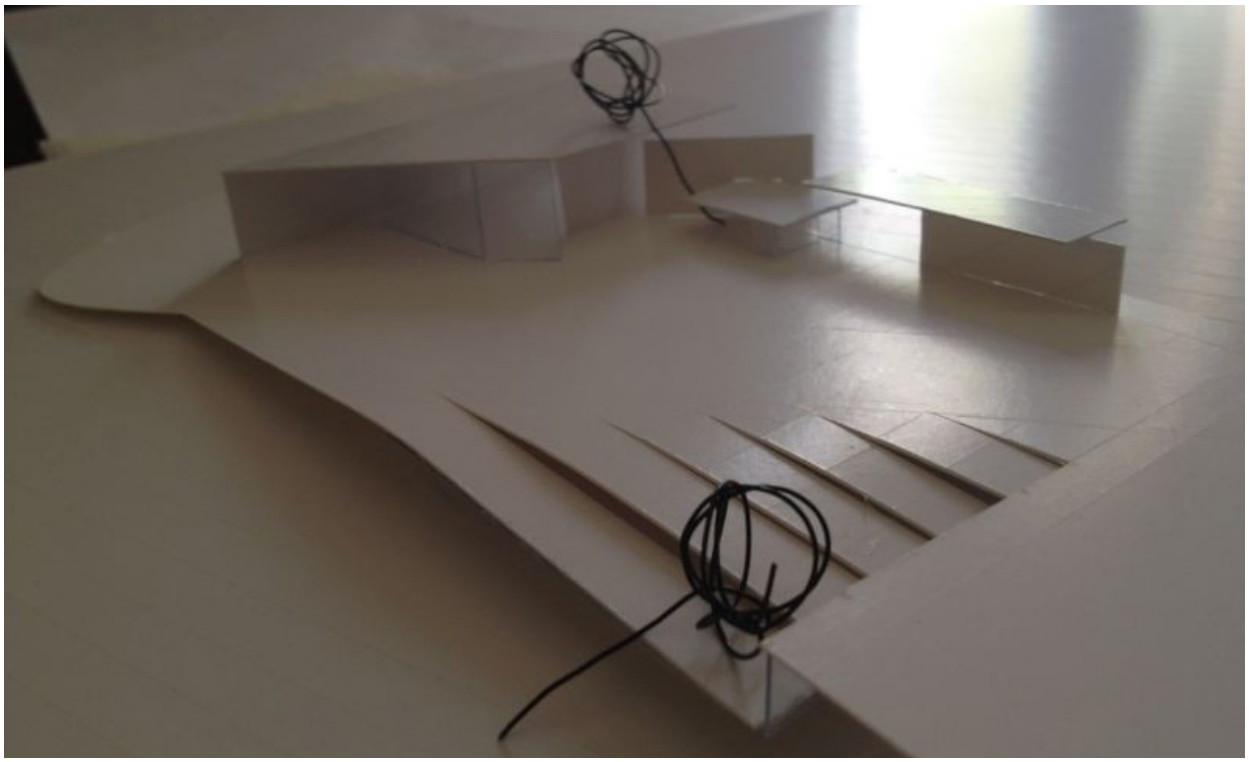

Figure 10. Sketch model of proposed intervention.

CONCLUSION

It is our goal to use focused interventions designed to encourage bottom-up activity as a means to initiate a chain of actions that will ultimately reinvigorate and strengthen the Kiryat Yovel neighborhood. The intervention we suggest uses a strategy that strives to create a connection to place and redefine the relationship to a primary urban organism that was seen as unapproachable, and was creating a bottleneck in the flow of the city along the Ring that was identified as part of the analysis to define critical urban acupuncture points. The only chance for urban place in such an environment requires a framework that would allow for a grassroots effort of citizens to relate and access their history and heritage, while bringing active urban values to the site by providing tools that shift a transitional space into an urban place.

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Building to Sustain Body and Soul

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ABSTRACT

In recent years approaches to sustainability have mainly focused on technological performances and neglected human soul as a major factor in the process of architectural creation. Space, defined by boundaries interacts directly with the mind through the body. Dom Hans van der Laan researches on the thickness of walls and their relations with the spaces that they are defining are certainly a precious field to explore in order to define our relationship with our built world and inner world. In that sense, the example of the Roosenberg Abbey designed by the architect in 1975 is certainly a perfect case study.

***Keywords*:** Dom Hans van der Laan; Christopher Alexander; Léon Krier; Jean-François Gabriel; Patterns; Space; Measure.

INTRODUCTION

When we consider sustainability, we customarily think in terms of technology and technique. We may think of architecture that is smart in the ways it responds to climate. We may think of buildings so flexible that they can accommodate and support various uses through time. But there is another sustainability that is just as real and just as necessary as the sustainability of the physical fabric: the arrangement and the boundaries of the spaces that repeatedly and consistently prove meaningful for us.

Traditional towns are undeniably sustainable. They continue to attract people even though their buildings often serve other needs than the original ones. Vernacular architecture—not just its forms but more significantly its spaces—proves equally sustainable. Why?

Christopher Alexander, Léon Krier, and Jean-François Gabriel have described patterns they find over and over again in buildings and towns that have proved their worth. Patterns are organizations of parts in relation to each other. What generates the patterns? Is it intuition? Peculiar genius? A psychological attitude that is difficult to describe or conjure up scientifically?

Dom Hans van der Laan may provide a quantifiable answer. In his studies of perception and in his buildings, Van der Laan focuses on measure and the sizes of constituent elements in relation to each other. Elements together form a wall. Walls contain space. And the space they contain gives measure to spaces otherwise too large for us to see and know in relation to the walls that bound them. The measures serve as the generators of a wall, a room, a building, a courtyard, a neighbourhood, a town.

The measures are a tool, it turns out, for generating compositions organized around centers, compositions with clearly differentiated insides and outsides, compositions with an internal harmony—precisely the qualities which Alexander, Krier, and Gabriel describe. The measures stand mathematically in relationship with each other. The quantifiable relationship generates patterns of space and boundaries which we might have attributed solely to intuition. And when we move through such spaces in the world we build, we find ourselves in relationship with spaces and patterns in the inner world we experience.

THE MEASURE OF SUSTAINABILITY: AN OUTER ORDER THAT REFLECTS OUR INNER ORDER

We can look at traditional towns and vernacular architecture and discern the attributes that make us feel at home in them. Christopher Alexander, Léon Krier, and Jean-François Gabriel have done exactly that. They looked closely at the buildings and spaces that moved them, that made them want to return to them. Then they described the patterns of organization and space in the compositions.

After a long experience of building, observing, and writing, Alexander distilled ‘Fifteen Properties’ he found present in timelessly meaningful buildings and towns. He describes them at length in *A Nature of Order*. They include strong centers, boundaries, local symmetries, the void. The more you read about them, the more you sense the presence of an organizational structure that gives rise to the attributes we see and meet. And that structure—in a way a sort of DNA—is one of centers that boundaries clearly form, either in two or three dimensions. The results are wholes and then wholes within wholes at different scales.

If you look at Krier's drawings, buildings, and towns, you come face to face with the 'Fifteen Properties'. Krier did not learn the properties from Alexander; he learned to employ them from his own experience of buildings and spaces. And when he writes about towns that are sustainable in terms of ecology and meaning alike, he demonstrates that neighborhoods functionally and spatially need centers, and that groups of neighborhoods built around centers can form a town and eventually a city.

In his design work and teaching, Gabriel found patterns similar to the 'Fifteen Properties' in the classical design and building tradition. Classical architecture for Gabriel is not so much an historical style as it is an organization of building elements and the spaces between them. Gabriel summarizes the organization in 'Ten Timeless Canons'. Aspects such as bilateral symmetry, defined space, emphasis on center, corners, and sides, and a tripartite organization now feel decidedly familiar. We have met them before in Alexander's 'Fifteen Properties'.

When you put the findings of Alexander, Krier, and Gabriel together, you stand face to face with an unmistakable and recurring pattern in spatial organization and building composition. The pattern is one of centers clearly bounded, of spatial cells that can combine with each other to form larger cells without losing their original identities. Alleys, streets, commons, and squares are all spaces increasingly larger than the spaces preceding them. We can feel the size of the spaces with our bodies and with our minds only if we can sense and observe their limits, their boundaries. Walls with local symmetries emerge because centers order the composition. And the order is not simply visual: it is physical, three-dimensional, the result of building materials we have handled literally with our hands.

The order that appeals to us in the world outside us is the order we know in the world inside us. Virtually every pre-industrial culture built houses and towns that reflected and often purposely replicated the order within us. We built an outer world analogous to our inner world. The order in that outside world sustained us, kept us healthy, reminded us of the order in our very bones.

Once we have discovered that the qualities of traditional towns and vernacular architecture sustain us psychologically and spiritually, we find ourselves liberated from the doctrine of historicism. We no longer see history as a determining factor in our architecture as though it led a life of its own. We no longer expect technology to save us; after all, we are the ones who use the technology. We no longer worship the spirit of the age we happen to be living in. We acknowledge we have a nature, an essence, a structure. And we yearn to build a world that mirrors that structure, that reminds us who we are.

The qualities that Alexander, Gabriel, and Krier describe give us a picture of the order that sustains us, but they do not teach us how to construct that order. We can infer that we are all capable of generating such a meaningful order if only we could rediscover the appropriate attitude we need. What might help us is not only an attitude but also a method for generating spaces and buildings intrinsically related to our own inner order. Dom Hans van der Laan provides us with a method.

DOM HANS VAN DER LAAN AND THE PLASTIC NUMBER: GENERATING SUSTAINABLE SPACES

Building a World That Helps Us Know Our World

Raised in a family of architects, Hans van der Laan (1904–1991) knew early on that he would be

an architect too. But after three years of architecture school in Delft, he found he could not continue. His professors and fellow students were preoccupied with style and associations of what particular styles—traditional or new—might mean. Van der Laan missed deeper questions, deeper experience. He longed for a knowledge of architecture based on our physical and cognitive experience of it.

No one knows exactly why he became a monk after leaving the university; but during his time as monk he conducted experiments that led him to a clear conclusion: we experience space by registering its limits—the massive walls or wall segments that define the space in the first place. Van der Laan learned not by thinking but by building: a monastery, two convents, a house built around a courtyard, conventional and liturgical furniture, vestments, and fonts.

Hans van der Laan looked empirically at how we perceive spaces and boundaries. He spent most of his life looking for a way to make architecture that was not at the same time the embodiment of a worldview, an ideology, or a doctrine. He wanted buildings that grew inherently from our perception and experience of space: not abstract space, not outer space, not conceptual space, but physical, sensual space we can feel with our body and discern with our intellect.

Van der Laan looked at the world as a place and an experience we can never entirely know. But if we hope to start to know our world, we need to begin with something close to us, something we can see and feel and therefore know. We cannot know the world by measuring its circumference and then dividing it up into meters: the quantities are too large and too abstract for us to grasp in any direct and intimate way. We can only know in a concrete way, by directly sensing. If we measure with a foot, we have a relationship with our body. Just counting feet, however, does not help us know the space we build and the space we inhabit. Feet, after all, are a linear measure. But if we imagined a foot as a three-dimensional piece of clay, then we would have a measuring block rather than a measuring rod. Our foot would become not only a measuring block but also a building block—a building block for walls and a building block for the space between walls.

Our foot is not Van der Laan's term, but it serves us well. Our foot is concrete, massive, three-dimensional—just as a wall is, just as a row of columns is. Imagine a space defined by two wall surfaces that lack any discernible thickness—the definition of space according to the Modern Movement. Then retrieve the blocks from your childhood and build walls of varying thickness with them. If you can see and feel the thickness of the blocks on either side of the space they form, you can immediately feel whether the space between them is too wide or too narrow. If the walls are too far apart, the space loses its boundaries and starts to swim. If the walls are too close together, the space feels constricting, as though you were in a prison or a bank vault. What is the optimal size of a space between two walls of a particular thickness?

Years of experimenting with stones and blocks led Van der Laan to an answer based on human perception. The ideal space, he concluded, stretches seven walls thicknes to the center between the walls that define it. In terms of a three-dimensional foot, both walls would be a foot thick, and the space between them would measure six feet. The key word here is *measure*. If we live in or move through a space, we do not measure it in order to determine its size. We sense or feel its size. But we can only feel its size accurately if the measures we perceive are related to each other. We cannot really sense the relationship between one foot and fifty feet, but we can readily feel—and know—the relationship between, say, one foot and seven feet. This experience led Van der Laan to group his material and spatial building blocks into families, or in his own terms, orders of size.

If we can easily discern seven building blocks as a family, what should the sizes of the various

family members be? Dom Hans let his building blocks increase by a ratio of four to three, first in length, then in width, and finally in depth. The generator of this relationship he called the plastic number. The plastic number is not so much a number as a relationship. Its goal is to relate the various parts—the building blocks of different sizes—to each other and to the whole. And the goal of the orders of size and the relationship of the parts to the whole is the same: helping us to get to know the portion of the world we build and dwell in.

If wall thickness is essential for our ability to feel space as a knowable part of our world, how can we build knowable spaces that are wider than seven times the thickness of the walls? By making a jump in scale. By considering an order of size as a building block in itself. A knowable space between walls of a discernible thickness greets us as a spatial cell. As long as we can perceive such a cell in the larger building we build, we can feel it as a spatial building block analogous to the material building block that formed the original spatial cell. And this combination of spatial cells, all derived from massive walls which bring the cells into being, spreads itself out in width, length, and height.

Building an Outer World That Reconnects Us with Our Inner World

The breakthrough in this focus, born of empirical observation, is a series of proportional measures that work in three dimensions instead of only two. And because the walls play such a necessary part in creating spaces we can know, the focus makes us continually aware of the difference between being outside or inside. Being outside or inside is not solely an experience of physical space: it is a universal experience we have of ourselves. We build and trade and work in the outer world. We play and dream and imagine in the inner world. We celebrate with a group in the outer world. We share intimacy with ourselves or with someone else in our inner world. If we articulate the boundaries between outside and inside in the world we build, we automatically become more aware of the boundaries between outside and inside in the world we experience.

The world we experience is of course not the literal outer world we might photograph or otherwise document. The world we experience is our whole encounter with life, conscious and unconscious. Can the world we build—our architecture—really ground us, really help us know both our outer world of perception and our inner world of experience?

This is the question Dom Hans asked. He sought a body of knowledge that would make a tiny portion of our world knowable, that would help us feel at home in an otherwise measureless and abstract universe. Can his discoveries serve as a focus for architects to construct a house, a group of houses round a square, a neighbourhood, a collection of neighborhoods, a town, all related to each other in a way we can perceive? We need a concrete example.

ROOSENBERG ABBEY: AN EXAMPLE OF SUSTAINABLE SPACES IN RELATION TO EACH OTHER

Creating Centers Between Wall Segments and Centers Between Walls

The abbey Roosenberg in Waasmunster serves as the example we need. Van der Laan wrote explicitly about his design goals and about how he developed the design of the abbey. If we read his words and visit the abbey he built, we discover spatial and compositional patterns that correspond remarkably to the patterns that Alexander, Gabriel, and Krier have distilled.

But there is a noticeable difference between the method Van der Laan employs and the results Alexander, Krier, and Gabriel praise. Alexander, Krier, and Gabriel give us valuable lists of patterns and moving examples of buildings, but they do not give us a method for generating them. Van der Laan gives us a method, and the method serves a precise goal. The goal, we discover, is the goal that traditional towns and vernacular buildings serve. The goal is a built world that corresponds to the architecture of the human psyche. The goal is the creation of centers in elevated openings and in spaces between clearly defined boundaries. The goal is a composition of identifiable parts to form a recognizable whole. The goal is the recreation of demarcated insides set apart from fathomless outsides.

In a wall, two columns or wall segments on either side of an opening define that opening, treat it as a center, bring that opening into being. The boundaries are clear and containing the center is the goal. Similarly, two perforated walls at the right distance from each other bring the space between them into being. This space is also a center. And the spatial cell, together with its defining walls, can stand within a larger space or on either side of such a space. The scale of the building blocks has grown larger, but the effect is the same: a perceptible center, defined by parts in relation to each other by virtue of their proportional size.

Figure 1. Wall segments stand on either side of the opening they bring into being. Walls opposite each other stand on either side of the space they bring into being. Openings in walls and spaces between walls are both centers between massive elements (Photograph by the Author).

Moving from the Whole to the Parts and from the Parts to the Whole

The discipline of relating the parts to the whole and the whole to its constituent parts begins in Waasmunster with the site. Van der Laan first divides it into seven segments of equal depth. The first segment becomes the space in front of the abbey, just outside its walls. A seventh part of that

segment forms the basic spatial cell responsible for composing the whole complex. And that seventh part comes into being thanks to the walls that define it—walls with a thickness that is a seventh part of the width of the spatial cell.

Size is not a goal in itself but a means to achieve a goal. The goal of a building for Van der Laan is to bring us down to earth, to remind us of our true nature. We ourselves have inner centers: psyches, souls, spaces where we encounter meaning. If we build buildings and towns according to a structure that mirrors these centers, then we nurture our nature. We honor the structure of our psychic lives, which corresponds to the structure of our physical lives. Cells have clear centers and defined boundaries. There is an inside and an outside. They can grow, act together, change scales. But their essential structure remains.

Roosenberg Abbey constructs and embodies centers: centers within centers. The site itself is a center carved out of a dense woods. When you stand in the forecourt you know you inhabit a clearly defined space. You know too that you are outside the city walls. Once you penetrate those walls, you find yourself in a new court, a new atrium, a new walled garden. The width of the surrounding galleries—their wall segments and the spaces they contain—helps us sense and know the width and length of the atrium.

Figure 2. The entry courtyard is the first walled garden within the outer walls (Photograph by the Author).

Now you are inside the walls—but still outside the heart of the complex. After several turns and thresholds, you penetrate further into the abbey. And once there, you discover—almost by surprise—the cloister. The openings in the outer wall of the cloister are glazed in a way that lets you experience the full thickness of the wall segments. The outer wall and the inner wall share the same thickness. Together they enclose and create the space between them. You walk through a space that feels as tangible as the walls that contain it.

The cloister encompasses the central garden. It is not the outer wall of the cloister that bounds and describes the central garden: it is the whole spatial cell of the cloister—its perforated walls and the space they contain between them. Walls and space form a spatial unit that enables you to perceive and actually to feel the size of the garden. The garden is an inside space within the spatial cells of the cloisters. The cloisters and garden together are an inside space within the abbey complex. And the whole abbey complex forms an inside space within the wooded site.

Figure 3. The thick walls in the cloister bring the spaces between them into being. The width of the cloisters works as spatial cells that bring the space of the central courtyard into being (Photograph by the Author).

Once you have reached the center, you cross new boundaries as you move back to the periphery of the abbey. You discover the meeting rooms, the refectory, the studios—all between the cloister and the outer walls of the abbey. You venture upstairs to the guestrooms and the cells of the members of the community.

You return to the ground floor and arrive at last in the chapel. The chapel is a building within a building within a building. The chapel is a center within a center within a center, even though it does not lie at the center of the abbey. Spatial centers, we rediscover, do not have to occupy the literal center of a building complex. Centers are recurring configurations, familiar experiences of relationship: they need not fall rigidly in a building's geometrical center.

The sole source of light in the chapel is via clerestory windows. They help you experience the central space as a building within a building. You know you inhabit a space inside the spaces that surround it. And you know too that the spaces that surround it are in turn spaces within the entire abbey. You know at first by feeling and sensing the play of the walls and the spaces they contain. Then you know by perceiving the literal building elements and their measures. And finally you

know by reflecting on the composition. You know not only because you are aware of the spatial configuration: you know because you sense and see the relationship between the measures of the building blocks and the measures of the spaces between them.

You experience yet another center in the chapel, this time not in the form of a point but in the configuration of a line, a route, a path. Within the chapel, with its unmistakable central position in relation to the outer walls, the altar and the tabernacle stand as dancers along a central axis. They help us remember that a center can be a line as well as a point. It can point us in a particular direction. The paths we take in life are not only from inside to outside to inside; they are also from one point to another along a road. A road traces a center line between its own lateral boundaries just as a well-defined space flows between the walls that bring it into being.

If you leave the chapel and roam further through the abbey, you experience spaces and boundaries organized both vertically and horizontally. Columns and wall segments stand on either side of the space they generate together. And two perforated walls opposite each other reach out like the outstretched arms of children playing London Bridge. They bring the space between them into being. The arms are clearly defined. The measures of both arms and space are related to each other. Nothing is *ad hoc*.

Figure 4. The chapel is a center within a center within a center (Photograph by the Author).

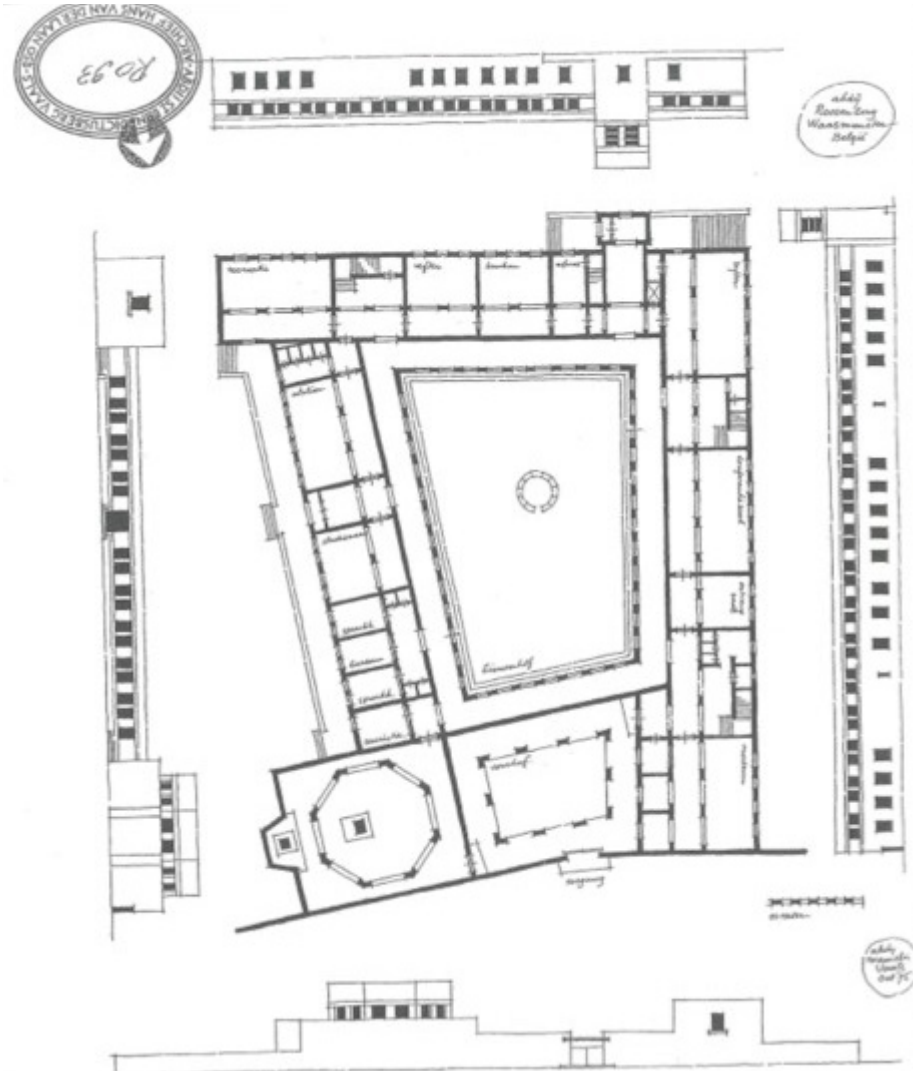

Figure 5. The composition of the abbey makes spatial centers at various scales (Archives Sint-Benedictusberg, Vaals).

A DESIGN AND BUILDING METHOD BASED ON HUMAN PERCEPTION AND ASSOCIATION

Is an abbey a prototype for a house, for a town? Like a house, it contains rooms of various sizes and scales. Like a town, it comprises spaces and an organization analogous to streets and squares lined by houses. Is a series of proportions a recipe for a successful meal? Proportions alone cannot create a meal, but ingredients proportionately related to each other can make the meal taste right. The key point is the goal the proportions serve: creating space as a tactile and perceptible center between tactile and perceptible boundaries.

Van der Laan gives us the tools to create spaces for body and soul based on human perception and association. You do not have to discover them in a vision: you can find them in a book and in actual buildings. And once you design with them, you discover how they can generate spaces and compositions with the qualities Alexander, Krier, and Gabriel describe.

The tools are not about style or form or even typology: they are about a goal. The goal is a way of building and a way of defining spaces that sustain us in every age. They sustain us because they

sustain our nature. They sustain us because they help us become aware of centers and boundaries, of insides and outsides, of bricks and spatial cells, of rooms and halls and buildings and neighborhoods and towns, all related to each other in ways we can perceive. If we build to sustain body and soul, we build to sustain life. Why should we not live?

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The City Smells of Decay

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ABSTRACT

The re-conquering of the imaginary within assemblages of practice involves time spent in the physical, and the rise of new conditions from the full body. We are temporary rural spaces in the city, but temporal rural spaces in the city are less ephemeral than they appear. In fact, this temporality embodies a rural quality, which is that of staying power—rooted in time and space. We are the site. The rural is to be defined by communal social relations and as a place absent of dominant control, where the logic moves in a direction opposite of capital growth and the urban simulacra.

***Keywords*:** Rural; Body; Resistance; Soil; Urban Decay; Simulacra.

The city[1] smells[2] of decay[3].[4]

[1] The **city**$_{i}$ is based on irrationality and speculation. It is a **product**$_{ii}$ that is packaged and given to us. A product deprived of **origin**$_{iii}$. Deprived of senses, and deprived of **content**$_{iv}$. The rural is given a role by the urban, a **role**$_{v}$ that it is set to play. This rural **plays**$_{vi}$ a part within the product. This part is not **seen**$_{vii}$ as a problem, because the process of othering never seems to be a problem. Another othering is **gained**$_{viii}$ and given to us. The **ways**$_{ix}$ of the product that we see remain generative. Yet what we **get**$_{x}$ is degenerative.

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[2] The city's degenerative procession **smells**$_{i}$. **Void**$_{ii}$ of content, the play is neither a logical set of operations nor a full sequence. Rurality **enters**$_{iii}$ to serve capitalism and maintain its perversion. Without question of sequence or logic, we operate in **relation**$_{iv}$ to the process. Beneath the obvious and into the void is a **sense**$_{iii}$, and a part of the product we do not see. Deprived by the ways that govern and control their **access**$_{iv}$, new senses emerge. Pointing a **different**$_{vii}$ way, towards a different entrance. In reaction to **fragments**$_{viii}$. Why do we **respond**$_{ix}$ to what we do? And, **how**$_{x}$?

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[3] In the collapse and **decay**$_{i}$ of the urban simulacra lies an immediate challenge to its logic. Our relationship to the void is changed in the **collapse**$_{ii}$. In the exchange of roles emerge a practice where the rural **stays**$_{iii}$. The rural takes hold long enough to change our relationship to the **shattering**$_{iv}$. Brought to the **surface**$_{v}$. Alive in opposition to the power **erosion**$_{vi}$. In the **absence**$_{vii}$ of the rural and the denial of the rural decline we are left with an undeniably present rural body. To play the part, we are left with two options: to feed on those forms whose finalities have **disappeared**$_{viii}$, or not (L.LARBUDIDAR). No more ideology, only **simulacra**$_{ix}$ (L.LARBUDIDAR). A new imaginary enters to play the story we are **given**$_{x}$.

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WORKS SOURCED
[BY ORDER OF APPEARANCE]

L.LARBUDIDAR[JEAN BAUDRILLARD]Jean.
[Symbolic Exchange and Death]

ON *THE CITY SMELLS OF DECAY* BY SARA BISSEN—AN EPILOGUE

by Stefano Serafini

As for almost every work by Sara Bissen so far, it is difficult to label *The City Smells of Decay*, yet at the same time, this text or performance sounds familiarly right to those who sense the crisis of the contemporary relation to bionomics. Geographers, economists, and biourbanists should especially recognize what is at stake in Bissen's work—the human purpose.

Originally performed in relation to "Bastardized and Idealized: Urban Farms as Imagined Rural Oases" in cooperation with Samantha Clements at the Re-imagining Rurality Conference and Exhibition, University of Westminster, London, 27–28 February–1 March 2015. *The City Smells of Decay* was read by the Author to the participants of a panel discussion, following the contributions by Dan Keech, Matt Reed, and Kate Corder on the contemporary hybridization of rurality in urban areas.

Sara Bissen brought the discussion to a core structural level. She visualized the text that you are going to read below, which she originally read aloud and calmly to the focused auditory. At the end, she took a few minutes to invite the people in the room to close their eyes and feel their own body reaction in relation to the following keywords, which she quietly and firmly articulated with time to process:[1]

Process. Void. Soil. Rural. Abandon. Land. Contradiction. Erosion. Space. Distance. Cracks. Home. Death. Representation. Surface. Possession. Dispossession. Body. Relation. Passive. Active. Converge. Nothing. Complete.

The shadow of the urban civilization we live in slides along these words, both in the form of the forgotten and hidden base of our zoned space and zoned life (like contradiction, dispossession, or representation that invasively overcomes reality), and in the form of what such a base struggles to conceal from our eyes (like death, flesh, and the rural).

Sara Bissen introduced the meta-categories of "urban" and "rural" at The New School,[2] finding a foreseeable resistance by several urban scholars, but an unconditioned approval by the world's leader in peasant studies, professor Teodor Shanin. Shanin welcomed her intuitions in the same family of those by James C. Scott, Robert Neuwirth, and himself.[3] Bissen has thereafter deepened such a topic with *Topsoil*.[4] The meta-categories of "urban" and "rural" do not define a place's

[1] Such a methodology originates from the awareness that body is the primary epistemic tool and a place of resistance. This seemingly stems from Bissen's *The Ruralist Body*, which is an active body-centered research. Such a particular enforcement of *The Ruralist Body* through *The City Smells of Decay* has been specifically inspired by Livia Cohen-Shapiro of *Applied Psychology for Yogis* (communication by the Author). See for example Cohen-Shapiro, Ecstatic Unfoldment. Cohen-Shapiro, L. (Spring 2015). *Embodied psychology for yogis*. Applied Psychology for Yogis.

[2] Bissen, S. (May 2014). *Untouchability of the rural in the urban: Dispossession, decay, and the emergence of squatting as resistance in Newark. A thesis submitted to The New School in partial fulfillment of the requirements for the degree of Master of Arts in International Affairs*. New York: The Graduate Program in International Affairs.

[3] Personal correspondence to the Author, 25 November 2014. Cfr. Scott, J. C. (1985). *Weapons of the weak: Everyday forms of peasant resistance*. New Haven: Yale University Press. Neuwirth, R. (2006). *Shadow cities: A billion squatters, a new urban world*. New York: Routledge. Shanin, T. (1990). *Defining peasants: Essays concerning rural societies, expolary economies, and learning from them in the contemporary world*. Oxford: Blackwell.

[4] Bissen, S. (2015). *Topsoil*. Defiance-San Andrés Itzapa-Newark-Istanbul: Artena Anarchist Press. See also Bissen, S. (2015). Topsoil. Retrieved from http://topsoillxiii.com/.

external features only, but rather an existential attitude towards space, life, the other, and one's own concrete identity that Bissen defines as "void".[5]

From the positive sciences point of view an anthropic environment can be defined rural when we notice low density, de-industrialization processes, and communal social relations. On the contrary, the urban is characterized by high density, capital growth, and individualism.[6] Nevertheless, these are nothing but the visible effects of a structural connection among human beings, and among human beings and wholeness. We could say that rural and urban represent two relational models towards life and purposefulness. These categories are transversal to superstructures, geographies, and even classic Marxist social classes. In a way, the meta-category of urban transcends capitalism itself. If this is true, such a position challenges the mainstream idea that cities stemmed from accumulation, and postulates that it is rather the urban that generates capitalism. Maybe Sara Bissen, paraphrasing Aristotle, would express such a concept saying that—unlike capital—soil, the core of rurality, is not purposeless.[7]

An interesting axiom of *The City Smells of Decay* is that cities are based on irrationality. Speculation, accumulation, and the base are irrational because they are disconnected from the body. Despite the assumption that the city seems to have been invented and built to protect the human body, and shaped on its measure, it is in fact the urban that builds and shapes the human body-ness, and that stretches it to the abstraction of non-finite—be it an infinite economic growth, an infinite consumption, an infinite cycle of soiling and cleaning the world,[8] or an infinite concentration of capital into the explosion of the spectacle. The city is the horizon of senselessness and meaninglessness after which everything, including the rural, gets detached by its purpose to be enclosed in a line of production—no matter if this is meant to produce objects, commodities, services, or imaginary. This is the process of "othering"—and this is the main product we are fed with by the urban machine.

The urban is at such odds with our body, though, that it "smells". Its contradiction leaks as tear gas exactly where it is not supposed to generate reactions, because the control system must focus elsewhere: on the base. Nevertheless, both the simulacra and the unstoppable cycles of decay of the urban reveal their fakeness. The inauthenticity of a capitalizing life calls to resistance, and it appears as collapse, as void, as a ruralist body.

It is not by chance that Bissen quotes (with her deconstructive notation system, aimed at liberating her Debordian *détournements* from becoming a simulacrum) the late Jean Baudrillard, and his call for the death of ideologies. The new imaginary, in the apocalypses of simulacra, is the ruralist body.

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[5] Ibid.
[6] Bissen, S. *Untouchability of the rural in the urban*, op. cit., p. 2.
[7] Aristotle, *Physics*, II, 1.
[8] See Baudrillard, J. (1993). Political economy as a model of simulation. In *Symbolic exchange and death* (p. 32ff). London: Sage Publications.

Hyperarchaic Tectonics: Looking Back to Move Forward in the Making of Form and Space

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ABSTRACT

Traditional Eastern attitude towards abstraction, geometry, handmade work and computation share similarities with the increasing data/software-based coordination that is happening among designers, builders and owners. *Hyperarchaic Tectonics* points at merging art, computation and social organization. It is a tool for ecological design thinking that plays with geometrical tiling in order to interface the patterns of human and nature.

***Keywords*:** Topkapı Scroll; Tessellation; Geometry; Hyperarchaic Tectonics; 3D Tiling.

INTRODUCTION

> *At the heart of all ecological praxes is an a-signifying rupture, in a context in which the catalysts of existential change are present, but lack expressive support from the enunciative assemblage which frames them. In the absence of ecological praxis, those catalysts remain inactive and tend towards inconsistency; they produce anxiety, guilt, other forms of psychopathological repetition. But when expressive rupture takes place, repetition becomes a process of creative assemblage, forging new incorporeal objects, abstract machines, and universes of value.* (Felix Guattari, *The Three Ecologies*)

The nature of building technologies today dictates that increasing levels of formal and structural complexity can be coordinated with advances in computer systems. From design to construction, there exists a common platform for computation that directs the creation process of our built environment. These computational advances in architecture and design involve the generation of digital representations of physical and functional characteristics of places. Today there exists continuity between a digital "sketch", a basic formal model to design, prototyping, production and installation—all as data and software. In other words, with today's computational design method, the architectural team can design the building; the construction group can model the construction of the building, and then the building owner can manage it—all using a common data model. Throughout the design process, engineering and construction are tightly woven together in the common foundation of information provided by computation.

Beginning in the 2000s, this common computer model brought together architects, structural engineers and, increasingly, builders, into a new-networked computational hyper-realm that is the basis for a new, integrated design thinking. Such an operation required seeing the process of building holistically, yet with respect to its complexity. The development of an interoperable language that could be a basis for the sharing of common terms among architects, engineers —and later builders—was as important as the technical efficiencies gained by the common computational model. To sum, computational design laid the foundation for seeing all aspects of building—structural, material, and aesthetic—as part of an interoperable whole that is at the same time the subject of both design and construction.

In this way, computational methods between design, structure and construction started to look intriguingly like the unified ideas of design and architecture that used to belong to Eastern pre-modernity building. It is to this subject that we should turn to in order to look in-depth at how an Eastern perspective can shed light on contemporary generative process of architectonics in form and space.

AN EASTERN PERSPECTIVE ON MAKING

The nature of form in Eastern art, design and architecture is completely different from that of the West. Divergence between Eastern and Western modes of art became clear since the Renaissance when visual perspective, pictorial and sculptural realism became artistic priorities in the West. This transformation also took place in architecture and design through Neoclassicism. Neoclassicism redirected architectural forms away from material, and lead craft towards the visual language of the ancient Greco-Romans. Whereas Romanesque, Byzantine and Gothic architecture along with vernacular examples were focusing on merging form, materiality and decoration, Neoclassicism largely separated the architectural form from the physical reality of its indigenous base. Overall art and architecture became discrete and separate activities that took their meaning primarily through

individual expression. This was in turn aligned with economics and politics. From Renaissance patrons to Baroque and Enlightenment royalty up to the 19th century imperialists and first industrialists, realist, perspectival art and the associated Neoclassical architecture were at the service of political and economic imperatives, and hence reflected the cultural tastes of dominant groups until the onset of Modernism.

Such a division between art, architecture, design and building never occurred this way in the East. All types of creative visual form making came out of the unitary understanding of the world connecting human expression to a larger cosmological worldview. Eastern forms of *making* were closely aligned with functional needs tied to a mix of local material conditions that were based on belief systems. While the role of the individual did exist, it was always a vehicle for a larger philosophy bringing together man, nature and the universe. Eastern artists and architects, at least until the 19th century, looked at science, art and religion as simply the manner in which human beings can create meaningful relations between themselves and the world.

Abstraction played a key role in this creative process of profound relations between man and his environment. The enforcement of abstract geometries and patterns tied in part to mathematics was the visual form of expressions that generated works such as buildings, interiors and objects that surrounded humankind. The visual character was relevant but rather connected to a personal vision, which in turn was subsumed into a greater cosmology combined with the material reality. The role of the individual practitioner was to adapt local techniques to these abstract geometries.

Form's masters from the East relied on this method for centuries. For example, the unity between geometry and pattern can be readily seen during the Turkish Ottoman Empire in the 98-foot-long *Topkapı Scroll*. This is a compendium of 114 individual geometric patterns for wall surfaces and architecture found in the library of the Topkapı Palace in Istanbul. Used by artisans responsible for building the Islamic world of their time, the scroll illuminates the role of geometry as a primary design conceit for the local hybrid Eurasian culture. Despite the propagation of Neoclassicism and then Modernism in architecture, these geometric and pattern-based abstract compositions were still important in Turkey until the 20th century. Especially in what we know of as craft, *traditional arts* such as textiles, ceramics, pottery, basket weaving, metalwork and jewelry relied on geometric pattern "design". The method of composition, often abstract yet tied to handcraft, technique and material, remained in existence in these arts throughout the 21st century. It is to these methods of generating form though pattern that we shall now turn.

THREE-DIMENSIONAL TILING: FORM AND TECTONICS

The nature of form generation is one of the most inscrutable subjects in design. Since the late 19th century when material plasticity and geometric abstraction became a central concern of architecture and design, Western practitioners kept focusing on the nature of form making, while non-Western trajectories, on the contrary, brought craft and form to be closely aligned alongside the existing traditions. Modernism's rejection of tradition in history made the new forms of modern architecture and design robust exponents of a radical worldview. While industry and technology largely became the reference for this kind of modernist design, the nature of form throughout the 20th century in the West moved forward insistently from one period to another in a response to the changing conditions of materiality and taste. Art Nouveau, Art Deco, Expressionism, Futurism, Bauhaus, New Objectivity, De Stijl, Constructivism, International Style, Brutalism, Organic Modernism, Post-modernism, Deconstruction—each of these labels were ascribed to architecture and design styles with varying formal tendencies.

It is at this point where we can turn to the formal tendencies behind the computational design of the 21st century. Much of the 21st century discourse on computational design has focused on "non-standard" architecture and form making aligned very closely to the capability of computational design software. While there has been some discourse around the craft of code, the practical application of this type of design has required customized methods of production to create software-developed forms. These heavily labored and industrially intensive modes of manufacturing and construction, while creating innovative and radical forms, have not been fully studied—especially in relation to their overall ecological impact. Because of a lack of practical tectonic application, the 21st century non-standard architecture computational form making has lacked any meaningful connections to the performative and environmental aspects of architecture. The question of how this non-standard architecture can be built and how it can work with ecological systems has only started to be addressed.

At this point, we can turn to the union of ancient systems of form making based on abstractions of aperiodic tiling found in Medieval Islamic architecture. It is the concept of aperiodic tiling in two and three dimensions that has relevance today as a way to generate a synthesis of form and tectonics. The conception of architectural tectonics based on three-dimensional aperiodic tiling suggests a wider and expansive notion of architecture in a union of knowledge and material, structure and form with application to practice. There are many practical and epistemological schools of thought about the computational generation of 3D tectonic tilings. Three-dimensional tiling represents a potentiality to create irregular structures from regular tectonics without having to custom-manufacture every joint and part. There is also the opportunity to create parametric relationships between tiling and building form that are complementary, giving *hyperarchaic tectonics* the opportunity to drive spatial relationships at several scales of a building or of a structure. Three-dimensional aperiodic and quasiperiodic tilings (where the designer/engineer can set himself free from mathematical purity, in favor of co-existent but not necessarily perfect alignment) allow performance based architectural and engineering criteria to offer variable environmental responses to issues such as wind deflection, dampening of wave energy in seas, rainwater runoff, sunlight and ventilation. It is in this intersection between form and environment that the potentiality of *hyperarchaic tectonics* lies. A formal and constructive system based on aperiodic three-dimensional tiling principles provides an open system for creating complex structures with unique artistic possibilities, with more relevance and concern for ecological impact. The three-dimensional tile exists at different scales, on both the implosive and the explosive side.

The discovery of a three-dimensional tiling that can operate as a spatial, tectonic organizer—expanding the vocabulary of architecture, which has been based for centuries on a periodic Cartesian logic from classical to modernist architecture—can open up many different possibilities for architecture and engineering. Could three-dimensional organizations such as aperiodic tiling introduce new expressive and rational opportunities in architecture? Could the power of real time, interactive digital tools and digital fabrication methods used to create and manufacture these tilings reintroduce a sort of "craftsmanship" in design?

The answers could perhaps lie in the transversal nature of the *hyperarchaic tectonic* approach, which introduces relations between Eastern modes of abstraction, geometry and computation into the realm of form creation and architecture. It is here that we can refer to Felix Guattari's *The Three Ecologies* in pointing to possible transversal relations between art, computation and social organization in generating ecological thinking. Guattari describes an open-ended process oriented to practice. This leads to social, individual and environmental value in-line with his larger focus on social ecology, mental ecology and environmental ecology.

> *Computerization in particular has unleashed the potential for new forms of 'exchange' of value, new collective negotiations, whose ultimate product will be more individual, more singular, more dissensual forms of social action.*
>
> *Our task—one which encompasses the whole future of research and artistic production—is not only to bring these exchanges into existence; it is to extend notions of collective interest to encompass practices which, in the short term, 'profit' no one, but which are, in the long run, vehicles of processual enrichment.* (Felix Guattari, *The Three Ecologies*)

Guattari proposes forms of exchange using computerization that generate individual artistic productions that have value to larger collective interest. In this way he echoes the theoretical proposition of *hyperarchaic tectonics* as a transversal practice that suggests aperiodic three-dimensional tilings as a spatial and tectonic organizer opening up expressive and rational opportunities by using computation and advanced form making. The key inference here is that, in the attempt of generating non-standard computational driven forms in architecture, there is a concern for rationalism in engineering and construction that understands the impact of these forms on the environment. The use of geometry through *hyperarchaic tectonics* as an organizing tool in ecological design thinking is proposed through the possibilities of the mathematics and computational approach in generating three-dimensional tiling. The use combining craft and computation in-line with both tradition and current technology opens up this line of design thinking of three-dimensional tiling as an interface between the patterns of nature and the human patterns. Three-dimensional tiling at different scales from microscopic to topographic is thus an open-ended formal geometric system that can engage ecological thought with a progressive ideal and purpose.

CONCLUSION: MAKING, FORM AND TECTONICS IN THE 21ST CENTURY

Much of the contemporary drive towards the generation of new forms and styles has faded out in the simulacra of 21st century global media culture. Internet, high-speed telecommunication and travel have rendered moot the idea of periodicity in design. Likewise, the unified global network of ideas has itself become more important than the seemingly minor task of creating form. Of course, new strategies based on formal complexity derived from computation and data have been an area of experimentation as the 21st century versions of architecture tied to our period. Yet, perhaps more importantly, the issue of form generation has seemingly reached a dead-end as increasing complexity on one side, and market-driven modern commercial architecture on the other, have nothing to offer in the way of new form. We can say that any advancement in generating form in the West seems limited by this threshold of computation and capital.

Interestingly though this computation issue is something clearly different in a non-Western context, especially when merged with the idea of handmade craft, in an approach that we can tentatively label *hyperarchaic*. Where methods of making and building by hand are widespread, such a synthesis of making and computation, of code and craft, represents a path towards unexplored consequences in the field of form generation.

Today we can start to think about how an Eastern craft making perspective can be related to building a holistic view that underlies a common computational model and a mathematical approach to architecture. Here the *hyperarchaic* approach to material design via formal and tectonic properties unite advancements in technology with tradition.

In conclusion, we have reviewed the possibilities of computational design and seen how its holistic view of design and building is close in spirit to the Eastern making, building and tectonics approach. We have seen that these two cultures share the same interests in seeing the creation of the built environment holistically by connecting design, engineering and construction. We have also emphasized the role of both spatial and material 2D and 3D geometric tilings. These compose intrinsic parts of an emergent form of computational design merged with craft and contemporary modes of making, according to the possibilities of a holistic ecosophic form of thought as outlined by Felix Guattari.

The *hyperarchaic* needs to be studied and applied in more depth based on the still important nature of making that we see originating out of Eastern practices. A future direction for architecture in general lies in this synthesis of computation and Eastern holistic approach to making, i.e. tectonics and geometry combined with design, engineering and construction. Furthermore, the union of forms as we have seen in the Eastern examples of Islamic and Ottoman architecture have the potential to formally unify design through tectonics, patterns and geometries that relate on the human scale to the increasingly massive scale of contemporary cities via connections to the patterns and the cycles of nature. Such harmony between human beings, the built environment, and the natural world reached through matter and geometry will continue humankind's ancient practice of building that will take the ancient ideas of proportion and organization smoothly into the 21st century.

Note: The following images refer to the exhibition by EMedya Design-Gökhan Karakuş with Gözde Kavalcı-Eren, *Hyperarchaic Tectonics. Series of Marble Mosaics*. London Design Festival, 2014; Istanbul Design Biennial, 2014. Sponsored and produced by Sılkar Madencilik, Istanbul, Turkey.

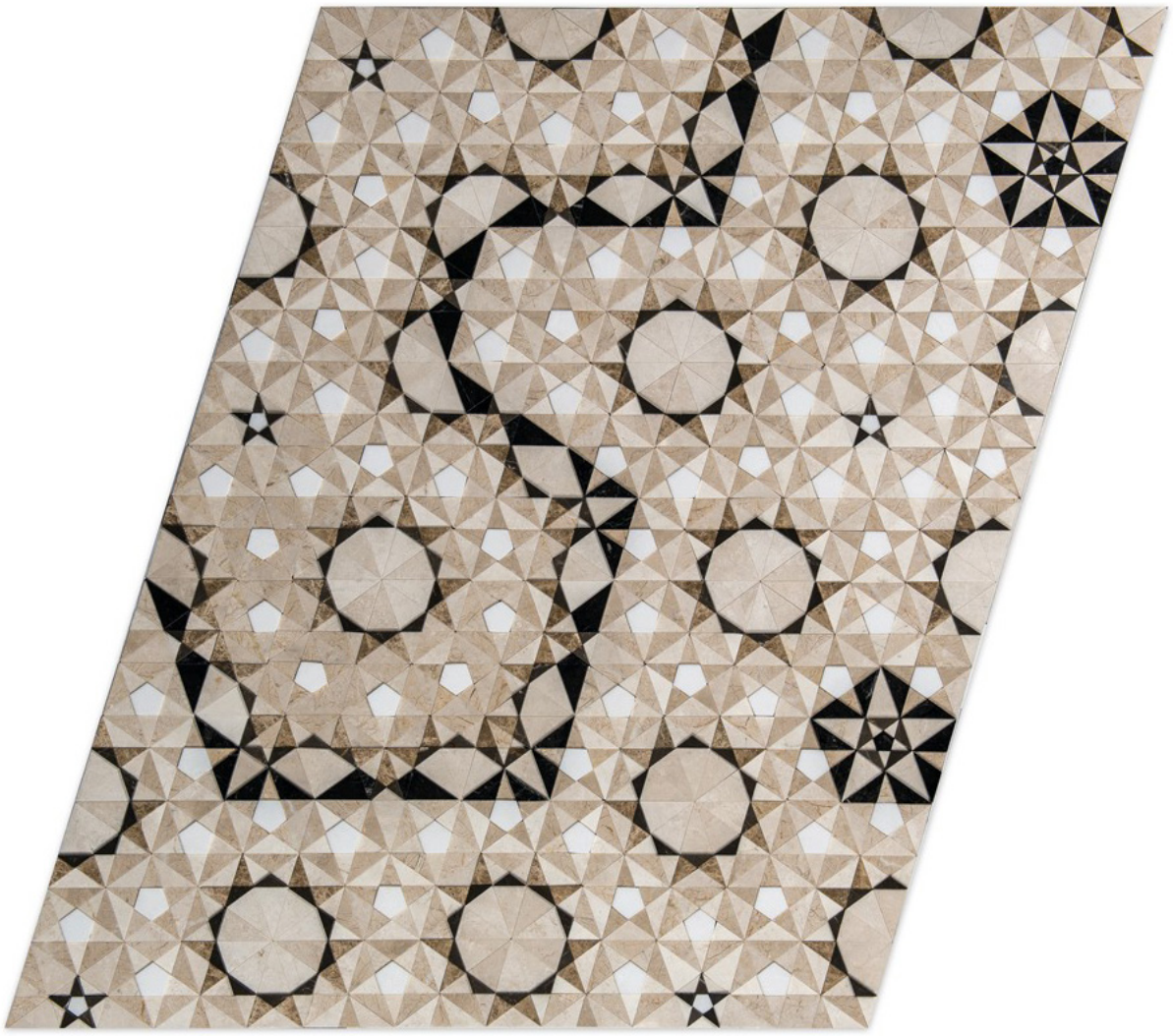


Figure 1. *Iteration I Marble* (Dark Olive, Bursa Beige, Tawny Beige, Thassos, Olive Marone, Emperador Light), 145cm x 126cm.

This is a marble mosaic generated through an aperiodic pattern created via computational design. It explores the design issues of scale and relief. The surface of various colors and depths of marbles from Turkey were digitally fabricated by waterjet CNC, accentuating the stone's surface texture. The design emphasizes differing geometries at different scales in the same pattern, and suggests expansive spatial and tectonic geometries.

Figure 2. *Iteration I*, detail. Marble (Dark Olive, Bursa Beige, Tawny Beige, Thassos, Olive Marone, Emperador Light), 145cm x 12 cm.

All of the *Hyperarchaic Tectonics* mosaics utilize the same aperiodic geometric pattern. In this detail, the pattern of *Iteration 1* is set behind the marble mosaic in order to show the relations between pattern and mosaic.

Figure 3. *Iteration I*, detail. Marble (Dark Olive, Bursa Beige, Tawny Beige, Thassos, Olive Marone, Emperador Light), 145cm x 126cm.

Each of the mosaic tiles were digitally fabricated using waterjet CNC, and then assembled by hand, continuing an ancient tradition by enforcing 21st century technologies.

Figure 4. *Iteration II*. Marble (Dark Olive, Bursa Beige, Tawny Beige, Thassos, Olive Marone, Emperador Light), 104cm x 38cm x 34cm.

This is a three-dimensional marble mosaic conceived as a tetrahedron. The aperiodic three-dimensional tiling is an innovative application of a stone marble mosaic combined with masonry construction techniques. The design looks forward to an architectonics of three-dimensional tiling as a design aesthetic and as a building system.

Figure 5. *Iteration III*. Marble (Dark Olive, Bursa Beige, Tawny Beige, Thassos, Olive Marone, Emperador Light), 98cm x 84cm x 5cm.

Iteration III is a three-dimensional marble mosaic that suggests expansive and tectonic geometries, which organize and expand the vocabulary of contemporary design through pattern and scale.

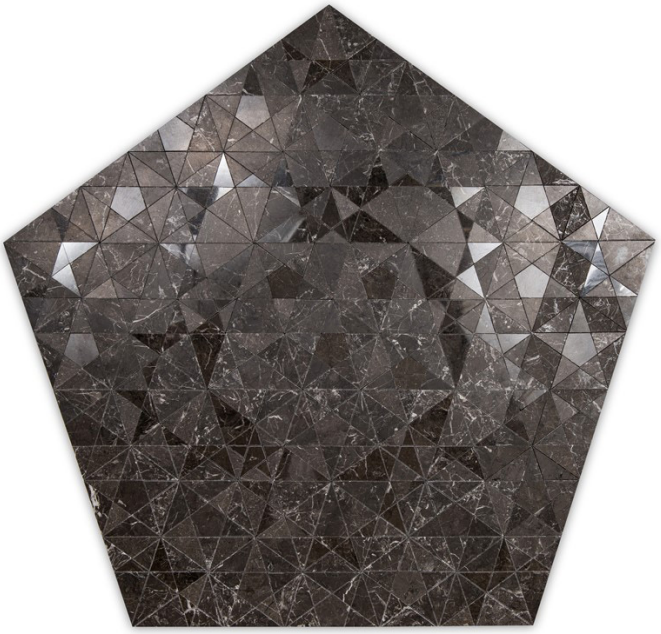


Figure 6. *Pentagon I*. Marble, polished and matte (Dark Olive), 75cm x 72cm.

The dark olive marble with matte and polished surface textures subtly accentuates the aperiodic pattern of *Pentagon 1*. The pentagon shape exists in this mosaic in a multitude of sizes and scales showing the rich potential of Islamic patterns in contemporary design.

Figure 7. *Pentagon I*, detail. Marble, polished and matte (Dark Olive), 75cm x 72cm.

The matte and polished surface of *Pentagon 1* accentuates the underlying pattern through a play of light and geometry.

Figure 8. *Pentagon II*. Marble (Rosso Levanto, Toros Black), 202cm x 123cm.

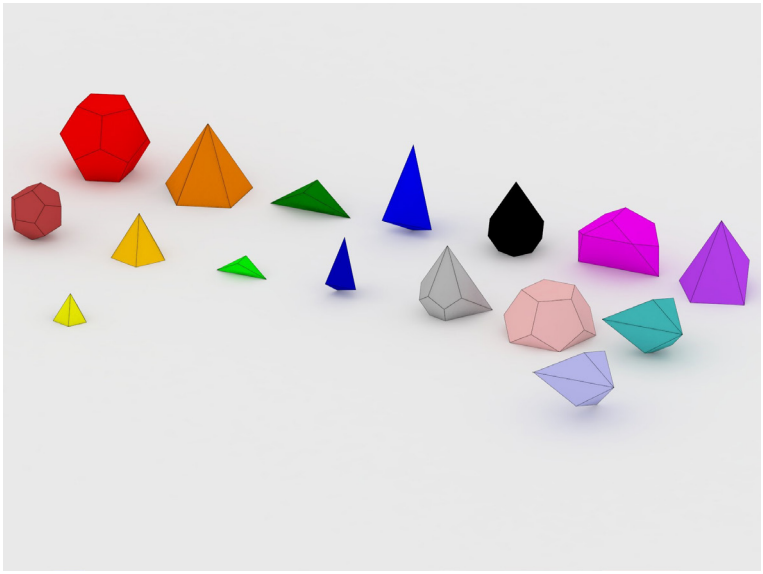
The veined patterns of the Rosso Levanto marble from Eastern Turkey are set off against the aperiodic tiling pattern in Toros Black marble from Southern Turkey. The organic veined patterns of nature seen in the marble are contrasted with the manmade abstract geometries.

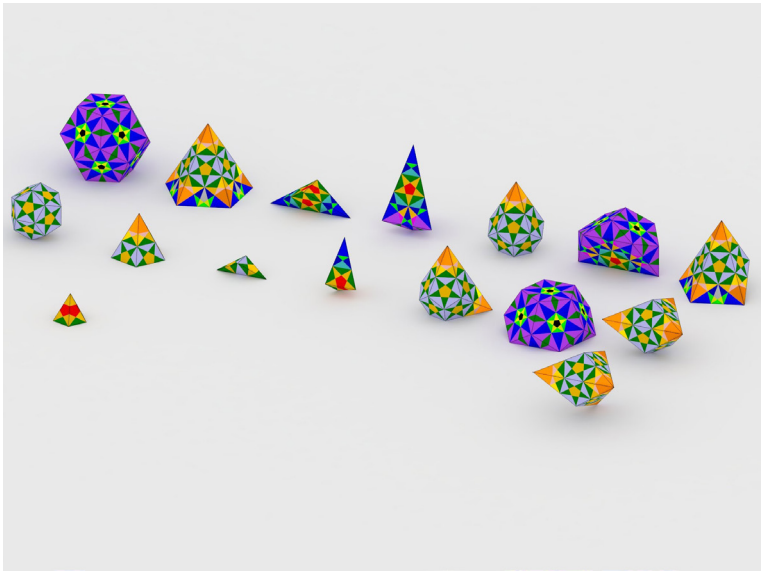
Figure 9. *Void Pattern II*. Marble (Rosso Levanto, Toros Black, Verde Laguna), 167cm x 140cm.

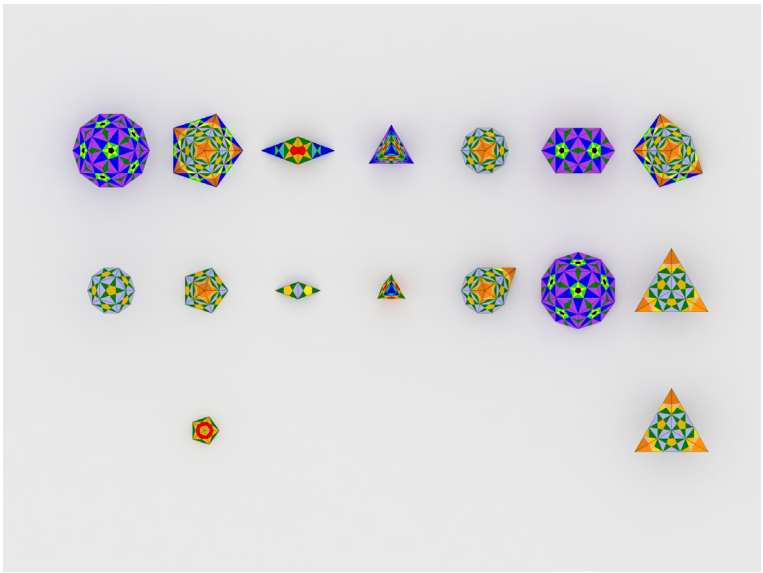
Mosaics have always worked in tandem with architectural space. The *Void Pattern II* mural marble mosaic offers the same pattern at different scales and suggests geometric connections between the human, the building and the urban scale in an expansive two-dimensional geometry.

Figure 10. *Void Pattern I*. Marble (Dark Olive, Calacatta), 132cm x 139cm.

Void Pattern I utilizes the same aperiodic pattern present in all of the marble mosaics of the *Hyperarchaic Tectonics* series, but this time as an innovative linear mosaic. The design is conceived as a linear mosaic figuratively emphasizing line and void against the expansive geometric pattern that is subtly visible in the contrast between black and white marble tiles.







Figures 11, 12 and 13. Examples of tetrahedrons generated from a three-dimensional tiling system developed by Daniel Bosia and Adams Kara Taylor II, London. The mathematics and geometries of this system are the basis for *Hyperarchaic Tectonics*.

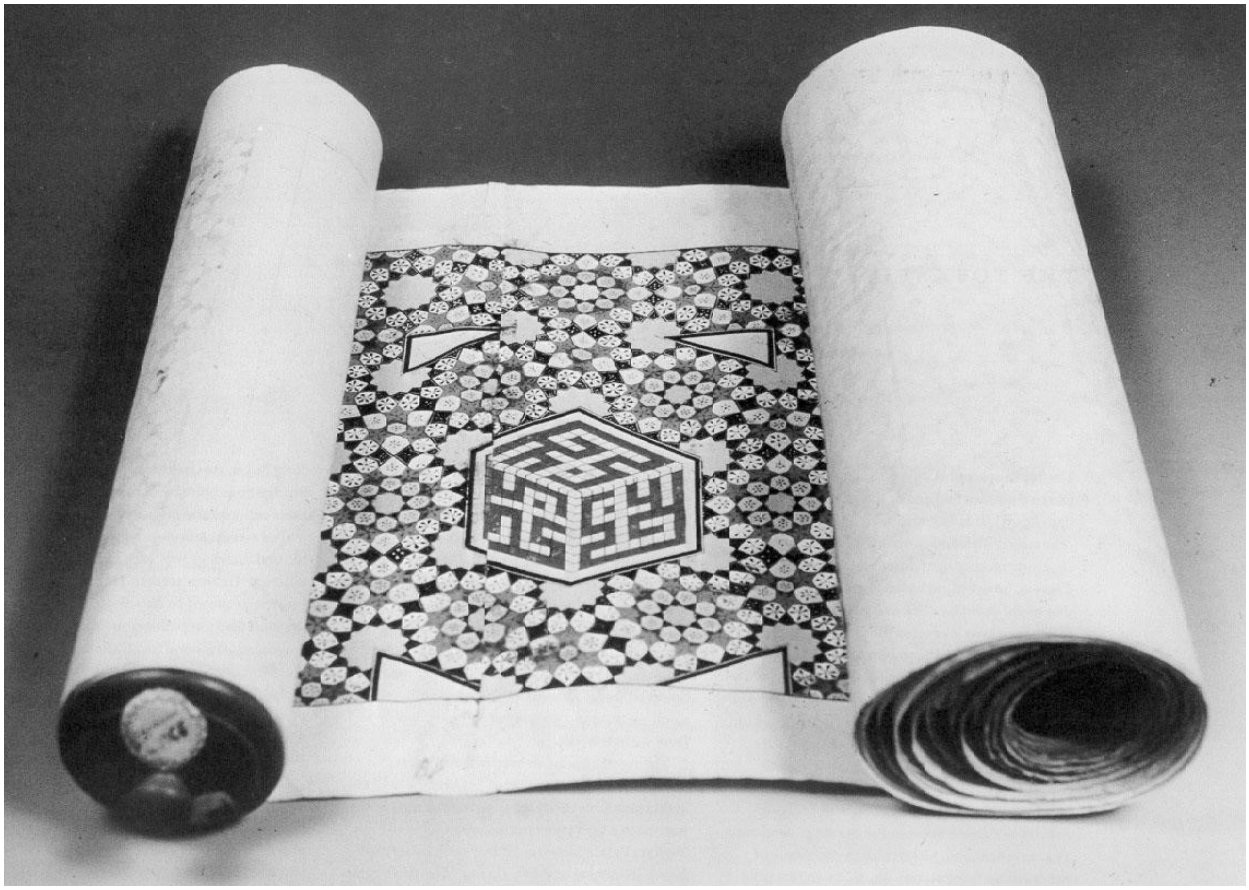


Figure 14. *The Topkapı Scroll*.

Late 15th–early 16th century. Topkapı Palace Museum, Istanbul, Turkey.

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The Form Strikes Back

Michael W. Mehaffy and Nikos A. Salingaros. (2015). *Design for a Living Planet: Settlement, Science, and the Human Future*. Portland: Sustasis Press. ISBN 10: 098-934-695-1.

Review by Stefano Serafini

Acknowledgements about the relevance of form in physics, chemistry, biology, ecology and other domains have been steadily gaining momentum since the '90s.[1] In fact, the focus on underlying processes—like biochemical interactions or selection pressure in biology, for example—have overshadowed the scientific study of morphology in several fields during the last 150 years. However, several scholars are continuing to collect evidence about form's role in triggering and governing dramatic chains of physicochemical effects. Epigenetics and systems biology applied to cancer research are among the most striking examples of such a shift of paradigm.[2]

The idea (inspired by Galilei and previously by Democritus) that forms are incidental phenomena, irrelevant to scientific objectivity, has been overcome. Relations, intentionality, networks and systems are on stage—and they over and over show off as visible and measurable forms.

Galileo Galilei fought the hylomorphism of the Aristotelians in the 16th century, and put the basis for a science rooted in physical measurement of objects. Galilean science focused on mathematical measures of space, time and impulse (like velocity, acceleration, mass, inertia, magnitude, weight, force).[3] Newtonian physics contributed to transform the quantitative abstraction of time and space in metaphysical boundaries of the World, and Immanuel Kant transferred such boundaries into gnoseology. The limits of such an approach became evident already with the impossibility of determining the dynamics of three interacting bodies in movement, a problem that Henry Poincaré faced at the end of the 19th century, preparing the forthcoming science of chaos.[4]

Physics, chemistry and biology attempted to conform themselves to the challenges of coherent complex systems by the means of a superior level of abstraction, i.e. statistics. Robert Brown didn't care about the momentum of each molecule of the gas he wanted to study. He rather considered each molecule as an abstract point into a general flow whose behavior follows a coherent pattern. Hence Mendelism got rid of the biological mythology that Charles Darwin had carried on from the English breeders (the idea, for example, that the whole genetic information passes entirely from generation to generation), and thanks to the synthetic work by Julian Huxley, Evolution opened its doors to statistics.[5]

Science of chaos and laws of form belong to the third revolutionary shift towards a better understanding of the complexity of real phenomena. The fundamental works of Authors like René

[1] See for instance Piattelli-Palmarini, M. (2006). The return of the laws of form. In C. P. Manzù (Ed.), *Life on the Edge (La Vita in Bilico)* (pp. 45–57). Roma: Centro Pio Manzù.
[2] Bizzarri, M. (2014). Systems biology for understanding cancer biology. *Current Synthetic and Systems Biology, 2*, 103.
[3] For an overview: Drake, S. (1978). *Galileo at work: His scientific biography*. Chicago: Chicago University Press.
[4] Barrow-Green, J. (1997). *Poincaré and the three body problem*. London: American Mathematical Society and London Mathematical Society.
[5] Depew, D. J. & Weber, B. H. (1995). *Darwinism evolving: Systems dynamics and the genealogy of natural selection*. Cambridge–London: MIT Press.

Thom and Antonio Lima-de-Faria have contributed new ways of looking at form in mathematics, physics, and biology.[6]

Within urban studies, Nikos Salingaros and Michael Mehaffy seem to belong to such an interdisciplinary movement; and it is not by chance that they often refer to the sciences of life in their new book *Design for a Living Planet*. The Authors introduce the reader to understanding how forms are key to change the word by means of design, and come to state that "the core conclusion of the findings reported in this book is revolutionary: sustainability depends upon the geometry of design" (p. 12).

The readers of Christopher Alexander are familiar with several concepts presented in the book,[7] and so are those who have been following the previous works of the Authors.[8] Salingaros especially—a mathematician with a background in nuclear physics—is since long stressing how the external features of objects and the forms of space influence *directly* the general structure that objects and space share with their context and their users.

Vittorio Ingegnoli has marked a lifelong work devoted to Bionomics with his last book.[9] Likewise Salingaros and Mehaffy acknowledge that the design issues at stake in their work encompass the separateness of disciplines and refers to the wholeness of human activity and the planet's ecology. Design is not about aesthetics—it is about real effects on the real world and on our lives. A special attention is thus brought to the role that this approach must have on economics, and this seems to be one of the most noteworthy aspects of the book.

One cannot think of changing design without addressing the economic basis from which design stems. This is possibly the first self-critical step designers should make in order to innovate. Several works by Salingaros have already enlightened the role of industrialism against the dramatic quality drop of urban and architecture design during modernity.[10] *Design for a Living Planet* goes further. It points out that design goes beyond the creation of objects. Nowadays design rather deals with services, society, ecology and economics. Economies of scale, of standardization, of place, and of differentiation are thus among the topics of this book.

From such a perspective the following observation sounds very interesting: redundancy is a fundamental quality of living systems, and it makes them especially resilient. As we know, redundancy has been severely banned by contemporary "efficientist" design. Loos considered "decoration" to be a "crime". Yet, the consequent sanitized design of the 20th century has resulted to be a failure when built structures had to face disruptive events. Urban examples are given, like the effects of the Hurricane Katrina, and the nuclear disaster of Fukushima. In the words of Salingaros and Mehaffy, redundancy is the natural output of a new design of abundance, that not by chance seems such at odds with the economics of scarcity in which we live. Rethinking design thus involves a radical critique about the frames of our very culture and society. Such a rethinking affects aesthetics as long as aesthetics is an effect of more fundamental decisions.

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[6] Thom, R. (1988). *Esquisse d'une semiophysique: Physique aristotelicienne et theorie des catastrophes*. Paris: Intereditions. Lima-de-Faria, A. (1988). *Evolution without selection: Form and function by autoevolution*. New York–London: Elsevier.

[7] See Alexander, C. (2002–2005). *The Nature of Order* (Vols. 1–4). Berkeley: Center for Environmental Structure.

[8] See for example Salingaros, N. A. (2010). *Twelve lectures on architecture: Algorithmic sustainable design*. Solingen: Umbau Verlag; Idem. (2006). *A theory of architecture*. Solingen: Umbau Verlag; Idem. (2005). *Principles of urban structure*. Amsterdam: Techne Press. Mehaffy, M. W., & Salingaros, N. A. (2002). Geometrical fundamentalism. *Plan Net Online Architectural Resources*.

[9] Ingegnoli, V. (2015). *Landscape Bionomics, Biological-integrated Landscape Ecology*. Springer.

[10] Especially Salingaros, N. A. *A theory of architecture*, op. cit.

The other parts of the book deal with the history of Modern School, the fake fashion of "green" design, and relevant topics like agility in design, biophilia, evidence-based design, and networks. A full chapter is devoted to the work of Christopher Alexander, presented as the author of a new design "technology" in the sense of disruptive, conceptual tools offered to a new generation of architects and urban planners.

The book is short and light, aimed at inspiring the readers and at making them aware of new possibilities in the practice of design. These "new possibilities" have nothing to do with fashion and market success. They rather deal with a radical choice in order to give meaning to one's own work, and make our built world more keen to life than it is today.

We See Only What Has Been Produced for Us To See

Sara Bissen. (2015). *Topsoil*. Defiance-San Andrés Itzapa-Newark-Istanbul: Artena Anarchist Press. ISBN 978-88-940505-0-9.

Review by Kelly Nosari

Tacit acceptance of the commodities and information that inundate our urban lives promises control over the chaos. In reality, it prevents us from seeing beyond the surface of things to understand our complicity in the world we inhabit. In this hall of mirrors, we are removed from the reality that we are all actors, whatever role we play in the hierarchy of exchange. Sara Bissen's *Topsoil* deliberately challenges such inertia by revealing the global commodity chain of capital that underpins our lives.

Topsoil is at once essay, book, critique, and artist manifesto. It is also none of these things. It is most certainly a dense read—in content and in structure. Introduced as a play, sources are given as a list of characters, names scrambled and removed from their context. It follows the story of cotton from the farmer planting the seed in the soil in India to the all-powerful urban marketplace in New York City—revealing the urban dweller's separation from actual global systems. At the same time, the text is not linear and its visual structure reflects the opaque, circuitous, and disconnected routes and exchanges of capital's commodity chain. Footnotes in Roman numerals carry visual weight and emphasize certain words or ideas, but do not serve their traditional purpose. They grow larger as the text progresses, seemingly laden down with meaning.

Written in its final stages standing up over a sleepless three days, *Topsoil* is a work born of process. In a manner reminiscent of performance artists such as Marina Abramović, Bissen subjected her body and mind to immense strain. Her physicality served as the conduit for her intellectual outpouring, figuratively walking her from New York City back to her former home in the Guatemalan countryside as she wrote. The resulting text continues to evolve as an online commentary that invites critique and response—essentially extending *Topsoil* into new directions.[1]

Bissen, a ruralist, cites artists and theorists such as Abramović, David Harvey, Henri Lefebvre, and Hans Haacke in her discussion of contemporary economic systems of exchange. Conversations with her father, a farmer, were also an important source of inspiration made evident in the text's central focus on soil. Bissen's overarching concern with representation—one of the most resonating themes in *Topsoil*—also positions her work in relation to Guy Debord's *Society of the Spectacle* (1967) and Jean Baudrillard's *Simulacra and Simulation* (1981)—each of which share a similar fundamental assertion that human experience is now merely the simulation of reality.

[1] See http://topsoillxiii.com/.

For Bissen, "the eyes are passive. But labor is active."[2] Moving beyond the topsoil or the "surface layer" to the substantive soil below is potentially agentive.[3] However, if we are merely looking at the symbols and messages contained in the commodities prescribed for us, then we are not seeing at all. In other words, we have to challenge capital—and the flow of information in the media—on a fundamental level by taking on the very symbols it employs to order our lives.

Topsoil's next phase is in the transition from theory to practice. The work and its growing online commentaries seek out what Bissen refers to as "the spaces of contradiction [that] expose the cracks in the surface."[4] She charts a collective approach to the creation of new meaning within the commodity chain: "1. Start from a representation 2. Find what is [hidden] 3. Represent in a new way what we found."[5]

[2] Bissen, S. (2015). *Topsoil*. Defiance-San Andrés Itzapa-Newark-Istanbul: Artena Anarchist Press, 4, cxxxii and ccxv (after Lefebvre).
[3] Ibid. 4, i.
[4] Ibid. 3, lxxii.
[5] Ibid. 4, xxix.

Working With/In

Marina Mihăilă. (2012). *Office Architecture + Technology*. Bucharest: Ion Mincu University Press. ISBN 978-606-638-020-1.

Review by Maria Bostenaru Dan

This book is a bilingual volume (Romanian and English) based in part on the doctoral work entitled "Working with/in New Office—Concepts & Technology", submitted by the Author at Ion Mincu University of Architecture and Urban Planning in Bucharest. The study includes two parts. The first is entitled "From Idea to Demarche", and has an introductory character. The second bears the title of the book. A general bibliography, plus some data and illustrations conclude the work. The first chapter offers a summary of the doctoral thesis.

"Working with/in" is the name of the author's theory on how to approach architectural issues and challenges. The office building is seen in the broad context of the city, "working with" the office space. However, both the indoor architecture and climate—influenced by artistic and technological means—are important, and these relate to the detailed conformations given by the architectural programme of the office with the "working in" approach. If "working with" the mineral dimension of the city as conglomerate of buildings in a cityscape is important, "working in"—the human dimension of the users to whom the building adapts—is also important. Beyond lines drawn in an architectural plan is the detailed appearance of the finishing, the architectural interior, and the building's physical comfort and safety on a detailed scale.

Thus, "Working with" represents a first step of design work. Current development in cities was marked by the rise of towers in some low rise neighborhoods, and many of these are office buildings. Hence, the research focused on the problem of density in the urban landscape. Density is seen either as vertical or extensive mass growth, but in both cases it involves the addition of new functions and activities. This way the city fights against the functional segregation from post-WWII. Textures define zones that get a central character through the addition of office buildings. This is an advanced approach to urban structure; to urban form and function. Work and residence are not always separated anymore. This is one of the aspects covered: the way contemporary office buildings play a role for the public space and the cityscape. However, the investigation continues in more detail on the spatial conformation of the building itself, including interior architecture and the technical conformations which lead to better indoor climate as well as general structural security. The meanings and the role of office space are spanning thus from urban scale to building scale, at the latter, up to the dimension of the office room.

Many of the issues raised are in close connection with the contemporary challenge of sustainability. On the urban scale, one can look at office towers as a landmark to follow the legibility of the city, and question the influence on the urban landscape in competition with historical landmarks and neighborhood characteristics. The study reviewed such new office towers in the cities, built by star architecture studios. As the author is both a practicing architect and a design studio lecturer at the university, she has a great interest in both creating and teaching contemporary architecture. The work reviewed here has thus a double focus on theoretical and applied research: lessons are learned from theory for practice and from practice for theory.

The architecture project is seen in need of a conceptual underpinning as a response to issues such as sustainable urban development and appropriate density for historical neighborhoods in which office buildings have to be contextually integrated. In this regard, the work responds to the "museum dimension" of the city—the whole city as museum, not only its buildings. Heritage neighborhoods do not have to become museums, but be open to development as they were throughout history. Contemporary architecture has to adapt to the context, through integration or contrast. The "museum dimension" contributes to legibility by creating traces. The concept is seen on both the urban integration and architectural conformation dimension, up to detailed technology and finishing.

Going into the detail of the office room, at "working in", daylight and a good thermal and visual comfort are assured by the latest technologies. These are connected with a current challenge of sustainable environment, namely that of energy. In current international research, attention is paid to energy research and the low carbon society. In office buildings, numerous forefront approaches to assure this have been tried—for example, intelligent façades. Since Le Corbusier, daylight has also been assured by the vertical challenge of the building itself. Le Corbusier's utopia in providing contested alternatives to historical neighborhoods was not the only one in designing towers, which always challenged architects since the dream of Icarus to fly, and the Bible story of the stairs to heaven. From the concept there has been just one step to utopia, and sometimes to manifestos. Some of the ideas in history that were utopia or manifesto, such as Sant' Elia's or F.L.Wright's dreams, became possible with later technology. Also in this work and within the doctoral thesis, utopia has thus been proposed as a study model.

A continuation of the book promises to offer a dictionary of terms related to the topic, and a description of the proposed utopia.

Architecture theory books are rare in the publishing landscape. Mihăilă's work offers an appreciated contribution to contemporary architecture. Office buildings are an architectural program that responds through the current building typology (the tower) to the technological possibilities in structures of the 20th and 21st centuries. At the same time, current environmental challenges pose requirements on their integration from both an urban development and a climatic point of view. The work extensively analyzes these issues from the dual viewpoint of "working with" and "working in" office building space. For this content, the book is recommended to both theoreticians and practitioners of architecture, and for practitioners and those who want to be practitioners (students) to learn the concepts behind design and how to design in a conceptual way after knowing the theory behind. This is also for theoreticians to analyze the development of these emblematic and often preservationist-contested landmarks of the contemporary city—from utopia to reality. The curriculum of the Author is guarantee of both aspects.


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