



Urban ecology

Isabelle Hajek, Jean-Pierre Levy

► To cite this version:

Isabelle Hajek, Jean-Pierre Levy. Urban ecology. Handbook of the Anthropocene, Springer, 2022, 978-3-031-25909-8. 10.1007/978-3-031-25910-4 . hal-03452485

HAL Id: hal-03452485

<https://hal.science/hal-03452485>

Submitted on 16 Oct 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Urban Ecology

Isabelle Hajek and Jean-Pierre Lévy

Abstract At a time when awareness of the advent of the Anthropocene era once again raises questions about the compatibility between finite resources and globalised urban expansion, the article explores the paradigm shift in our understanding of urban ecology away from a vision centred on metabolism alone towards a plural, multidisciplinary and relational conception.

At a time when the reality of the Anthropocene is reopening questions about the incompatibility between finite resources and globalised urban expansion, is there are different ways to think about the relations between city and ecology? Some cues let believe it. There is a proliferation of initiatives that focus on ecological forms of human habitat and on “nature in the city”. Some policies aim to establish natural spaces in and between cities and to reduce urban extraction and waste. The idea that nature can only be found outside and far from the city, or that the city necessarily has a predatory relationship with nature, is now being contested. Nonetheless, urban ecology (UE) is an old notion with multiple and contradictory meanings: it owns several linked strands that reproduce an opposition between the study of the city as a social organisation and a metabolic or even ecosystemic vision of UE. Similarly, making a connection between city and nature is no obvious matter. For many people, it is simply about implementing technical adjustments to resolve urban dysfunctions from a perspective in which the environment is seen as a collection of limits, of problems to resolve by the management of “artificial systems”. The representation of nature that prevails in urban areas is often an idealised and homogenising, not to say one that fosters a process of social segregation (Hajek *et al.*, 2015). The utopian vision of an autonomous city that manages all its flows is even consonant with the idea of an opposition between an “urban nature” and a spontaneous nature and a planned, controlled city that the urbanistic aesthetic would help to pacify. In the light of these ambiguities, this article is demonstrating that UE can only provide a lasting solution, whether for people or for built and natural environments, on condition that we move away from an exclusively metabolic conception in favour of a plural, multidisciplinary and relational urban ecology.

Human and cultural ecology vs. urban metabolism: two irreconcilable visions of urban ecology?

With respect to UE, two connections crystallise an opposition between a sociological vision of the emergence of the big city in the Chicago School tradition, and a metabolic vision that made its entrance onto the urban stage through the question of urban *excreta* as approached by urban medicine and chemistry in the 18th and 19th centuries. Borrowing most of their ideas from Darwinism, the researchers of the Chicago School, influenced by G. Simmel (1988 [1895]), like R. E. Park, E. W. Burgess and R. McKenzie (1925), studied flows of immigrants in Chicago in the 1900s, the areas they occupied, how they coexisted with American populations and how they integrated themselves into modern urban society. They were interested in the formation of cities, in their dynamics of growth, aggregation and expansion, and in the social interactions that took place within them. They saw these unprecedented urban changes as corresponding to an “ecological order” in the sense that they were not dependent on a decisional process but on “natural forces” (such as competition, symbiosis...) which tend to produce an ordered grouping characteristic of its population and its institutions. Above all, these studies showed that the ecological dynamics specific to the city generate original forms of culture: these ecological forces produce “moral areas” and turn the modern city into a cultural melting pot, which in turn feeds its “human ecology”; they also shape a new type of personality, “a distanced urban self” that tries to protect itself from the hardships of urban life while being at the same time more socialised to cultural differences. From this perspective, we can say that this vision is one of a human and cultural ecology, uninterested in the relations between urban societies and their natural environment. Nonetheless, these works were the first to emphasise the relations between ecology and social forms. For its part, the metabolic vision in urban ecology, despite its variable meanings, is rooted in an opposition between city and nature. Whether forged in the 19th century in the exchanges of materials between city, industry and agriculture (Barles, 2005) in response to the food supply problems and high mortality rates of the

cities, before giving way to an urbanism of sanitation (Choay, 1998), or whether becoming concerned about the ecological impact of cities and borrowing from the ecosystemic conceptions advanced in the international writings of ecologists like A. Wolman (1965), P. Duvigneaud (1974), P. E. Odum, (1976), it is shaped : sometimes by the plan to build an urban order on nature and by improving the living conditions of human beings through a technical utopia, sometimes by the vision of “protecting nature” and a functionalist utopia. Ultimately, it reflects a dual logic of managing natural urban components and naturalising the city: by the artificial and endogenous replication of the major metabolisms (such as maximising the use of materials through integrated management and recycling of urban waste), and by the production of natural spaces, whether intended to foster biodiversity, urban agriculture or an economic approach to nature. To put it differently, this metabolic conception entails a double negation. First, a negation of the city as a social phenomenon that generates representations, practices that shape its ecological signature, and a social division of labour that makes the idea of the total mastery and autonomy of the urban metabolism an “oxymoron” (Barles, 2017). The city is only possible through externalisation. Second, a negation of an “urban nature” that is inherent to the city and not managed, and yet indispensable to the reproduction of the urban and surrounding ecosystems. More fundamentally, this metabolic conception involves a pathological vision of the city associated with a metabolism that “absorbs nature, transforms it then evacuates it in materials and pollutants that are damaging to the planet, and to the health and quality of life of its inhabitants” (Lévy, 2010, p. 4). The recent transformations of urban reality – less circumscribed within organic borders and within an urban-rural continuum than in complex relations of co-extension/embeddedness – and the crisis of the very idea of “nature” are an encouragement to move away from this metabolic paradigm, whose circularity – illusory and technocentric – excludes citydwellers in their relations to natural and built environments.

Towards a new urban ecology: multiple, multidisciplinary and relational

A new conception of UE is emerging today, in which the processes of urbanisation and environmental production can be both a source of damage and of resources for ecosystems (Douglas et al., 2015). This UE, which is broadening its scope to encompass ways of life, concerns not only research, but new expectations and practices amongst populations who, in a context of struggles for day-to-day quality of life and environmental justice, are creating spaces in which a new relationship to nature is coming into being. This “paradigm shift” (Lévy, 2010) is perceptible in different expressions that try to think about the city and nature in their reciprocal relations. To mention a few, the rise of an “ecology of the urban landscape” (Clergeau, 2011), which recognises urban activities and spaces as a historical and modern component of the functioning of natural ecosystems, is combining with the emergence of an “aesthetic of nature” (Blanc, 2017) that includes nature, experience and felt sensations in a way that was previously restricted to art and culture. Both of them emphasise the complexity of urban ecosystems, whose heterogeneity and sensory, imaginary and symbolic components cannot be reduced to a single dimension, whether exclusively technical, metabolic, or even socio-spatial or natural. They suggest other – holistic – modes of action with respect to urban ecology, encompassing questions ranging from the maintenance of biodiversity to the material functions of nature in the city (flood management, food production, etc.) to the ambiances experienced and/or created. This shift in urban ecology covers many problems of the urban environment. “Industrial ecology”, for example, with a view to reintegrating urban metabolisms into closed biogeochemical cycles, advocates a “territorial ecology” grounded on social bonds that generate flows of alternative materials. Another notion is “environmental health” (Lawrence, 1999) which extends a biomedical model to an ecological interpretation of health to consider the links between the health of citydwellers, the characteristics of the urban environment, and the impact of “ecological inequalities” (Faburel, 2012). But also the urban ecology of citydwellers themselves: whether, for example, the ecology they look for is a relationship to ordinary nature made up of multiple “sensorialities” (touch, sight, hearing, smell), or the ecology they practise in different gardening groups (Chelkoff, Paris, 2015), or in the invention of new forms of urban life to minimize the waste and consumption of urban metabolisms. While for planners and politicians, UE has become a tool to legitimising their interventions, contributing to the production of standardised urban forms and a single framework of thinking all the stronger for being able to draw on a universal dimension linked with

the rise of sustainable development, the history of urban ecology and its appropriations prompts the conclusion that it does not refer to a single rationality. That being the case, its future fruitfulness can only lie in the recognition of its eminently plural character, extending the ecological-metabolic vision to its ordinary, lived, felt components, carried forward by a plurality of actors and proceeding less from top-down political regulation than from the production of a shared world.

Isabelle Hajek and Jean-Pierre Lévy

References

- Barles, S. (2005). *L'invention des déchets urbains. France: 1790–1970*. Champ Vallon.
- Barles, S. (2017). Écologie territoriale et métabolisme urbain: quelques enjeux de la transition socioécologique. *Revue d'économie régionale et urbaine*, 5, 819–836.
- Blanc, N. (2017). The aesthetics of nature. In A. Chone, I. Hajek, & P. Hamman (Eds.), *Rethinking nature. Challenging disciplinary boundaries* (pp. 67–74). Routledge.
- Chelkoff, G., & Paris, M. (2015). Natures d'ambiances en bord de routes: collectifs de jardin, dépendances routières et trame verte urbaine. In I. Hajek, P. Hamman, & J.-P. Lévy (Eds.), *De la ville durable à la nature en ville. Entre homogénéité et contrôle social* (pp. 291–308). Septentrion.
- Choay, F. (1998). Pensées sur la ville, arts de la ville. In M. Agulhon (Ed.), *La ville de l'âge industriel. Le cycle haussmannien* (pp. 170–286). Éditions du Seuil.
- Clergeau, P. (2011). *Ville et biodiversité. Les enseignements d'une recherche pluridisciplinaire*. PUR.
- Douglas, I., Goode, D., Houck, M., & Wang, R. (2015). *The Routledge handbook of urban Ecology*. Routledge.
- Duvigneaud, P. (1974). *La synthèse écologique. Populations, communautés, écosystèmes, biosphère, noosphère*. Doin éditeurs.
- Faburel, G. (2012). The environment as a factor of spatial injustice: A new challenge for the sustainable development of European regions ? In C. Ghenai (Ed.), *Sustainable development: Policy and urban development-tourism, life science, management and environment* (pp. 431–478). Intech.
- Hajek, I., Hamman, P., & Lévy, J.-P. (2015). *De la ville durable à la nature en ville. Entre homogénéité et contrôle social*. Septentrion.
- Lawrence, R. J. (1999). Urban health: An ecological perspective. *Reviews on Environmental Health*, 14(1), 1–10.
- Lévy, J.-P. (2010). Ville et environnement: pour un changement de paradigme. In O. Coutard & J.-P. Lévy (Eds.), *Écologies urbaines* (pp. 3–14). Anthropos.
- Odum, E. (1976). *Écologie. Un lien entre les sciences naturelles et les sciences humaines*. Doin éditeurs.
- Park, R. E., Burgess, E., & McKenzie, R. D. (1925). *The City*. University of Chicago Press.
- Simmel, G. (1988). Die mode. In G. Simmel (Ed.), *La tragédie de la culture* (pp. 89–127). Rivages. [original edition 1895].
- Wolman, A. (1965). The metabolism of cities. *Scientific American*, 213(3), 179–190.