CULTIVATING THE CITY: INFRASTRUCTURES OF ABUNDANCE IN URBAN BRAZIL

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Abstract: Urban agriculture, if it is to become integrated into the city, needs landscape architectural thinking in order to be woven into the larger urban fabric. Thinking at the scale of ecosystems running through a city creates a framework for spatial change; thinking in assemblages of stakeholders and actors creates a framework for social investment and development. These overlapping frameworks are informed and perhaps even defined by the emergent field of landscape democracy. Cultivating the City is a prospective design project seeking to embody landscape democratic principles. The intention is to reclaim the meaning of landscape as the relationship between people and place, both shaping each other. The design in question is a proposed network of urban agriculture typologies in Porto Alegre, Brazil. These hypothetical designs, emphasizing agroforestry with native species, serve as a basis for dialogue between potential stakeholders and as catalysts for future projects. This landscape architecture project sets out to be a mediator in processes of spatial evolution in order to envision just and sustainable urban landscapes.

1.   The potential of green infrastructures in the context of rapid growth

Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody.

— Jane Jacobs

The economic boom in recent years in Brazil has brought with it a complex array of social and environmental challenges. Continued growth has added to the pressure on informal housing areas or favela neighbourhoods in urban areas. Although the general rate of favela formation has decreased in the last several years (IBGE, 2011) cities are increasingly stratified according to wealth. Currently over 50 million people still live in urban slums (Blanco,2008). Together these urban inhabitants would form the fifth largest state in Brazil (Carta Capital, 2013). Public space is a contested zone where the urban poor compete for resources and economic opportunity.

On the level of health and prosperity, growing obesity in the general population has greatly increased while malnutrition continues among the poorest. In 1974, the obesity level was 2.8% in men and 8% in women over twenty, compared with 12.4% and 16.9% respectively in 2009. Obesity rates have grown far more quickly amongst people of lower incomes although since 2003 this trend has stabilized, with the difference in obesity rates between the wealthy and lower income currently quite narrow (Monteiro, Conde, and Popkin, 2007). The Brazilian Department of Health Analysis has projected that Brazil will match the United States' obesity levels by 2022 (Telegraph, 2010).

As urban populations continue to expand, cities in Brazil must adapt to the spatial as well as the social needs of all their inhabitants in order to move towards just and sustainable urban models. New spatial practices must therefore be articulated to in order to offer successful strategies for attaining these goals. Urban agriculture is a practice which can potentially address urban spatial quality and access to food simultaneously. UA can create a secondary food network in the city,

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simultaneously creating opportunities for livelihood and new economic activities (FAO, 2008). The Food and Agriculture Organization cites UA as an important factor in helping cities reach the Millennium Development Goals (FAO, 2010). At the same time, networks of food producing spaces can potentially increase the spatial quality of the city.

Urban agriculture, if it is to become integrated into the city, needs landscape architectural thinking in order to be woven into the larger urban fabric. Thinking at the scale of ecosystems running through a city creates a framework for spatial change; thinking in assemblages of stakeholders and actors creates a framework for social investment and development. These overlapping frameworks are informed and perhaps even defined by the emergent field of landscape democracy. Landscape democracy understands landscape as an embodiment of differing forms of energy, labor, and organization. Landscape is also understood as a basic infrastructure of society.

Figure 1. An agroforestry "palette" of the native fruit species of Southern Brazil across a section of Porto Alegre. Image Jacques Abelman

Cultivating the City explores and reclaims the meaning of landscape as the relationship between people and place, both shaping each other. The project is based on a network of productive urban green spaces in the southern Brazilian capital of Porto Alegre in the state of Rio Grande do Sul. The plant species are selected from the hundreds of food bearing and medicinal tree, shrub, and plant varieties present in southern Brazil's Atlantic Forest ecosystem. Different typologies of plantings, based on orchard or forest patterns, compose a lace-like network of productive and aesthetic green infrastructure in the urban fabric. Each typology is a scenario of different actors in a specific short-food production chain. These narratives, as explorations of potential stakeholders working together on specific sites, illustrate the larger strategy of a adding a productive and multifunctional green infrastructure to the city.

1.1   Observing places and practices

In order to propose a project built on people and place it is essential to study the city first-hand. In March and April of 2013 I lived in and conducted site research in Porto Alegre. My research methodology in this context was to explore the city on foot, by public transport, by bike and by car, and to observe and engage in dialogue wherever and whenever possible. I immersed myself in the processes of the city and discovered relationships and tensions present in a variety of different sites. Over the course of my city explorations and while attending classes at the Universidade Federal do Rio Grande do Sul (URFGS) in the Rural Sociology, Agronomy, and Urbanism departments, I met many engaging people who introduced me to their city. Through them, as well as people I encountered on the street, I discovered sites and observed practices that became the foundation of *Cultivating the City.*
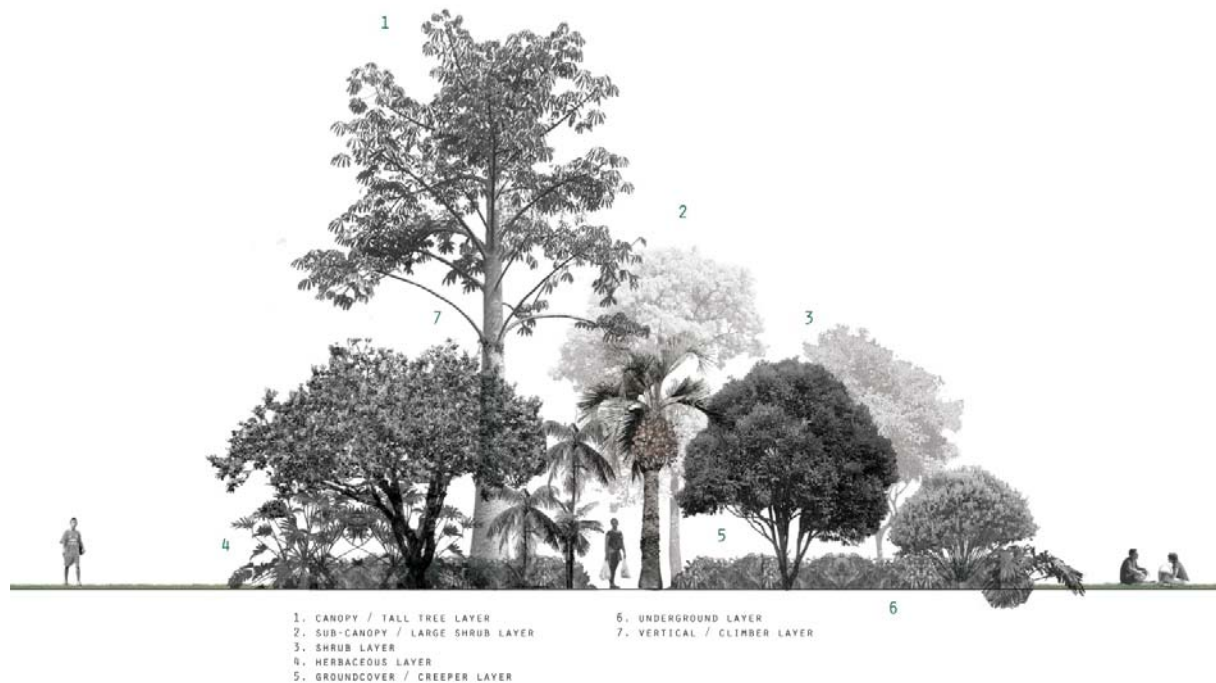
1. CANOPY / TALL TREE LAYER   6. UNDERGROUND LAYER
2. SUB-CANOPY / LARGE SHRUB LAYER   7. VERTICAL / CLIMBER LAYER
3. SHRUB LAYER
4. HERBACEOUS LAYER
5. GROUNDCOVER / CREEPER LAYER

**Figure 2. "Food Forest" agroforestry section with seven productive zones of indigenous species.
Image: Jacques Abelman**

2.   Fieldwork: exploring three urban sites

2.1   *Praça Bernardo Dreher*

My hosts, the Endres family, are gaúchos[2] with German and Portuguese origins. Oscar Endres ran a large market stall in the Mercado Central of Porto Alegre for over fifty years. He prides himself on knowing the origins and culture surrounding Brazilian food and its multitude of regional products, processes and recipes. Now retired, Oscar is an avid gardener. He and his family have lived in the Ipanema suburb of Porto Alegre since the late sixties, a middle class neighborhood far away from the bustle of downtown. Ipanema's tree lined streets frame well maintained homes with fences and gardens. Security is an issue here, as slums are not far away and break-ins, sometimes at gunpoint or carjacking are not uncommon. Neighborhood security guards watch from the shelter of small sheds on street corners, surveiling passers-by day and night through tidy lace curtains. At the end of the street, there is a small park, Praça Bernardo Dreher. The park has lawns, some swing sets, large trees, and a football terrain. I walk there with Oscar, who shows me with pride a leafy shoot protected by broom handles and pieces of wood. It is a goiaba[3] tree that he has raised from seed in his own backyard and transplanted into the park. He treats it with care, and visits it regularly. Other residents have begun to do the same. A seed of pitanga[4] or araça,[5] for example, will quickly grow into a shrub, then a tree in the favorable sub-tropical conditions. The trees yield abundant fruit and in this neighborhood the harvest is free for all who care to pick it. The municipal workers who come to mow

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[2] In Brazil, gaúcho is also the main gentilic of the people from the state of Rio Grande do Sul.

[3] Acca sellowiana

[4] Eugenia uniflora

[5] Psidium cattleianum

the park lawns steer clear of the protected seedlings, and once they are established they seem to be absorbed into the design of the park. A dozen new fruit trees planted here over the years augment this neighborhood landscape. Small acts of guerilla gardening have become a shared neighborhood practice, bringing residents out to meet each other. Eyes and ears in the vicinity are on the trees, also creating a safe area for children to play. An atmosphere of unease sometimes reigns in the suburbs, as though danger or violence could erupt if the wrong conditions arise. My hosts' accounts of incidents of crime confirmed this. However, small children playing in the park with no parents to watch over them attests to the network of awareness around the Praça.

**Figure 3. Site visit and interview at the Praça Bernardo Dreher reveal incipient urban agriculture practices.
Photos: Jacques Abelman**

Figure 4. The social context of the park is an essential first step to supporting design and planning.
Image: Jacques Abelman

2.2   Vila São José

"Spontaneous occupation" is the term used to qualify urban slums in Brazil. Cities are their own ecosystem; whatever niche that can support life is soon filled by an individual or family whose concern is food, shelter, and the business of survival. The pressure on empty urban land is great; spaces are quickly claimed by those arriving to the city who cannot afford conventional housing. However, over time favela areas can come to be thriving neighborhoods of ingenious architectures as residents climb the economic ladder out of poverty. Temporary shelters solidify into lower middle or middle class housing made of brick and masonry. I toured an area of spontaneous occupation with Pedro, a man responsible for the nearest posto de saude, or neighborhood health clinic. The favela niches in an empty band of land behind a row of wealthy villas with impenetrable razorwire and glass shard topped walls. Together we met many of the inhabitants, Pedro's clients, whom he knows closely after years of attending to their health needs. Tiny manicured gardens are attached to many houses, often with similar plantings of medicinal, culinary, and religious plants. For example, Espada de São Jorge, Sanseveria, is thought to protect houses from evil spirits.[6] Mature fruit trees planted intentionally or as remnants of natural areas peppered the housing areas, and were carefully maintained as sources of extra food. In other favelas in peri-urban areas on the outskirts of the city the favela housing transitions into farmland or natural areas or aggregates along infrastructures such as highways. Although there were no new trees planted in common areas in this favela, the residents

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[6] Espada de São Jorge (sword of Saint George) is also associated with the god Ogoun in Brazilian syncretic religions.

rely on free sources of food such as fruit trees. Across the city the locations of mature fruit trees are known, for instance many of the trees of the university campus in the downtown area.

2.3 Praça dos Açorianos

Praça dos Açorianos is the heart of the central administrative district in downtown Porto Alegre. Most public transportation networks take passengers by this plaza, whose center features a monument to the first Azorean settlers of the city. The wide spaces of the pristine plaza are kept constantly clean by municipal workers. Their job is to remove any litter that accumulates there, on the lawns or beaten earth tracks and pavement. Public space is kept free of debris to the point of sterility. These spaces are free of bushes or clumps of weeds or anything that might possibly create shelter for humans or other creatures. Some people take to sleeping in relatively unpoliced areas. At night these spaces become dangerous. The noteworthy practice here, from a spatial point of view, is the manpower required in such a central, public space to keep not only humans but all extra vegetation out. In Portuguese, the word mata means forest. Mato is a closely related word meaning an uncultivated area covered in wild plants, but implies overgrowth and potential vermin. Thus spontaneous vegetative growth, even of useful plants which happens without human help in the sub-tropical climate, is something to be kept under tight control rather than to be encouraged. People as well as plants are carefully kept out of public space.

3.   Top down meets bottom up: potential scenarios for networking urban agriculture

What the sites above share in common is intensive human use shaping urban space. The obvious problems in these sites belie their potential; the potential of nature as well as the human potential. If the relationship between people and place could be augmented, challenged, and reimagined, *Cultivating the City* could take shape. If we think of landscape democracy as an exploration of the relationship between people, place, and power, then we can begin to trace outlines for landscape democratic practices in the contexts described above.

It is beyond the scope of the project to provide an accurate critique of Brazil's politics and socio-economic complexities in terms of urbanism. However; some landscape democratic practices can be traced in this context which lay the ground for further work. One key issue is how the economic disparity increasingly present in Brazilian society is creating more economically stratified spaces in the city.

Who has access to public space? In the capitalist market system, those without the capacity to buy or sell, and those who are not owners, are quickly and literally pushed to the margins. Landscape democracy in this context means an emphasis on inclusivity and connection. Opportunities for the disadvantaged must be created in addition to designing new leisure and recreational spaces. Human power can be coupled with ecological power (rich biodiversity, rapid growth) to create a motor for new projects. The four examples that follow, based on the sites described above, illustrate new configurations that become elements in a city-wide network.
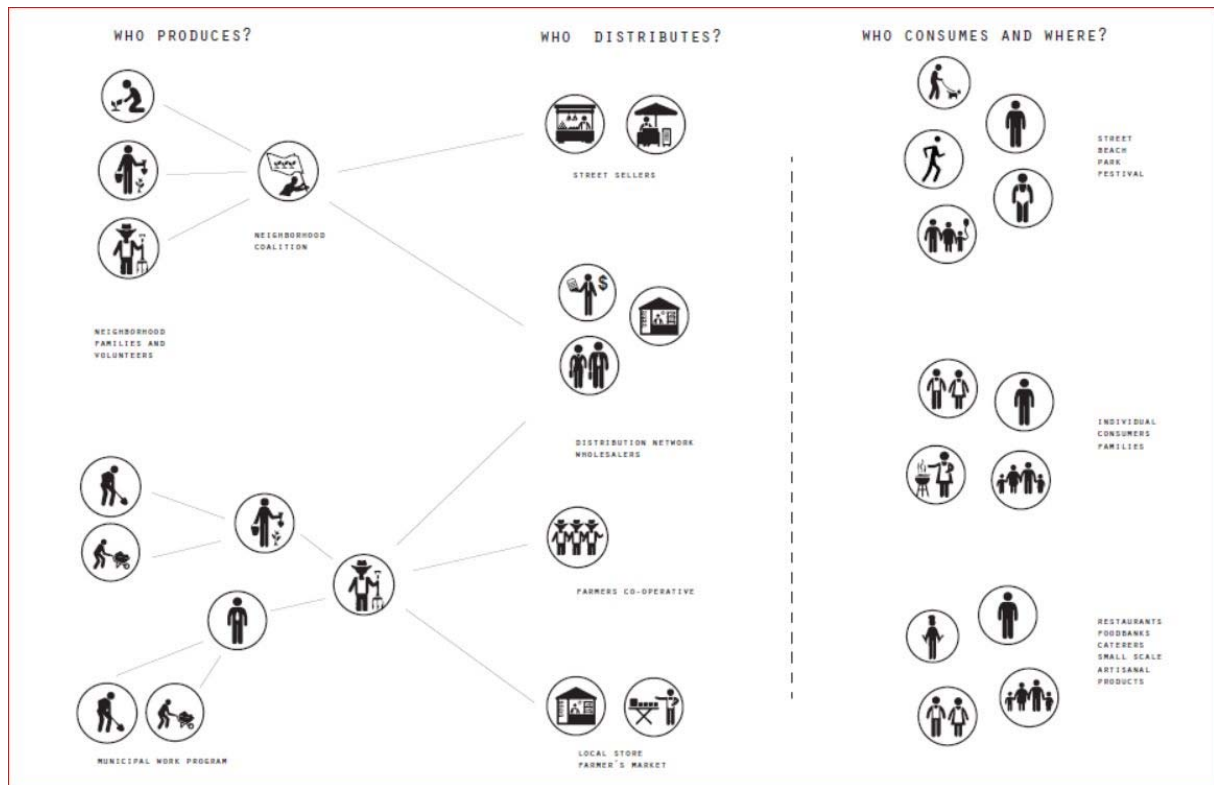
Figure 5. Short food supply chains illustrated above describe a broad range of food production-distribution-consumption configurations, such as farmers' markets, farm shops, collective farmers' shops, and community-supported agriculture, all dependent on the spatial and urban potential of the city. Image Jacques Abelman.

3.1 Praça Bernardo Dreher: suburban food forest park

Figure 6. A vision of the Praça as an intersection of recreational, community, and food production space. Image: Jacques Abelman

The Praça Bernardo Dreher is a good example of bottom-up and top-down meeting halfway. As the act of neighborhood guerilla fruit tree planting is integrated into the life of the park, social cohesion is increased. The results are accepted and even maintained by municipal workers. Augmenting this

practice could mean providing seedlings for free to those who want to plant them; almost all native fruit trees and medicinal plants are available at the botanical garden or the municipal plant nursery. A landscape architect or planner's role could be to coordinate these plantings into better designs than haphazard planting. It would take a small number of interventions to achieve this; information could even be posted on site. The resulting food production could be distributed between neighbors, or simply left to those who need or want it. Harvest moments create occasions for people to meet each other around meals or celebrations. Fruit can also be gathered for sale in other areas, from a cart or a small stand, or even brought to the farmer's market. Processed fruits become fresh juices, preserves, and a variety of other products with potential small-scale market value.

3.2   Vila São José: new partnerships for intensive production

Many residents in favelas have come to the city from rural areas to look for opportunity or are from families who left agricultural production to benefit from the economic possibilities of the city. Favelas are reservoirs of human labor and knowledge. The location of peri-urban favelas next to agricultural or public land makes agricultural projects potentially possible. Public projects could be created with land belonging to the University in collaboration with experts from agronomy and horticulture. The city could encourage entrepreneurs to start peri-urban agricultural projects by donating land, offering tax breaks, offering social support for worker training, etc. Here high intensity fruit production could create jobs as well as large quantities of fresh food to be brought to market in the normal distribution chains. Many of the native fruit varieties are not commercialized because they are either too labor intensive to pick, or too fragile to travel long distances. In a short food supply chain this problem is avoided. Fruits and berries could also be processed into a variety of products, from juices to cosmetics, to be sold locally.

Figure 7. A vision of a redeveloped peripheral urban space as a communal base for new economic and environmental projects. Image: Jacques Abelman

3.3   Praça dos Açorianos: a flagship project for the heart of the city

*C*idades sem fome,[7] or Cities without Hunger, as well as the Zero Hunger Project (FAO, 2011) relate to a governmental program called the National Food and Nutritional Security Policy (Chmielewska &Souza, 2011) concerning projects to combat hunger in cities across Brazil. In Belo Horizonte, the capital of the state of Minas Gerais, several farmer's markets allowing direct sales were established, as well as public kitchens serving extremely low cost nutritional meals. Nutritious and affordable food is deemed a right for all. These policies changed the identity of the city. In Porto Alegre, large and empty urban plazas could serve as the sites for urban orchards whose beauty and productivity, seen by all, would become a new badge of identity. Rows of native fruit trees would increase the beauty and leisure value of areas that were previously lawn or concrete, creating a new form of urban park. Because the maintenance of the trees and the harvesting of the fruit is labor intensive, many new jobs could be created not requiring intensive training or education but instead relying on basic agricultural skills.

Figure 8. Praça dos Açorianos as a reimagined showcase of native food bearing botanicals celebrating urban agriculture and giving a new identity to Porto Alegre's urban core. Image: Jacques Abelman

3.4   Downtown destination: an ephemeral market at the heart of the network

Every Saturday a farmer's market takes place in the Parque de Redenção, the major urban park of Porto Alegre. The masses of people coming to attend the market every weekend suggest that the city could support another market. There is a strong interest in health and food in Brazil; organic food is a strongly growing market. The central urban plaza of the Praça dos Açorianos could support an ephemeral urban agriculture market- a farmer's market for all the food and herbs grown around the city. The new market would be a vital link in the organization of the various food production projects across the city. As a platform bringing together many of the actors in the larger project, the market would become an anchor point and destination in a network that emphasizes economic opportunity and inclusivity across the city, as well as improving the overall urban spatial quality.

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[7] http://cidadessemfome.org

4. First conclusions

The practice of landscape architecture in this context moves from fieldwork and analysis to normative illustration of spatial change. The images and scenarios created through the design process are boundary objects, what Susan Star and James Griesemer (1989, pp. 387-420) define as "entities that enhance the capacity of an idea, theory or practice to translate across culturally defined boundaries, for example, between communities of knowledge or practice."

The intention of *Cultivating the City* is to frame the landscape architecture project as creative research endeavor that understands an urban context and makes a projection– through design– about best-practice scenarios. Large scale urban and landscape analysis create a framework for establishing the structure and linkages of the network. The network relies and reacts to the ecological as well as human capacity found within it. The project works on not only one site's potential but on many sites' potential, and how these differing assemblages of site and actors could be linked together in one system.

The principles of the emergent field of landscape democracy allow us to see urban space as a field of negotiation between people, places, and power. Within this field, finding the every day practices that link people and place make it possible to augment and connect these practices into a larger strategy. In this way the project has the potential to catalyze processes of urban evolution, with the landscape architect acting as a mediator. Based on dialogue, design, and the democratic ideal of inclusion, *Cultivating the City* works toward this vision for change as one piece of a complex process.

5. Acknowledgements

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