

Organic Metaphors and Urban Causalities

BENEDIKTE ZITOUNI

Organisms and action patterns

What if city development were equated with that of an organism? What if the organism served as a metaphor for urban investigation? It might be worthwhile and it is a course that I have taken in my own work, concerned with the 19th century development of Brussels and its planning tools¹, but it requires much tact and caution. For metaphors, as the mathematical biologist Evelyn Fox Keller argues, are not models, not analogies, not simulations, not comparisons. They are vague, unstable and literary sometimes. They do not point to similarities that concern the entire set of characteristics of the two given systems but pinpoint only one possible similarity that is underscored for the sole purpose of stimulating the investigator in her explorations.² In other words, it doesn't matter whether the metaphor is true or not – of course we all know that the city is not an organism – but to posit that it is so might help us to investigate one specific subject with a little more imagination. It opens up the possibility for sidetracking, i.e. deviating from the perspective of urban studies and sociology into the field of biology and life sciences. The subject in need of such imagination and sidetracking, is, in my case, causality.

The hunch is an old one. Many authors concerned with cities have linked causality to biological findings and natural sciences. At the beginning of the 19th century, the Edinburgh School held eco-systemic and evolutionary views on cities in order to amend local surroundings and trigger civic acti-

1 | Zitouni, Benedikte, *Agglomérer. Une anatomie de l'extension bruxelloise (1825-1915)*, with a foreword by Eric Corijn and an afterword by Bruno Latour, Bruxelles: Academic Scientific Press & VUB University Presss, 2010

2 | Fox Keller, Evelyn, *Expliquer la vie. Modèles, métaphores et machines en biologie du développement* [2002], Paris, Gallimard, 2004, pp. 137-138

on³. In the 1920's, the Chicago School defined the city as an organic entity in order to show that it was not planned for and could therefore not be tackled by mere mechanical engineering or political programs⁴. In the last decade, the Harvard Project links urbanism to cybernetics and to theories of complexity in order to show the functioning and patterning of urban regions⁵. The city needs breadth of vision, the city is social metabolism,

3 | Geddes, Patrick, *City Development, a Study of Parks, Gardens and Culture-Institutes*, Edinburgh: Geddes and Company; Birmingham: Saint George Press, 1904; Geddes, Patrick, *Guide-book and outline catalogue to the Cities and Town-planning exhibition*, Belfast, Cities and Town-planning exhibition; Geddes, Patrick, *Cities in Evolution*, London: Williams and Norgate, 1949, 1915; Thompson, Arthur, Geddes, Patrick, *Life: outlines of general biology*, London: Williams & Norgate, 1931, (see especially Book II, Chapter XIII: Towards a theory of life, pp. 1384-1440); an inheritance of this line of thinking can be found in the work of Lewis Mumford, *The City in History, Its Origins, Its Transformations and Its Prospects*, New York: Harcourt Books, 1989, 1961; see also: Novak, Frank (ed.), *Lewis Mumford and Patrick Geddes: the correspondence*, New York, London: Routledge, 1995; I thank Judith Lemaire of the Horta-La Cambre Faculty of Architecture at the University of Brussels (ULB) for bringing the Edinburgh School and Patrick Geddes to my attention.

4 | Park, Robert, "Introduction," in Anderson, Nels, *The Hobo: The Sociology of the Homeless Man*, Chicago: University of Chicago Press, 1923; Burgess, Ernest, "The Growth of the City: An Introduction to a Research Project," in Park, Robert, Burgess, Edward, McKenzie, Roderick, Wirth, Louis, *The City*, Chicago: University of Chicago Press, 1925; Park, Robert, "Introduction," in Thrasher, Edward, *The Gang: A study of 1,313 gangs in Chicago*, Chicago: University of Chicago Press, 1926; Burgess, Ernest (ed.), *The Urban Community: Selected Papers from the Proceedings of the American Sociological Society 1925*, Chicago: University of Chicago Press, 1927, pp. vii-ix; Park, Robert, "The Ghetto" in Park, Robert, *Human Communities, The City and Human Ecology – The Collected Papers of Robert Ezra Park*, Glencoe: Free Press, 1952 (1928), pp. 99- 101; Wirth, Louis, *Le ghetto*, Grenoble: Presses Universitaires de Grenoble, 1928, 1980, pp. 291-307; Park, Robert, "The City as a Natural Phenomenon," in Park 1952 (1939), pp. 118-127

5 | Koolhaas, Rem, "What Ever Happened to Urbanism?" in OMA, Koolhaas, Rem, Mau, Bruce, S, M, L, XL, Rotterdam: 010 Publishers, 1995, pp. 958-971; in Koolhaas, Rem & al., *Mutations*, Bordeaux, Barcelona, Arc en rêve: Actar, 2000, see: Chang, Bernard & al., "Pearl River Delta," pp. 280-334; Boeri, Stefano, "Notes

the city is chaos at work – in all three instances, there has been a need for sidetracking into biology or life sciences in order to describe intricate action patterns.

The organic metaphor gives us a sense of what causality may be like in a complex urban system. Causality, then, is the way in which action travels inside a system or set of interactions. This view is held by the French sociologists of translation, Bruno Latour amongst them,⁶ and will be used throughout this presentation. So, rather than saying “the city works” and marvel at the beauty of it, the organic take here presented aims at getting into the meanders of the network and at checking how it works, where the action is traveling. To do so, I will confront my own work on Brussels to some considerations that come from the life sciences. More precisely, I will sidetrack, i.e. deviate, into the work of George Canguilhem and Donna Haraway – two philosophers of sciences – and of Jean-Jacques Kupiec and Pierre Sonigo – an embryologist and an immunologist who have been involved in genetic research. Furthermore, this presentation owes a lot to the work of the GECO – Groupe d’Etudes Constructivistes, the exact references of which are mentioned in a few footnotes. In a nutshell, the idea is this: I aim to show that life sciences and the biological investigations of vital processes can be of great use to urban investigations insofar as they highlight causal matters.

Self-preservation and vital connections

In an article about the immune system and AIDS, published in 1989, Donna Haraway writes: “Immunity can also be conceived in terms of shared specificities; of the semi-permeable self able to engage with others (human and non-human, inner and outer), but always with finite consequences; of situated possibilities and impossibilities of individuation and identificati-

for a Research Program,” pp. 357-379; Kwinter, Sanford, Fabricius, Daniela, “Urbanism: An Archivist’s Art?”, pp. 494-507; Kwinter Sanford, Fabricius Daniela, “Dossier,” pp. 628-649; Belanger, Pierre & al., “Lagos (Harvard Project on the City),” pp. 650-720; Koolhaas, Rem, Cleijne, Edgar, *Lagos: How it Works (with Harvard Project on the City)*, Baden: Lars Müller Publishers, 2007

6 | Akrich, Madeleine, Callon, Michel, Latour, Bruno, *Sociologie de la traduction: textes fondateurs*, Paris: Presses des Mines, 2006; Latour, Bruno, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford: Oxford University Press, 2005

on; and of partial fusions and dangers.”⁷ Instead of looking at immunity as an army defending the body against foreign invasions, Haraway thinks of it as an ecosystem that co-opts, captures, re-balances the bodily elements. Disease then becomes the failure to do so. In an article on the normal and the pathological, Georges Canguilhem likewise writes: “An alteration only becomes pathological when a living being, which until then had managed to stay in equilibrium with its environment, becomes troubled in its existence to a very dangerous extent. That which was adequate to the normal organism, i.e. in relation to its environment, becomes inadequate and perilous to the modified organism.”⁸ Again, disease is not viewed as a victorious battle of the invaders over the organism’s defense armies, but rather it is taken as a matter of vital connections gone wrong. The organism is forever changing, it is involved in a constant renewal of physiological orders⁹ and it is sick when one of these changes doesn’t allow it to interact adequately with its environment, when one of the alterations doesn’t allow it any longer to re-establish a new coherence and to reinvent a new self.¹⁰ The partial fusion has gone wrong; the next individuation can’t come about.

One might take this to be a mere issue of political correctness or of semantics, but in fact, both quotations show that it is not so obvious to know where causality stands, i.e. it is not always clear how action is distributed and where it is traveling inside a complex system (that is the meaning of causality here). On the one hand, with the battle imagery, there are two fronts acting and reacting one upon the other. On the other hand, there are a fluctuating number of actions that interconnect and try to uphold themselves in constantly changing patterns. Viewing the organism in the latter

7 | Haraway, Donna, “The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse” [1989], in Haraway, Donna, *Simians, Cyborgs and Women: The Reinvention of Nature*, 1991, p. 225

8 | Original French version: “Une altération dans le contenu symptomatique n’apparaît comme maladie qu’au moment où l’existence de l’être, jusqu’alors en relation d’équilibre avec son milieu, devient dangereusement troublée. Ce qui était adéquat pour l’organisme normal, dans ses rapports avec l’environnement, devient pour l’organisme modifié inadéquat et périlleux.” Translation is mine, slightly shortened for the purpose of the presentation. Canguilhem, Georges, *La connaissance de la vie* [1965] Paris, Vrin, 2006, pp. 210-1

9 | Ibid., pp. 152, 165

10 | Ibid., p. 215

way helps Haraway make a plea for a change in medical politics as well as in scientific investigation. She argues, convincingly, that it could partake in changing the experience of AIDS-patients and of doctors all along the medical treatment. For Canguilhem, the change allows him to move away from mechanical and deterministic biology to one that would put more emphasis on the organism's experience and the way in which organisms are creative and value-seeking entities, making sense out of their environment.¹¹ So, not only do the quotations show that an action's circulation is not given beforehand, that we do not know – even in medicine or biology – how the action circulates, but the quotations also show that each view on causality bears its own consequences, that each causality has its own possibilities and impossibilities as to how the field of investigation can be developed, both heuristically and politically.

Of course, within the social sciences there are many authors who emphasize the intricate process of collective action and structural changes. For instance, Michel Foucault showed us that it is worthwhile to look at power not as a mere possession but rather as something that is operated and transferred within the many shafts of knowledge practices and more recently Bruno Latour has shown us how each phase of an action pattern adds its lot of invention and of initiative¹². But Haraway and Canguilhem, by way of their interest in biology, add an important element to this: the double argument of consistency and scaling. On each level of organic life – the organs, the body, the environment or other – consistency has to be

11 | Ibid., pp. 134, 146; Canguilhem, Georges, *Le normal et le pathologique* [1966], Paris: Presses Universitaires de France, 2005, pp. 186, 197

12 | Foucault, Michel, "Le corps des condamnés," in Foucault, Michel, *Surveiller et Punir* [1975], Paris: Gallimard, 2000, pp. 32-38; Foucault, Michel, "Cours du 14 janvier 1976," in *Il faut défendre la société* [1975], Cours au Collège de France, 1975, Paris: Gallimard & Seuil; Foucault, Michel, "L'oeil du pouvoir," in Foucault, Michel, *Dits et écrits* [1977], Paris: Gallimard, volume 2, 2001, pp. 190-206; Latour, Bruno, Hermant, Emilie, *Paris ville invisible*, Paris: Empêcheurs de tourner en rond & La Découverte, 1998; Latour, Bruno, "Irréductions," in Latour, Bruno, *Pasteur: guerre et paix des microbes suivi de Irréductions* [1984], Paris: La Découverte, 2001; Latour, Bruno, "Second source of uncertainty: action is overtaken," in Latour 2005, pp. 46-70

reached, be it by fusions, shared specificities, co-optation, invention or recreation¹³. On each level of organic life, scale is a matter of amplitude: how many elements of varying sizes are involved in the making of consistency; how far does the connected region go in terms of articulations?¹⁴ In other words, when looking at organic life, we don't know beforehand the ways in which consistency is reached, nor its relative strength.

The double argument of consistency and scaling sets for a methodological requirement. When analysing organic life, i.e. consistency-in-the-making, one has to grant the power of initiative and of action to all the components involved. Kupiec and Sonigo call this the hypothesis of the liberated cells, which their book *Nor God, nor Gene* alludes to: "[...] the cells are subjected to the laws of evolution, not more, nor less [...] the cells form a society that is similar to those that we know at other levels [...] there is an ecosystem in each one of us, made of billions of microscopic little animals."¹⁵ Or: "Let's grant some freedom to our cells, those billion microscopic animals that live within us and which, unknowingly, make us live, think, dream. Those unicellular animals do not live because they have to make us live. They live like us because they quite simply have to live. [...] The small doesn't make up the big, nor does the big make up for the small. The 'parts' and the 'wholes' have the same status."¹⁶ Action and causal power are thus returned to

13 | On the matter of consistency, see the work of GEC - Groupe d'Etudes Constructivistes; Isabelle Stengers, 2007, "And if my body was a forest? Some pragmatic considerations," in *Life and Society*, conference held at the Max Planck Institute of Berlin on 3rd November; Debaise, Didier, "The Living and its Milieu," in *Process Studies*, volume 37, n° 2, 2005; and many other articles and papers by these authors. See also the current work of Olivier Thiery on Deleuze, Guattari, Ruyer and the life sciences

14 | This passage is inspired by Stengers, Isabelle, *L'invention des sciences modernes*, Paris: Flammarion (chapter 5, strength of laboratory sciences and eventfulness of demonstration devices), 1995, 1993; and by Latour, Hermant Emilie 1998, (the verbal figures: to dominate, to refer, to commensurate)

15 | Kupiec, Jean-Jacques, Sonigo, Pierre, *Ni Dieu, ni gène. Pour une autre théorie de l'hérédité*, Paris: Seuil, 2000, p. 129.

16 | Original French version: "[...] les cellules sont soumises aux lois de l'évolution, ni plus, ni moins. [...] les cellules forment une société semblable à celles que nous connaissons à d'autres niveaux [...] Il existe donc un écosystème en chacun de nous, composé de milliards de petits animaux microscopiques" and

the cells which – under genetic pressure – had been deprived of it. Also, according to this stance, all instances of organic life have a purpose and rules of their own, none can be reduced to be the mere context or ingredient of the other, nor can they be defined as mere vehicles for an overall effect. Liberation means that there is no reason to treat agents of all kinds differently and that – as a matter of investigation – every agent should be upped onto the pedestal of purposeful – or as Canguilhem has it – value-seeking entity. But what does all this mean for urban investigations?

Growth and city-making

In my own work, looking at the growth of Brussels, I have purposefully granted the power of initiative and of inventiveness to all actors encountered in the city's and State's archives. No difference of causal nature was made between them: the State, the municipalities, the landowners, the entrepreneurs, none were bigger nor smaller than the others, none were frame nor ingredient to the others, none were omnipotent nor were they powerless. All were methodologically accepted as full-blown participants to the making of the city's extensions. Territorial consistency, then, made itself felt when closer analysis showed how maps, official letters and built

“Cette liberté que nous revendiquons pour nous-mêmes, accordons-là aussi à nos cellules, ces milliards d'animaux microscopiques qui nous habitent et qui, sans le savoir, nous font vivre, penser, rêver. Ces animaux unicellulaires ne vivent pas sous la contrainte de nous faire vivre. Ils vivent comme nous, sous la contrainte de vivre tout simplement. [...] Le petit ne fait pas le gros plus que le gros ne fait le petit. Les 'parties' et les 'touts' ont le même statut.” Ibid. p. 214

A similar interlocking as well as vitalist structure is mentioned by Canguilhem: “Du point de vue biologique, il faut comprendre qu'entre l'organisme et l'environnement, il y a le même rapport qu'entre les parties et le tout à l'intérieur de l'organisme lui-même. L'individualité du vivant ne cesse pas à ses frontières ecdermiques, pas plus qu'elle ne commence à la cellule. Le rapport biologique entre l'être et son milieu est un rapport fonctionnel, et par conséquent mobile, dont les termes échangent successivement leur rôle. La cellule est un milieu pour les éléments intracellulaires, elle vit elle-même dans un milieu intérieur qui est aux dimensions tantôt de l'organe et tantôt de l'organisme, lequel organisme vit lui-même dans un milieu qui lui est en quelque façon ce que l'organisme est à ses composantes. Il y a donc un sens biologique à acquérir pour juger les problèmes biologiques [...]” Canguilhem 2006, p.184

ding permits circulated between the actors, how these documents were commented upon and interpreted, modified and imitated, forwarded and implemented until they held each other and the city's surroundings in a close wed/gridlock. In other words, action was traveling along the shafts of a city-making network and causes could be tracked down in a completely empirical manner. The findings are twofold: one can discover other causes as well as other territories.

Other causes: no God, nor gene but micro-undertakings. The city's extensions did not take their consistency by the enforcement of a national decree, a master plan or an action program. Nor were they the work of a few powerful landowners or the result of some general tendency to expansion and profit. This does not mean that there was no plan nor profit involved but rather that such causes cannot be relied upon to explain city growth and that they are always partaking in purposeful micro-undertakings. Thus, there isn't any automatic or theoretical rule in such matters; consistency is eventful and occurs when a series of actors is rescaled and gathered into a network of collaboration and co-optation¹⁷. This organic and Darwinist take on city growth has allowed me to underscore the performance of procedures and inscriptions. Brussels, like many Western cities perhaps, has grown along the abstract settings of administrative devices: technocratic regulations cast the horizon for political commitment; functional perimeters pave the way for planners' ambitions; sketchy dotted lines trigger construction sites and the rise of new neighborhoods. Very much like the magical circles engraved in tribal villages, the administrative frontiers have the power to change the behavior within their confines. If, as shown by anthropologists, land position and social status depend on the performance of rituals, then our modern city rituals are technocratic ones. The typical cogwheels of Western city-making involve cartographic instructions and assembly proceedings. At least, so it is suggested by the Brussels' case during the 19th Century.

Other territories: no two fronts, nor annexation but unwrapped strengths. Among local researchers, it is commonly said that Brussels suffers from its

17 | This idea is inspired by Stengers, Isabelle, *Penser avec Whitehead: une libre et sauvage création de concepts*, 2002, pp. 57-71, pp. 181-183 (the event of endurance, prehension and eternal objects); see also Debaise, Didier, *Un empirisme spéculatif, Lecture de Procès et Réalité de Whitehead*, Paris: Vrin (eternal objects), 2006

historical failure to annex all its municipalities into one central office. It is supposedly a fragmented city because it is run by 19 mayors and as many city-councils. But metropolitan regions do not necessarily arise through annexation and battles won over rural surroundings.¹⁸ When one looks at consistency in the rare event of eco-systemic co-optation, not precluding in which way this must happen, other territories and unities may be discovered. For instance, Brussels was first unified by a stippled map: hypothetical line-ups of possible future houses were drawn onto rural land and gave way to an alignment of interests amongst civil servants, mayors and landowners. It was then assembled under the impact of a road maintenance law: in order to control local construction, municipalities registered land portions as quasi urban or “agglomerated” – i.e. comprising buildings that were not entirely isolated – and gradually they gave way to the delineation of one single Brussels “agglomeration”. Next, the city was consolidated through landscape engineering: hilly surroundings were dug into, backfilled and leveled out in order to establish overall rail and road connections; over vast distances, the entire relief was streamlined. And so on. Each city beholds several layers of consistencies and strengths. The strength of alliances, the strength of the quasi city or city-to-be, the strength of a clearing, all these can be unwrapped by empirical investigation, as long as the powers of causality aren’t limited to a few agents only.

For all that, whatever its causes and territories, city-making remains a closed system. It produces its own configuration, i.e. the outline of its core, its environment and its outer space. It does not involve everyone and everything, far from it. “What is peculiar to the living, is the making of its own milieu, the composing of its own environment” says Canguilhem.¹⁹ Or: “Life is the submission but also the institution of an own milieu”.²⁰ This milieu and its outline are defined by trial and error: “The living organism acts empirically. Life is experience, i.e. improvisation, use of occurrences; it is an attempt in all its senses”²¹. The organic take thus presented

18 | See also Zitouni, Benedikte, “Agglomérer plutôt qu’annexer: le cas de Bruxelles 1840-1875,” in Bourillon, Françoise, Fourcatt, Annie (eds.), *Agrandir Paris 1860-1970*, Paris: Publications de la Sorbonne, pp. 148-164

19 | Canguilhem 2006, p. 184

20 | Canguilhem 2005, p. 185

21 | Original French version: “le propre du vivant, c’est de se faire son milieu, de se composer son milieu;” “la vie, étant non pas seulement soumission au milieu

not only moves away from mechanical and deterministic views but also from open but vague considerations on city-making. It pleads for empirical precision, detection of cogwheels and strengths and weaknesses, recognition of singularity and open-ended outcomes. Each city growth is different. Nothing is determined as yet. Those, then, are the stakes: opening up the possibility for future experimentation. One cannot say what makes up a particular ecosystem, one cannot know what makes up the dynamics of a particular city, because in either case one cannot know beforehand where the action is traveling, how the patterns of action will arise and format the city's configuration.

Besides the genome

Urbanization is an intricate affair. Its analysis requires care and imagination. Again, this requirement can be taken from the afore-mentioned authors by way of some sidetracking. The recent writings of Fox-Keller, Kupiec and Sonigo show that some biologists are critical and disillusioned with the genetic claims made by their field. While acknowledging some merits, they underscore the shortcomings of genetic investigations. To an outsider like me, it seems that they are moving beyond or rather beside the genome. Biology has more to offer than genetics alone, they seem to say. Genetics itself should be reformed, they seem to imply. And that is interesting for the issue of causality. For there is an additional value which seems to lie in the investigative power of a hypothetical existence and of hypothetical abstractions. We are coming back to the initial phrasing: what if? Without getting into the empirical details, which would lead us astray, it seems to me that Fox-Keller, Kupiec and Sonigo pinpoint the problem of reification, i.e. regarding something abstract as a material thing, i.e. losing sight of the abstraction that was necessary to get ahead in the investigation and turning it into the guiding principle of reality itself. As I've already explained, Kupiec and Sonigo want to reintroduce Darwinism on each level of organic life. They want to get rid of the reductionist and Platonic views held by their colleague geneticists who place the genes in a fortified place, in a reality zone that is more powerful than all the others. For each time a link between a gene and a particular behavior fails to appear, the geneti-

mais institution de son milieu propre;" "l'organisme vivant agit selon l'empirisme. La vie est expérience, c'est-à-dire improvisation, utilisation des occurrences; elle est tentative dans tous les sens." Canguilhem 2006, p. 152

cists call upon more complicated models and more elaborate explanations to make up for it, until they've even turned the gene itself into a selfish animal, thereby completing the picture of genetic hegemony. The problem here is not only that solely one cause and one action pattern is considered worthy of any attention. The problem is also that a fruitful tool of investigation – the hypothesis of the gene's existence first and of the gene's action afterwards – has become the guiding principle of reality itself.

On a less critical tone, Fox Keller emphasizes the worth of abstraction. She underscores the fruitful link that has existed between genetics and the use of metaphors from the start. According to her, metaphors played a very important role in genetics. By contrast, for example, experimental biology has rather worked with models, i.e. model organisms or exemplary organisms such as rats that carry the generic qualities which enable it to serve as a test case for many other animals (and generic doesn't mean general, for generality is much more connected to the models and simulations used in mathematical biology). So genetics is closely linked to metaphors. For a long time the gene served as a metaphor, a linguistic trope, different from a cell, different from an organism, because it could not be seen, nor identified yet in most of the organisms. It was the unknown element that had to be presupposed in order to make the investigations work. Then another metaphor, that of genetic information, had to be used in order to hold the gap between the gene and the behavioral or physical characteristics. There was a need to invent or to name the unknown in order to enable investigation to discover it. But one should never lose sight of the distinction between the tools and the results. For instance, genes do not send signals but to posit they did, helped to find out what their ways of impact really were. The signals are the tool of investigation; the discovered links and descriptions are the result. The more results there are, the more valuable the tool. In other words, the metaphor, the cause should not be reified.

Both books – *Nor God, nor Gene* and *Making Sense of Life* – make a plea against reductionism. Looking beyond, or rather around the genome, means that investigators should not mix the tools with the effects, the hypotheses with the reality, the metaphorical cause with all causality. In the same way, I presupposed the existence of consistencies and went out to look for them. Some empirical discoveries ensued but this does not mean that this one reality, the agglomeration, could shroud all other realities or

modes of investigations. When we've discovered a causal pattern, there's still many more to pursue.