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The urban space is a world of (smell)stories ^[1]

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A sense is a physiological capacity of organisms that provide data for perception. Human senses, therefore, are the physical receptors through which every person experiences the environment, either natural or artificial. Humans, as with all animals, are continually in a sensory intake mode to process the world around them. There are five traditionally recognized human senses: touch, sight, hearing, taste and smell. However, for architects and urban planners, only two of these senses, touch and sight, normally are taken into account for their designs. Natalie Bouchard is a designer and researcher exploring olfactoception, the sense of smell, for the design of better places. With a B.A. in Environmental Design from the Université du Québec à Montréal with a minor in Architecture from the University of Strathclyde, Glasgow UK, and a M.Sc.A. in Planning

from the Université de Montréal, her thesis is about *the power of the smells to trigger various spatio-temporalities in the environment*. Bouchard agreed to share the most relevant insights of her research aiming to foster new methods for the conception of architecture and urban design.

What personal anxieties led you to choose your research topic? How did you become interested in smells?

My primary interest is the environment, and more particularly the intangible forces that frame the space. Through the lenses of urban design, I look into the relation between the space and our perception of it, in the way our minds are building the reality. I have become rather interested in the olfactory ambiances because smells link strongly to places and contexts in our mind. For example, if you have to describe me something that you smelled, you would most likely recount a moment that happened in your life, therefore the influence of smells is powerful in sketching the *identity* of a place. Also, smells are little traveling machines; they have the power to create what I call *Timescapes*, it means that they alter the spatio-temporal structure of what we perceive of our surrounding. Furthermore, unlike the other sensorial inputs, smells are not processed first by our intellect. To understand and assimilate the olfactory signals that it analyzes, our intellect works from images derived from our sensory impressions. So we are continuously drafting a book of (smell)stories in our head. A book of images that forms our own vocabulary of smells. Such dynamic vocabulary, in which spatial contexts are the letters, is very particular to each one of us. That is why it is difficult to have a common vocabulary of words for smells, because they are our own particular little word drops.

Why do architects and other city designers should pay more attention to the "smellscape" of the city? Why is it important?

The reality of the environment is shaped by the unstable ground of our memory, which encodes our experiences, our meetings and other associations lived at different moments. Its geometry is static but is constantly flooded by various atmospheres, which are dynamic. Therefore, the city is a succession of moments. The experience that we may have is dependent on the environment, the sequence of events that take place, and the memory of past experiences.

We get various signals from the world through five different channels, sight, hearing, taste, touch, and smell, and our intellect continually selects and blends together the signals it receives of a particular moment to merge them into something that makes sense to us. So, the reality is not a stable thing; I mean the perception of a space can vary greatly from one person to another as we keep a different memory of the elements that structure that space, because each of us is making sense of that space with his references.

In architecture, still today, many designers are more obsessed with managing how their concept will *look* instead of *lived*. Forms and circulations are taken into account but rarely the sensible dimensions that will be generated by those forms and the situations they will inevitably stage. When sound is taken into account it is because of acoustic requirements usually; if the tactile, it is certainly by request of the client; but smells? Almost never! Yet, what is built creates different ambiances. Therefore, I believe it is important that an architect ensure that all sensible dimensions are addressed when imagining spaces.

The multiple fluxes of smells creates a mobile and intangible topography in the city. The smellscape alters our perception of the spatio-temporal structure of the environment by drawing past and future spaces in the present moment. And these *timescapes*, which constitute the repertoire of the Theater of Olfactory Memory, offer great opportunities to urban designers to restructure the reality of the individual.

As you point out, the city is a succession of moments (personal experiences). How exactly does people create their mental maps based on smells?

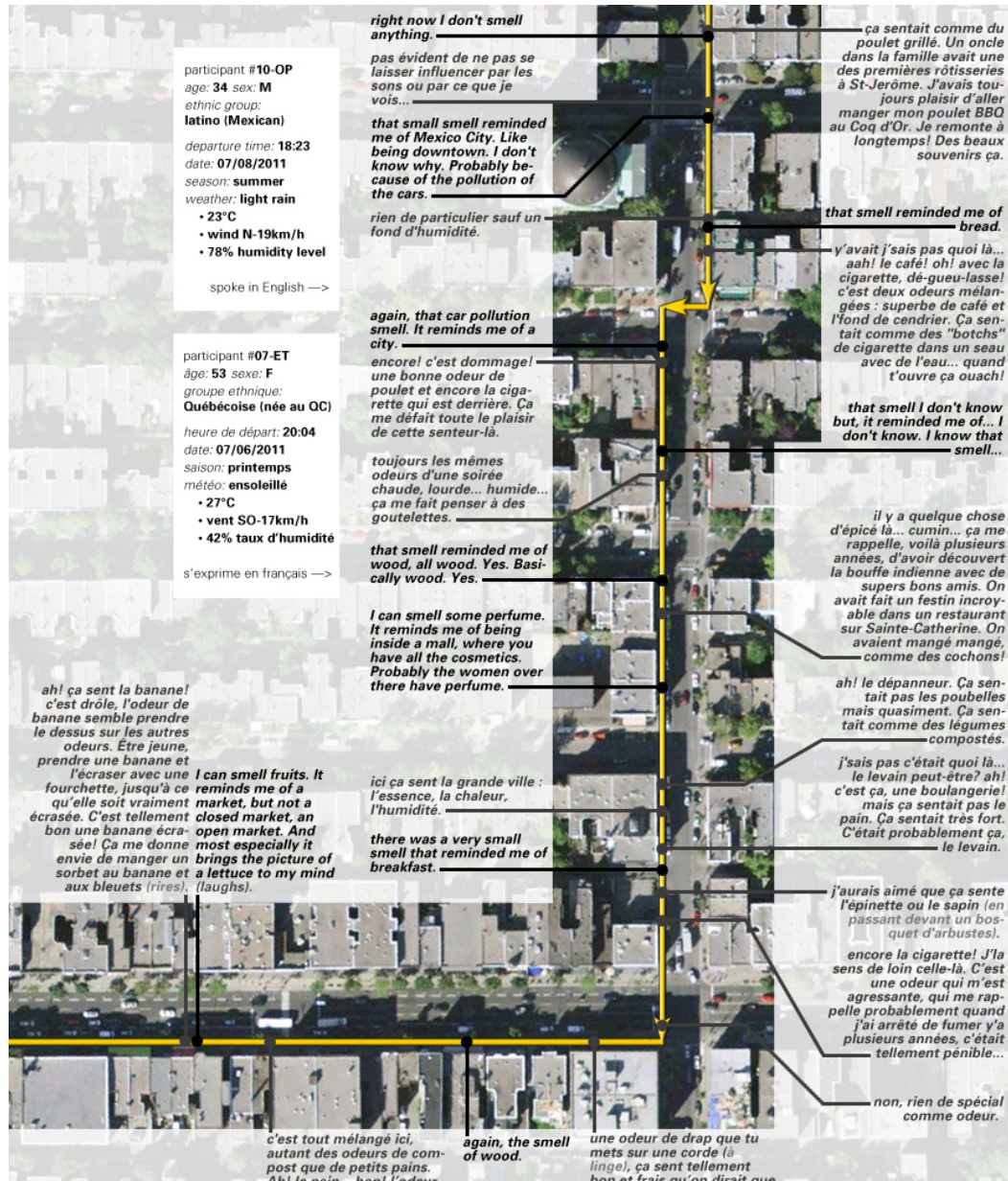
We continuously receive stimuli from all that surround us, tangible and not. And we make sense of what we perceive through the lenses of our experiences, knowledges, and attitude towards life. As for the smellscape, first it must be said that we never smell only one thing but a mixture of smells which creates a unique olfactory memory. Furthermore, that blend evolves in time, and moves in space, losing its strength gradually or rapidly depending of the movements of air. That said, the different odor molecules are not only at the mercy of the air velocity, but also strongly influenced by the humidity level and other climatic interferences, which alter not only their behavior but also their volume. So we go through a very dynamic and volatile web of smells when we are walking from a point to another, or just by simply being there in the environment.

How exactly does people create their mental maps based on smells? Well, we memorize what we believe is significant, and that souvenir, which is not the exact situation lived on that moment but the impression we have deducted from, will keep transforming over time following what we will experience in another moment at that same place, with a similar blend of smells, feeding in this way our book of (smell)stories. So the 'mental maps' we keep in mind are highly dynamic, they are changing, evolving, following not only our direct experiences with the smellscape, but also the way we are evolving as individual.

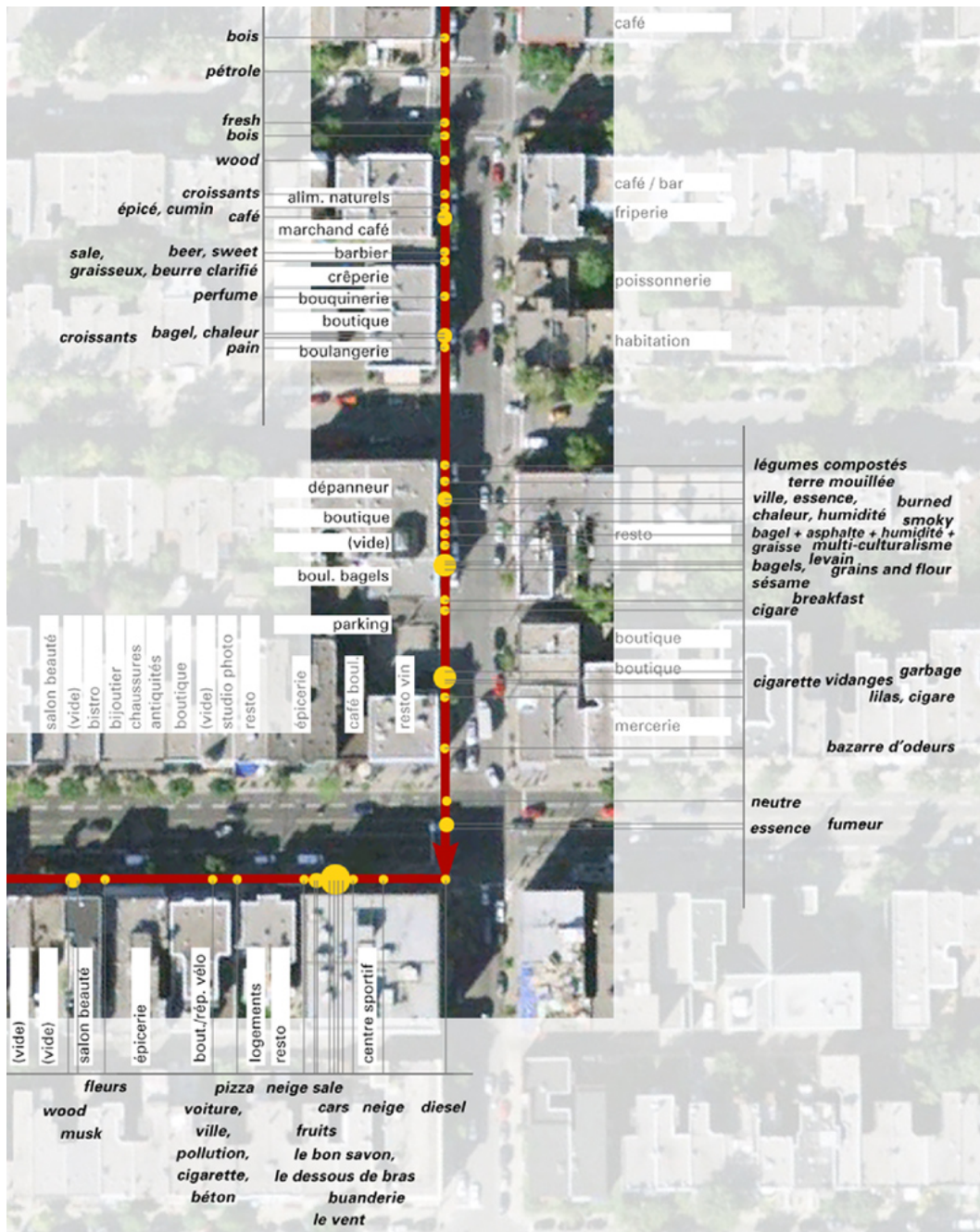
What kind of odors are more memorable in cities?

The olfactory ambiances are determined by the geographic environment, the climate conditions, the economic activities, and the human activity. So 'memorable odors' can vary greatly from one city to another. Within the framework of a research on the power of odors to shape our spatio-temporal perception of the environment [3], I did a field study in Montréal (QC, Canada) in 2012 to harvest olfactory memories and impressions from a various range of participants. Adopting a socio-anthropological approach striving to penetrate the logic of the individual, I combined a method that allowed the real-time narrative of a route: the commented course, to a tool that allowed to represent the thought of the participant: the mental map. The survey extended during three seasons, winter, spring and summer, to obtain the most complete possible spectrum of the smellscape as the climate conditions of Quebec between seasons change greatly. Taking approximately thirty-five minutes to complete on foot, the route allowed participants to meet with a variety of smells as well as various types of urban spaces. Thereby, I harvested a diverse range of expressions from the participants. The smells expressed more frequently and which made the participants react most sharply were the ones related to food (more particularly cooking & grilling smells, fruits, and spices.), nature (grass, dead leaves, flowers, the soil after the rain, ...), and pollution (mostly gasoline and cigarette).

By transcribing the oral data collected on an aerial map of the route, at the point where each participant had expressed it, it drafted a universe of narratives. The result exposes the intimate relationship that is built between the individual and the space he perceives. Thereby the compilation of these routes revealed the various levels of realities experimented by the participants for a same space. Moreover, it made an interesting sketch of one collective memory between people of different ages and cultural references.



Excerpt of two commented courses, one expressed in French, the other in English. Mile End neighbourhood, district of Plateau-Mont-Royal, Montreal (QC) — Le Théâtre de la Mémoire Olfactive <http://hdl.handle.net/1866/10040>
 © natalieb 2012



Excerpt of the final compilation of the smells expressed by the participants along the path during their commented course. Mile End neighbourhood, district of Plateau-Mont-Royal, Montreal (QC) — Le Théâtre de la Mémoire Olfactive <http://hdl.handle.net/1866/10040> © natalieb 2012

How does your project helps to shape an useful methodology for the design of better cities?

I believe in site-specific architecture. If you want your design to work properly, you must not only take the reading of the physical elements, but also gather the sensible informations scattered in the site, and let all these data influence and interact with your design, whatever you are planning on it: a building, urban furnitures, a public place, circulation / mobility networks, a park, etc.

Unfortunately, today's construction context is generally driven by a low budget which is closely linked to its short-time schedule for completion. This is a big problem because architects and planners have usually no choice but to focus on producing something that will (hopefully) work well on the site, making many important compromises to fit to the budget. However, in doing so it creates more expenses in the long run, for example: parts to replace / renovate after few years only because of cheap material choices; some parts need to be fixed afterwards to respond more adequately to its environment; ambiances problems need to be solved; etc. In short, and that is from a North American point of view, it would first be necessary to revise the way we are managing the fabrication of the elements that compose the city to allow the ambiances to be part of the program. Professionals in the field that succeed in doing so in the actual context are true dedicated souls!

That being said, my first aim in studying the olfactory ambiances is to give more tools and data to the ones who want to consider and play with the power of smells in creating dynamic spaces. There is still a lot to do in order to fully understand the impact of olfactory ambiances. Except for Victoria Henshaw who's book, *Urban Smellscapes: Understanding and Designing City Smell Environments*, have pushed the exploration further, and the International Ambiances Network which is developing the research field of architectural and urban ambiances, few have involved themselves in this particular domain. I hope my contribution to the field will evolve into something more and more substantial as my research progresses.

What is the current stage of your project? What plans do you have for the future?

Trained first in woodworking, my path has brought me through object design, architecture, construction, planning and urban design. Over the last years, I was fortunate to link with several researchers and scientists. And I have developed a special interest in seeing design through the lenses of Neuropsychology, Physics / Quantum Mechanics, and Biophotonics. In fact, my ongoing research on human spatio-temporal perception of the environment is deeply influenced by those fields.

My work has always revolved around the relationship between people and environment. As an urban designer, I specialize in envisioning and prototyping future scenarios that involve the city. Lately, interested in how we can arouse the interest and the participation of the citizen for new forms of performances staging the environment, I've rather concentrated my efforts on self-driven projects linked to the *Theater of the Olfactory Memory*.

Due to the difficulty for naming what our nose smells forces us to use an evocative expression to communicate a smell, I have focused on developing ways to gather smell impressions of individuals related to their environment, and that in order to create an archive or an open database of olfactory memories which can be consulted anytime by any one. Entitled Smellstories [4] the project is one part an on-line digital counter where participants can deposit the moments they have lived with certain smells; and another part, @smellstories [5], a stream where I transcribe what people are saying on smells on Twitter, and also quotes find in printed media.

I have also been developing activities and performances that invite people to explore the smellscape of different districts of the city of Montréal (QC, Canada). Here is one of the map that were given to the participants at Lire MTL 2013, which happened in Saint-Henri, a disadvantaged

neighborhood of Montreal.



Map handed to the participants. Part of Lire MTL 3 summer event, we designed this urban excursion which were leading the participants on the tracks of the smellscape of a disadvantaged neighborhood of Montreal (QC), Saint-Henri district. © natalieb 2013

Along the same lines, I have developed a new project called Smellcity [6] which is a repertory of olfactory tales told by points scattered in the city. By following the trail of words and smells, day or night, and at your own pace, you will go over the story. The first tale should begins somewhere in spring 2015. I am trying to get funds to produce the applet at the moment. So, if you your interest grew by reading this article, and would be interested to invest money in this project (or others) please get in touch!

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