Cosmopolitics: to “become within”

Dominique Boullier

To “become within” may look like a rather strange expression, except for those familiar with both the works of Donna Haraway and of Peter Sloterdijk. This is a hybrid expression based on the very powerful concept of “becoming with” coined by D. Haraway (2003) in her account of how we experience a new status of companion species. Haraway challenges the respectful attitude or the peaceful cohabitation between species, which are the traditional “humanist” view of species relationships, full of goodwill indeed but refusing to question the “natural” boundaries. She pushes human beings to let them become affected by their companion species (her dog is her preferred example) and to admit that a reciprocal transformation occur far from the domestication unilateral view of these relationships. This is a first step to consider the cosmos not as “out there” but as a constituent part of our existence. I add to “become with” the concept of “within” which encapsulates quite well the major insights of P. Sloterdijk (1998-2004) in his series of books called Spheres (bubbles, globes, foams). Sloterdijk (2011) produced philosophical masterpieces in his three-fold essay in which he explored the way human beings used to represent themselves in the cosmos through history, and how they managed the climate which they are embedded in, political as well as meteorological one. The main idea requires to get rid of the modernist view of nature, which is supposed to be external, and controllable by engineers and scientists, from their overhanging position. The trouble with the climate change issue is that we cannot get out of the picture anymore, since we are for a large part the ones who created the phenomena, introducing the whole earth in a new era, the anthropocene. The only shift that can help recover some understanding of what is occurring to us, would be to put ourselves in a position of “being within” and not out of the cosmos, nor able to master nature, as modernists used to do. As Sloterdijk puts it: “is modern the one who believes he never was within” (Spheres III, Foams).

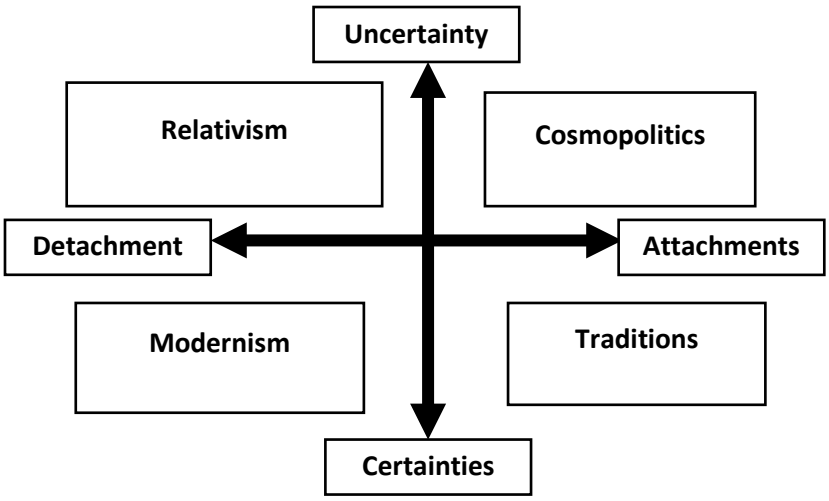
This is why this hybrid expression (to become within) seems a rather appropriate way to guide us in the midst of the complex assemblages that make the common fieldwork for cosmopolitics. The modernist view of the world and of what politics is about is immediately challenged. Cosmopolitics must be clearly positioned in the tradition of ANT and of the “composition work” required by Bruno Latour (2010) to better understand what modernism did to us as well as to the cosmos. Actor Network Theory, although very often interpreted in various ways, is often reduced to some concern for “non-humans” in social sciences studies. This was clearly derived from the works in sociology of science and technology which was the first investigation field of Law, Callon and Latour. But, beyond this starting point, ANT led us to acknowledge that no existence and no society can be maintained without these artefacts, and that cosmos and relationships with “nature” are more of a composition

style than of a mastership one. “Following actors” is another methodological rule of ANT that make us avoid any modeling attitude as would do a systemic understanding of ANT, especially frequent in the natural social science field. An ANT approach must account for all the reasons that make all kind of actors act, and to understand “from within” their rationale and the intertwined association they are able to build to make society exist. In this way, the method “from within” is congruent with the principles and explore the various agencies of all stakeholders without discarding any of them a priori. This is why an ANT cosmopolitical understanding of projects offers the opportunity for a major shift. Urban life cannot be separated from these concerns of cosmos and of modernist politics since it was largely designed as a relation of detachment from any kind of experience “from within”. The main resource for mastering the complexity of urban life was traditionally the 2D map where an overhanging view shaped the relationship with the world to be built, in a projection mode, a term used by armed forces to be deployed overseas. It might not be a mere coincidence that 3D vision software allowed us, for almost 30 years now, to adopt a vision from within. However, since we do not necessarily adopt the philosophy adapted to our technology, we may keep using 3D software as control devices to provide us with a more realistic display while still avoiding to be affected by the cosmos we explore. This is exactly what the conflict between the hero of Avatar and his commander in chief is about: understanding the Avatar world from within is not just a question of holographic technology one can perceive from within, but rather an ability to “become with” the Avatar people: “becoming within” at the same time as putting one’s own integrity at risk by becoming affected (and sometimes in pleasant ways, indeed!) by the whole planet Avatar as a cosmos. However cosmopolitics is not so easily summed up in this stereotyped opposition, very powerful storytelling but not exactly accounting for the complex composition process that makes up the very critical work of cosmopolitics. Expertise in composition is neither a specific scientist’s one, nor a superscientist’s ability to encompass the cosmic scale of issues! On the contrary, in order to understand what cosmopolitics is about, we must learn from the layman activity; we must acquire expertise in dealing with complex issues not only from a local point of view but with a localization skill. It implies connecting all concerns and actors and making them focus on one specific issue as Noortje Marres (2007) puts it. This is why the only way to get into cosmopolitics is to get embedded in some situations either as an ordinary actor, or with the light equipment of ethnography. It allows to be compelled to some reflexivity, provided that we accept to be embedded and affected. The four stories I will tell are examples of this view that transforms the process of research itself and avoids any positivist risk while inventing the tracing methods for accounting for such expertise. These remarks should be considered as guidelines for taming the escapism in abstract confrontations when using the cosmopolitical approach. Of course, one must acknowledge the filiations with Isabelle Stengers’ work as well as with Bruno Latour’s as I will explain, but without neglecting their pragmatist approach to which cosmopolitics should remain associated. The political responsibility of cosmopolitics is not to add new lines and papers to the literature but to become a resource for framing the only serious chance

of avoiding the forecast ecological catastrophes. By doing so, it delivers methods for sharing some know-how between world citizens who managed to invent a specific composition of their cosmos because they accepted to become within.

1. A cosmopolitical compass

A cosmopolitical view can by no means be one that could or should erase all other existing cultural and political frames. It cannot repeat such a harmful principle as the “tabula rasa”. On the contrary, it must be designed so as to be able to compose with the pluralism of points of view, since politics is about trying to build some kind of common world, even though it comprises conflicts and diversity of attitudes. How we account for these mainstreams of attitudes towards politics will shape the possibility of a composition or prevent it.



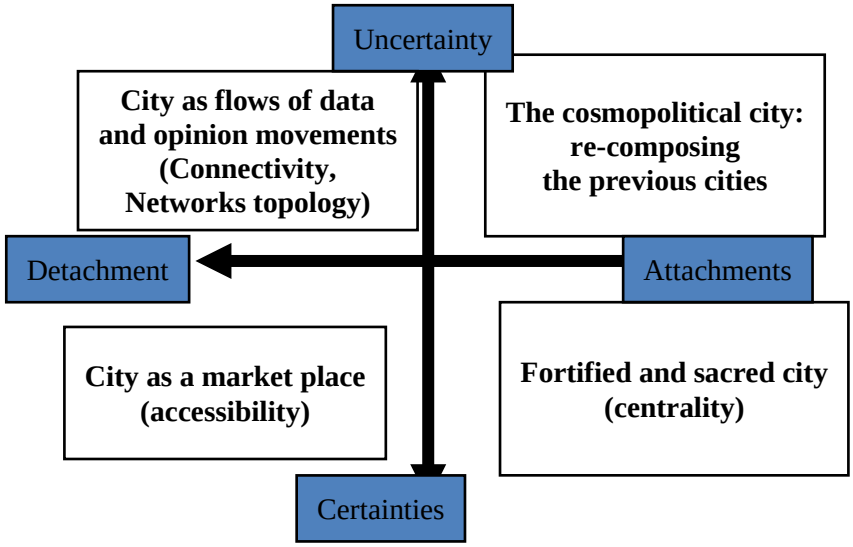
The theoretical framework of the compass is derived from the work of Isabelle Stengers [Stengers, 1996], which takes into account uncertainty as constitutive of scientific activity, but also of all contemporary human activities. It also originates in the work of Bruno Latour [Latour, 2004] and shows how our attachment to our cosmos, which is ordinary in traditional societies, has been broken down by the modernist project. This modernist project organised our detachment from the world in favour of the overreaching activity of science. All combinations are still possible, and political choices always offer many and various degrees of attachment and uncertainty. Some of these choices favour detachment rather than attachments, as does the modernist project that has oriented all its action towards detachment from traditions, with the aid of all-powerful science and technology [Latour, 2004]. Others

favour uncertainty, and accept to live with it as an opposition to other policies that seek to maintain or to recover certainties [Stengers, 1996]. Cosmopolitical is not cosmopolitan in the Kantian sense, but takes into account our attachment to the cosmos, i.e. to all beings, human and non-human, animate or inanimate, which populate the world. Cosmos here is an open question about the status of the relationship between entities from within the world and is opposed to Taxis, which is a clear-cut categorisation of the world from an a priori position. This traditional distinction in greek philosophy accounts for the various ways in which one can describe the world, either from categories, taxonomies and clear-cut definitions that are a priori projected on the world and made self-coherent, or from experience of relations generated by life as such. This opposition indicates that the way we think take always some shapes that are very difficult to overcome since it requires a meta-analysis of the very resources that make us think.

With the crossing of these axes, 4 elementary policies appear, which apply to all “issues”. For indeed this framework is only of interest on condition that it is adapted on a case-by-case basis to each individual problem, or each “issue”. It forces an identification of all the positions, even those which are sometimes hardly expressed, in order to bring to the fore possible choices that may have been overlooked or crushed by the obviousness of others. It is therefore, first and foremost, a heuristic tool and not a system for comprehensive classification and storage. Each of the policies merits an in-depth exploration each time because internal oppositions of the same type may be detected, according to a fractal scheme that is potentially infinite. A cosmopolitical design would have to explore these positions, even the ones encapsulated in each larger category in order to address the various ways of being concerned by an issue. It has to invent a way of composing solutions or proposals that are not supposed to become the enlightened or revealed truth but, on the contrary, that will help all stakeholders to become active participants to the design of the solution. The stories we’ll tell are made of these inventions that recompose each cosmos as a common world despite definite and unsolvable disputes. This means that there are always alternatives (unlike in the TINA dogma), provided that the cosmopolitical method and principles are adopted and that time is allocated for testing, debating, experimenting and deciding. Cosmopolitics is challenging the major

crisis of humankind and takes time to be explored, and obviously this opposes the real-time stressed way of doing politics in our opinion economy (Orléan, 1999).

The compass can be used in a historical mode, but it is not its only purpose. It can be considered for political choices or epistemic investigation as well. Understanding city in history as well as in functional terms by using the compass can lead to this table:



Centrality is one of the founding features of cities in history and is still relevant. Traditional policies will emphasize the qualities of traditional cities that were considered first and foremost as fortified and sacred. Those cities were also related to the cosmos in a way where transcendent links were displayed and critical for political power of all kinds. This is still the case nowadays, although republican or civil transcendences have become the main justification for representing centrality.

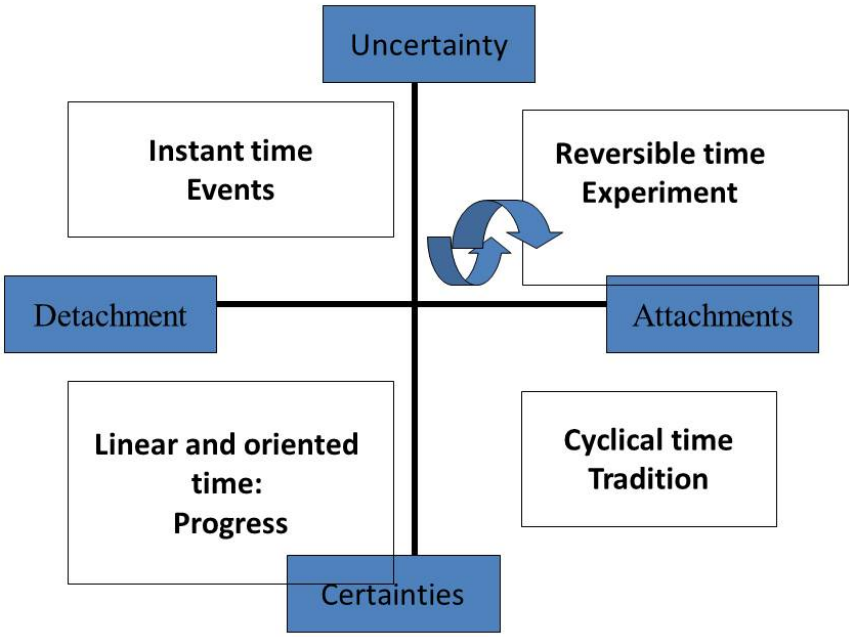
Accessibility is the second feature of cities that help to design the cosmos of cities as it challenges the centrality. During Middle Ages, cities became more famous and attractive in Europe for their markets and their opportunities for exchanges and business of any kind than for the central display of power and of sacred commitments of the community. This is one of the bases of modernism that was very powerful in shaping modern cities. It has been developed to such an extent with the car era, during the last century, that every traditional organization of cities was almost dismantled to allow traffic to flow smoothly. The conflict is permanent although the

two features - centrality and accessibility- represent the two main qualities of a space labeled a city (Lefebvre).

Connectivity appeared more recently as a third quality of cities. It has to do with the digital networks which give the city a new kind of life made of opinions and tastes, which are propagated not only by authorities (traditional communication) or experts (modernist management) but also by the very people and multitude that are concerned by the city in one aspect or another. Web sites, blogs and social networks, though not made of concrete, may have powerful influence on the images of the city. They may translate into attractiveness. Marketing is becoming a major actor in the city design; it uses opinion as a primary resource and networks as a way of disseminating it. Everything looks more fluid and adaptable on networks. Thus, conflicts may arise with other traditionalist views of the city as well as with modernist ones since they favor a more or less relativist view of the decisions, of the technical constraints. This is where cities must learn to accept uncertainty and to tame their faith in progress through technological control.

These 3 conflicting and competing views of cities still exist and there is no chance to see one of them disappear. As a result, political debates often seem too stereotyped and do not offer any opportunity for moving the conflict lines. Proposing a cosmopolitical city does not mean delivering one and only scheme that will solve all previous problems. On the contrary, it will require designing the relevant arena for each specific dispute or controversy on each issue, because all entities related to this issue must be part of the assembly. Technical solutions, traditional resources, opinions, and stakes are as relevant as others and proposals will have to account for the positions of each set of entities that are aligned along with traditional, modern or relativist points of view.

These pluralist worldviews are so deeply rooted that they show in the way urbanites consider time policies.



The contrast is quite clear between the policies that are competing in the same cities and composing the local style of time policy. Rituals and ceremonies coexist with emphasized timelines where the city progresses according to many indicators. Events are not ceremonies anymore because they must challenge the repetition and try to create attractiveness of a new kind (Boullier, 2010). But the most promising and difficult mode to implement is one of experimentation, which may look strange, when labeled as reversible time. However, experimentation is the only way to learn from our errors, to improve, and create a positive circle for second modernization (Beck, 1997) therefore enabling us to consider the consequences of actions through a model and political choices. This is what cosmopolitics is about: learning from one specific skill of scientists, the experimental method, allowing us to organize the contest of their proposals, to challenge them collectively and to revise their preset views of the world. This method is not doomed to remain scientific; it should become the very learning process of policies, although designed for different purposes. We'll see that no cosmopolitical policy ever succeeded at first hand, or at the first try. The learning curb is precisely what differentiates policies that are able to revise and improve their principles.

"Diving into the magma" of these issues is a pre-requisite in order "to become within". We will provide thick descriptions of various situations where cosmopolitical design made use of very different resources: how to regulate an overcrowded canyon in the Pyrénées from an neighbor point of view without getting trapped in the NIMBY syndrom? How to invent ecology as a science by experiencing from within the skills

of the fishermen on the river Illinois? How to design a high environmental quality residential building by combining hi-tech and traditional material such as clay? How to propose new methods for a student experience in order to tackle complex and uncertain controversies? The methods of assemblage are not the same, the resources and the issues are far from similar but, for each of them, the art of cosmopolitical design relies on becoming within.

2. The leisure load rate of a canyon or how to use traditional resources for inventing cosmopolitical solutions[1]

The Llech canyon cannot but seduce canyoneers as well as tourists for both its technicity and its wild beauty.

Fig. 5.4 Legend: The Llech Canyon in French Pyrénées

It became so famous in the Pyrenees region that large buses started to download dozen of groups of first time canyoneers. The village at first found it a favorable change in their isolation. No concern was raised against the damage caused to the environment although almost no business was created thanks to this notoriety: most guides were hired in other places by tourism companies. But some issues began to arise: buses were so many some days, that the village experienced huge traffic jams, something they could not have imagined in a village of 200 inhabitants. The

[1] This story was recorded and told by Gauderique Delcasso to Christelle Gramaglia and Audrey Richard and was published in french in Gramaglia and Boullier : l'eau, un bien commun à composer, Cosmopolitiques n°17, 2009 (available on line on www.cosmopolitiques.com

companies were so successful in attracting tourists that some days, canyoneers had to wait 2 hours before a jump or a toboggan was available, thus threatening the quality of experience of the traditional canyoneers and their local guides.

Fig. 5.5 Legend: Traffic jam in the canyon: a crowded river is not a river anymore

One of the river's neighbors considered time had come to regain some control over the area and the activity. He was mainly concerned by the rapid destruction of the river itself when hundreds of people go hiking or swimming in a very fragile ecosystem. He tried to convince local inhabitants, as well as the mayor, especially focusing on buses issues. However he failed because no one wanted to be the one obstructing progress and village activity. Gauderique, a tall slim man with a constant sense of humor but also with a very strong confidence in his ability to make his will recognized, discovered fortuitously that he was the only owner of the area immediately next to the river -- a very steep and wild area with only trees and rocks, but also including the only accesses to the river. It meant that every group willing to access the canyon had to cross the land owned by Gauderique, this obligatory passage point. He fiercely decided to use this rather traditional lever, private property, for the sake of the river. Some neighbors thought he would try to make money by charging the groups that crossed his land. But this was not what he meant. He decided to implement a local regulation stating that any group willing to use the river and therefore cross his land would have to write a request mentioning the number and identity of people involved. And he added a clause that was pretty well tailored to protect the river: two days a week, canyoning would be forbidden in order to allow the river to recover from the intensive disturbance of the other days. When groups broke that rule by not declaring their visit or by coming on closed days, he

asked a bailiff to officially record the transgression by taking pictures, names, and all information required to prosecute the trespassers. He was so successful because he did not forestall canyoning activity but regulated it for a more sustainable use of the river. Using the legal status delivered by the courts, he was in a position to ask officials to control the offenders and fine them. At the same time, he improved the scientific justification of his action by coining a new term, the “leisure load rate” of the river, in order to avoid being trapped in a local conflict. Such was his success that many national environment associations soon adopted his concept and his set of indicators and he finally got elected to a national council in charge of these issues. All these very quiet but determined decisions had an immediate effect on tourism companies that decided to leave the area, concerned by trouble and potential costs.

How could we consider this as a cosmopolitical way of dealing with an issue?

First of all, the solutions were not at hand because Gauderique, our hero, managed to invent one of his own. If all issues were waiting for a stock of traditional responses to be given, no politics at all would be needed. Building a common world where all stakeholders find their place requires some imagination and creativity, something that is not so well taught in our education system. Inventing solutions means being able to move from one field to another (cosmos) without any prepositioned division (taxis): legal aspects are combined with (quasi) scientific indicators and mixed with very practical matters.

Second cosmopolitical feature: the relationship with the so-called nature is neither reduced to wild open space for leisure nor a sacred untouchable world. We live within the nature, our activities can hurt it, and we weave a web of connections with nature whatever we do. The main political attitude consists in becoming aware of the responsibility we have and manage it. The problem is that this attitude is not so easy to design when entering a new field or area: no rules, no indicators, no representatives can tell us how best to control ourselves. On this ground it is easy to adopt the most simplistic and coherent attitudes: no trespassing at all or freedom in a wild playground. The trick invented by our compositionist expert is a very diplomatic move: save two days for the river to recover, which is much more complicated for those who want dogmas or recipes. By doing so, it does not solve the issue, i.e. it does not make it disappear from our consciousness: it raises everyone’s awareness of the impact of canyoning activity, just by having to check which days are off this week or this month.

Third cosmopolitical feature: the compositionist attitude does not lead to a vague consensus that would not satisfy anybody. It makes everyone’s behavior move from the start without avoiding conflict or any form of legal constraint. We cannot rely on an arrangement model where trade-off lets stakeholders behave the way they want, provided that the consequences are compensated in one way or another. The conflict was not violent but acknowledged and produced interesting outcomes: a more peaceful place and improved relationships between local citizens and the river.

One of these outcomes is worth stating: the companies that used to benefit from this wild and free leisure park known as a river, when expelled from their playground (although not so much expelled as regulated) decided to build a place of their own from scratch. They designed a canyoning park, a leisure park with artificial rocks mimicking the river, with guides at each point who are able to handle massive flows of visitors, and this on a day and night basis!

Fig. 5.6. Legend: The modernist solution: a canyoning park. No more attachments, no more uncertainties.

This is the best demonstration that their understanding of "nature" rested upon transformation and control of any risk so that it fitted into the project and business constraints. Making nature obey business requirements is not so easy when someone emerges as its spokesman, or when the feedback and consequences must be faced, which often means too late. By building this leisure park, tourism companies were able to get rid of attachments as well as uncertainties while securing a regular business, typical of the modernist view of nature. Extracting the relevant features of nature from their cosmos allowed the creation of a simulacrum controlled from an overhanging position. This is not just a criticism of this attitude. It also means admitting that the composition work might fail if not favored by the companies that left the controversy area, and preferred to build their own park. All solutions are related and the success story should not deny the benefits of dividing the stakeholders in two groups and letting them occupy different and not competitive fields. A cosmopolitical analysis cannot dismiss some "externalities" as used to do economics.

3. A cosmopolitical design of scientific activity[2]

[2] This story is based on Daniel W. Schneider' paper: « Local Knowledge, Environmental Politics, and the Founding of Ecology in the United States : Stephen Forbes and 'The Lake as a Microcosm' (1887) », *Isis*, vol.91, n°4, 2000, pp.681-705. The original work by Forbes was published as Stephen A.

Our second story will be quite different and will rely on David W. Schneider's account of Forbes' creation of ecology as a discipline in a paper called "the lake as a microcosm" which captures quite well the essence of Forbes' work. The field study triggering this new discipline, ecology, was conducted along the Illinois River and its lakes where fishermen used to capture significant amount of fish. According to Schneider's account, it was not the story of a dazzling discovery or a long battle to build sophisticated labs, as we used to read in mythological stories of science. It was much more a question of embedded science, embedded within the everyday activity of fishermen. And this experience seemed to be rather painful for Forbes, whose letters to his wife told for instance the permanent immersion in a smell of dead fish, disgusting even for a robust scientist as Forbes. The relationship with ecology and the understanding of fish life cycle might seem quite loose but we have come to understand how crucial it was because it gave Forbes the perspective of a community member able to capture the rationale of the fishermen's fishing strategy. They built small traps adapted to the flows of the river, always changing and invading lakes from time to time. The fish they captured appeared to have a different diet from the fish arriving from the river.

Fig. 5.7 Legend: Legend: Seining on the Illinois River, Beardstown, IL, July 1908

Forbes got the opportunity to record this ordinary knowledge from within only because he admitted that fishermen were the best experts in understanding the "milieu", because they lived within this cosmos, as the title said ("microcosm"). Forbes grasped the very meaning of this expertise because he spent years living within the fishermen community, ever closer to these dead fish that dropped beneath his room - fish that contained the clues for the discovery of the diet changes. This immersion was not an a priori choice but the consequence of his inquiry, in which he accepted to be trapped. At the same time he was able to describe sophisticated

---

Forbes, « The Lake as a Microcosm », *Bulletin of the Preoria Scientific Association*, 1887, pp.77-87. Schneider's paper was translated and published in French as Daniel W. Schneider « Savoirs locaux, politiques de l'environnement et développement de l'écologie aux Etats-Unis. Les travaux de Stephen Forbes sur « Le lac comme microcosme » (1887) », Cosmopolitiques, n°17, 2009.

biological phenomena and to design the concept of “milieu”: by getting immersed within it and not overhanging it or extracting “facts” from experimental processes that would have missed the key point. His personal involvement was crucial and did not stop to this anthropological attitude ethnomethodologists would have appreciated. He became part of the social movement of fishermen who were confronted with the landowners’ claims to increase their land surface by draining what landowners considered non-valuable lakes for the benefit of more hunting territories. Forbes agreed to write for the court reports explaining the critical role of lakes for the whole ecological system of the river and to prevent its destruction. He managed to delay some operations but failed in a large extent.

However this casted an interesting light on the birth of ecology: it was not designed as a systemic modeling science, as modernists would have done using their powerful tools to build relationships among entities from their overhanging position. This understanding was much more the result of a personal experience of being embedded within the milieu Forbes was supposed to study, and the effect of a non-separation a priori between biology, climate, organization, market and so on. Nowhere could we find a purification process as we used to observe in the modern view of science that required a full separation between science and politics. The story is not of a scientist who becomes aware of political issues and adopts a militant attitude. It derives completely from Forbes’ cosmopolitical position where knowledge cannot be disconnected from the public concerned and from the various entities that populate the cosmos and that might be in conflict. There is nothing such as a distance or objective position, unless you take enough time to consider the various points of view from within and agree not to reduce them.

The cosmopolitical design of a new field of science does not refer to interdisciplinary discourses but to the composition of issues that would produce ad hoc delimitation, in the case of the lake, the delimitation produced by the fishermen and by the fish that connect the various areas of the river.

4. The design of envelopes: a traditional hi-tech building

The design process of a scientific activity can be considered as the need to recognize the status of “being within” as the key point for understanding a milieu. It means that without any action we, humans, are situated within a cosmos and would do better admitting it for political choices. However, some may argue that human beings are famous for transforming this so-called “nature” and for using technical expertise to build interiors of their own. That is what architects are experts at and the political side of their activity is sometimes admitted but often rejected for the sake of art purity or of technical performance. The story of a high environmental quality building will try to emphasize the very complex composition work to be done in order to adopt a cosmopolitical design in architecture.

In this story, I will adopt a position close to Forbes' one as I was personally involved in the project, being the deputy mayor who decided to implement these models of design and who set up the whole consortium to achieve it. By experiencing this process from within, I am able to account for the many changes, compromises and controversies that occurred. Salvatierra is a 5-floor building of 42 apartments in a northern suburb of Rennes, the capital of Brittany in France.

Fig. 5.8 Legend: A controversial project: 42 « high environmental quality » appartments

I launched the project in 1995 and it was delivered in 2001. It was the first housing building of that size to adopt high environmental quality standards in France while many of the same kind already existed in Germany and Austria for instance. The standards themselves did not exist as such and the choices made were quite original. The building was made of clay, hemp, and wood. It was rather challenging for the local decision makers, although the local tradition of clay housing is centuries old and the energy performances of these materials quite well documented. However it obviously challenged the modernist model of building where concrete, metal, and glass are the key resources despite their well-known weak environmental results. However these choices were not made for the sake of tradition, and promotion of local expertise. First, the complexity of using clay for a building of that size obliged the small company that was expert in clay to design a new process to produce large bricks adapted to the size of the building.

Fig. 5.9 Legend: Reinventing the tradition of clay with large bricks

This was a cosmopolitical choice in the sense that tradition had to be considered as valuable and at the same time reinvented in order to fit into the general design. Second, tradition was used as a resource because of its performance, and this had to be controlled and not just taken for granted or as a dogma. As a result, a whole set of sensors was installed to assess the quality and the performance of the whole construction. One apartment was fully equipped and devoted to this calculation -- a very modern style of putting one's belief to a trial, as science is familiar with. Third, while traditional techniques and materials were used, the project managers chose for their energetic performances the most recent glass windows, a 3-layer kind of glass, including argon among other gases within its layers. This material was produced in Germany, and was not so neutral in ecological terms, but it was the only material able to meet the requirements of the project, in terms of energy saving. This is a significant move towards cosmopolitics because the composition between traditional and high tech technical systems is the only solution to reach high-level performances for ecological purposes.

This may look like a local project, very well rooted in local political stakes and very difficult to transfer to any other location. In fact, a project cannot be labeled as local when the technology used may come from foreign countries, and when funding had to be sought at European level. City decision makers (political and technical ones) were quite skeptical regarding the choice of materials and even the relevance of this kind of ecological objectives for new building techniques. Due to that reluctance, the main members of the consortium (the developer, the architect and I) had to look for seed money at the European level. They managed to convince the European administration to subsidize the project for 2 million francs, which amount to 350,000 Euros. As soon as the project leaders could show the support of important technical and political European authorities, the local ones were more willing to launch the project. This is a very classical case of "detour" required for attaching stakeholders to interesting parts of the network (Callon). Cosmopolitical design is always confronted to the need for aggregating resources of various kinds in order to compose alliances that become convincing. The project cannot be labeled as local only because of the

combination of levels it required. For instance, the sensors were able to trace all climate indicators but they could not account for the noise produced by the VMC, dual flow ventilation, which was required in order to reach the performances in energy saving. Only the inhabitants could report on this phenomenon that seems a minor one but is in fact significant of the problems of designing envelopes (Sloterdijk). What is important in a cosmopolitical design is to experience the building from within and not only with the technical resources of calculation. And it appears that all good intentions are not sufficient to track all the details from within. The quality of the envelope depends on a very complex set of features and decisions should include tests with real people and revisions of the original design as long as the outcomes highlight some problems. The political assembly required by cosmopolitical design is more complex and time consuming than the modernist one, made of experts' advices and indicators. Even in the case of this project, rather clearly oriented towards the exploration of new ways to build housing that would meet sustainable development requirements, the assemblage work missed to some extent the point of participation, despite the legal status of cooperators of the inhabitants from the moment they bought their apartment and even before its construction. Choices like heat recovery ventilation were not discussed and the consequences were not assessed nor considered as a potential trouble for the experience of the envelope. This flaw in the process should make the cosmopolitical designers aware of the on-going process in which they are getting involved. While they adopt a point of view "from within" they have no opportunity to escape in any other way than betraying the expectancies of the public they assembled. Revision is a part of the cosmopolitical design (Boullier, 2003b) that should be anticipated though it is not easily done when confronted to non-reversible decisions. However, even these flaws and the constraints preventing revisions should be part of the association process.

5. How to train cosmopolitical vision: educational design

Discourses and pressures of various kinds would not help elites and decision makers to change behaviors and make them more prompt to consider the cosmopolitical perspective. The need for a specific method of education led to the design of a specific innovative program for the students of some institutions in various schools and universities all over the world. Forccast[3] (Formation par la cartographie des controverses à l'analyse des sciences et des techniques) was designed following Bruno Latour's view of controversies as a key resource to train students to explore the issues which sciences and techniques are made of. He invented a method that was directly inspired by his own works in the fields of science studies and innovation research, inventing with Michel Callon the "actor network theory" that became so famous. Controversy mapping is not only a way of directing students' attention on sciences and technologies. It is not just putting them in a more active cognitive attitude. It means addressing the critical issues of our time, which are complex and

[3] This project, funded by the french government, is supposed to last until 2019. Bruno Latour and Dominique Boullier are in charge of the project that can be followed on this address: http://forccast.hypotheses.org/

made of uncertainty, and helping students learn how to find their way in this environment without the trust, the fears or the skepticism that are the traditional attitudes towards “ready made” science. By exploring controversies, they adopt a view of science and technologies “in the making”, which means from within, observing all points of views, debates and fights but in a much more documented way. They are able to trace scientific arguments, to follow actors through their statements in the media, to observe the evolution of public opinions by mapping web conversations, and so on. This method was successfully implemented for students in architecture at Manchester University[4] and well documented in Yaneva’s book, the first one to explain the backgournd and the outcomes of the method. (Yaneva, 2012). Moreover, in the Forccast project, students have to publish their documents, their investigations, through web sites or videos that would help the public or their peers find their own way in a specific controversy. This is why relationships with the media are changing so fast: all media are used to publish photos, videos, comments, or blogs but, in traditional education systems, this publication is not worth becoming a part of students’ academic activity. On the contrary, a cosmopolitical educational design must rely on the extension of capabilities (Sen) by teaching students video and web literacies, which means reading and writing at the same time.

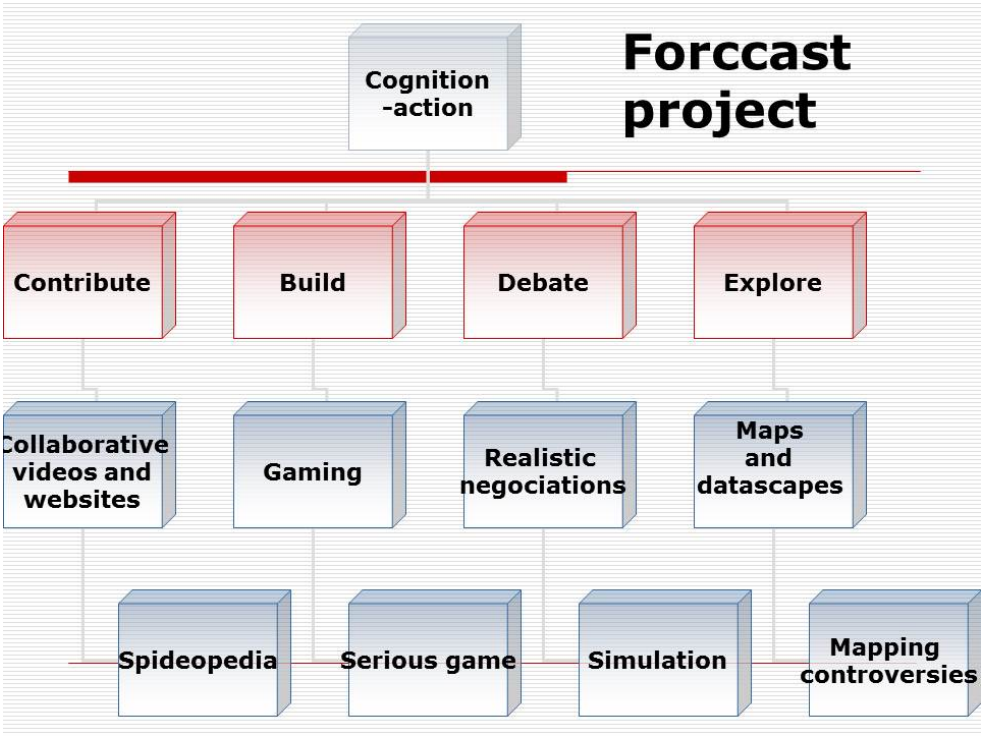


Fig. 5.10 Legend: the general program of the Forccast project (launched 2012)

Last aspect of the project: the products of these educational assignments are not supposed to remain confined within the university world. Controversies and all the publications associated to them must become resources for debates, public ones, real or simulated, and for theater plays in order for students to get much more

[4] See www.mappingcontroversies.co.uk

immersed into controversies. There is a risk of being trained to get involved in controversies with a rather distant attitude leading to the modern understanding of knowledge, made of rational arguments, using only language skills and written documents as resources. In the Forccast program, knowledge is always closely coupled with action and must be experienced as an embodied knowledge. For instance, during role-playing games on the ebook industry, a course created by P. Mounier, students were asked not only to express themselves as one of the stakeholder of the field (Amazon, Apple, Barnes and Noble, Fnac, authors, bookshops, editors and so on) but to play the role of a specific person in these companies, whose names and biography are well known. The director asked them how much they earn, how their love affair with their colleague is going, and he organized a contest where students must use every argument to criticize and mock one another. By doing so, he introduced aggressive behavior as a normal feature of the situation, and obliged the students to embody their knowledge in order to make them tackle the situations. The choreographer did the same for seduction attitudes. Students find a way to make their knowledge livelier, preparing them to situations where arguments are not made only of rational discourses but full of aggressive or seductive clues. Any politician or project manager would have acknowledged the realism of this scheme while everyone would still escape in traditional educational programs made of canned knowledge, secluded from the body and passions.

The continuity of the methods we designed is set for a complete renewal of the cognitive attitude of students. It is supposed to help them address in a more subtle way complex and uncertain issues they will experience in their jobs. Exploring, publishing and debating are part of the cosmopolitical skills that are still underestimated in the traditional education system. This method is clearly related to the principles of cosmopolitical STS that are taught during the activity: they have to deply their own agency and get involved in the controversy in order to experience how science and technologies are made of statements and bodies, connected and conflicting ones.

Conclusion

These four stories seem quite different and they may produce confusion in the mind of the readers who believed cosmopolitics was about “nature”, or about “diplomacy”. There is no limitation to the fields of invention in cosmopolitics. Some key words may help them find their way: composition, assembly, pluralism, invention, issues, empowerment, public, association of humans/ non–humans, revision, non-modern, and so on. But we still miss a method for design in general terms. The compass is a first step that may help to apprehend all solutions and attitudes available on a specific issue and open a more pluralist view of the stakeholders and solutions. But it is only the beginning of a cosmopolitical design. The methodology to explore the issue, to assemble the entities concerned, whatever they are, to extend continuously

the awareness of excluded communities, and so on is different in every situation but still relies on the same basic principles. They can be summed up by the term we used: “to become within”. To “become” because it is a process and no one knows the solution, the outcome or the aftermath of a controversy, of a project. Accepting to be affected and transformed is a prerequisite that is true in all the stories that were told in this paper. Becoming “with” is putting one’s own trajectory at risk: it is not a matter of having a project and “becoming” from one’s specific point of view. It means accepting that uncertainty is radically increased under the influence of the other parties involved in the situation, humans and non-humans, visible and invisible, official and unknown… Adding the term “within” reorients the sense of the shared experiment that is at the core of any cosmopolitical design. Each of the stories insists on the need to quit any external or overhanging position and to start by recognizing how we share a common world -- a cosmos -- which is not “out there”, because we are within it. And the major stake of a cosmopolitical design consists in finding the right shape, size and climate of the required envelope for the common fate to be accomplished and experienced. Sloterdijk is the most famous expert analyzing the various shapes and composition of envelopes and his main concern is always to find out how human beings as inhabitants of a cosmos are able to design livable environments that take care of every entity, by creating a climate where life is flourishing. This is what cosmopolitics is about.

References

Beck, U., The reinvention of politics: Cambridge: Polity Press, 1997.

Boullier, D. , Déboussolés de tous les pays ! La boussole cosmopolitique, Paris : Editions Cosmopolitiques, 2003. Available on www.cosmopolitiques.com

Boullier, D., « Incertitude, cadrage et révision. Théories de la communication et projet urbain », in Frédéric Seitz et Jean-Jacques Terrin (eds), Architecture des systèmes urbains, Paris : L’Harmattan, 2003b, pp. 141-167

Boullier, D., La ville-événement. Foules et publics urbains, Paris : PUF, 2010.

Callon, M. 1986. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay." pp. 196–233 in Power, Action and Belief: A New Sociology of Knowledge, edited by John Law. London: Routledge & Kegan Paul.Sen, A. 1999. Commodities and Capabilities, Elsevier, Oxford.

Gramaglia, C. and Boullier, D. (eds) , L’eau, un bien commun à composer, Cosmopolitiques n°17, 2009

Haraway, D. The Companion Species Manifesto: Dogs, People, and Significant Otherness, Chicago: Prickly Paradigm Press, 2003

Latour B. (2010), Steps Toward the Writing of a Compositionist Manifesto, New Literary History, Vol. 41, 471-490, 2010

Latour, B. (2004) Politics of Nature -How to bring the sciences into democracy , Harvard University Press

Latour, B. (2005), Reassembling the Social- An Introduction to Actor-Network-Theory, Oxford University Press.

Lefebvre H., Espace et politique. T2. Le droit à la ville, Paris, Anthropos, 2001.

Marres, N. (2007). “The Issues Deserve More Credit: Pragmatist Contributions to the Study of Public Involvement in Controversy.” Social Studies of Science 37(5): 759-80.

Orléan, A., Le pouvoir de la finance, Paris : Odile Jacob, 1999.

Sloterdijk, P. Bubbles: Spheres Volume I: Microspherology, translation by Wieland Hoban, Cambridge, MIT Press, 2011

Sloterdijk, P. Sphären I – Blasen, Mikrosphärologie, Frankfurt/M.Suhrkampverlag 1998. 644p.

Sloterdijk, P. Sphären II – Globen, Makrosphärologie, Frankfurt/M.Suhrkampverlag 1999. 1013 p.

Sloterdijk, P. Sphären III – Schäume, Plurale Sphärologie, Frankfurt/M.Suhrkampverlag 2004. 916 p.

Stengers, I., Cosmopolitiques, Paris : La Découverte/ Les empêcheurs de penser en rond, 1996 (7 tomes)

Stengers, I. Cosmopolitics I, University of Minnesota Press, 2010

Stengers, I. Cosmopolitics II, University of Minnesota Press, 2011

Yaneva, A. (2012), Mapping Controversies in Architecture, Farnham, Ashgate Publishing Ltd.