



Ian McHarg and “the ecology of the city”

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Abstract

In a 2016 review article, American urban ecologist Steward Pickett and his coauthor colleagues note that before “the ecology of the city” was identified as a second paradigm of urban ecological science in the late 1990s, there had been “venerable and important precedents”. In this communication, the author substantiates their remark with a revelation of such a precedent set by American ecological scholar-practitioner and educator Ian L. McHarg in the 1960s.

Keywords Ian McHarg · The ecology of the city · Urban ecology

To Ian L. McHarg (November 20th, 1920—March 5th, 2001) on the 50th anniversary of *Design with nature*

*The world is a better place because
you had built in it something larger and more lasting
than yourself.*

1 McHarg’s endeavors and conception in the 1960s

“I once conducted a course euphemistically called ‘Ecology of the city’”, writes Ian McHarg in his 1969 landmark book *Design with nature*. “This was a modest attempt to bring together the information plant and animal ecologists have developed and apply it to the problems of the city where economic determinism rules unchallenged.” (McHarg 1969, p. 188)

As it happens, teaching this class is among several endeavors McHarg made around the concept “the ecology of the city” in the 1960s.

In June 1962, McHarg was among guest speakers at a two-week seminar *The architect and the city* organized jointly by American Institute of Architects (AIA), Association of Collegiate Schools of Architecture (ACSA), and the Cranbrook Academy of Art. He presented a paper entitled “The ecology of the city: a plea for environmental consciousness of the city’s physiological and psychological impacts” (McHarg 1966). Later in 1962, he published an abridged version of the presented paper with a

striking title “The ecology of the city” in *Journal of Architectural Education* (McHarg 1962, pp. 101–103).¹ In the spring of 1963, McHarg taught a graduate-level class *Ecology of the city* at the University of Pennsylvania [the one he mentioned in *Design with nature* (see above quote)] and directed a class project titled “Identification and measurement of urban physical processes” in Philadelphia, the city where the University of Pennsylvania is located (McHarg 1963, pp. 8–12). Later in 1966, he led another student project on the urban environments of health and pathology in Philadelphia (McHarg 1969, pp. 188–195).

Through these endeavors, McHarg demonstrated his understanding about the concept “the ecology of the city”. Instead of simply an architectural product, the city is an organic system that evolves in time with organized complexity (McHarg 1962, p. 102; 1963, p. 8)²; the prevalent economic and social determinism in the practice of city planning and design should be qualified by ecological determinants (McHarg 1962, p. 101); to “advance the recognition of organized complexity of

¹ These two pieces became required readings in his *Ecology of the city* class (CP 610) at the University of Pennsylvania, USA (McHarg 1963, p. 5).

² According to British urban planning scholars Michael Batty (author of the 2013 book *The new science of cities*) and Stephen Marshall, “[t]he idea that a town or city is not a fixed architectural product, but something organic, growing or ‘evolving’ in relation to its environment, is arguably the most fundamental contribution bestowed by (the Scottish urban planner—the author) Patrick Geddes on planning (through his 1915 landmark book *Cities in evolution*—the author). This idea generated the need for a different kind of theory—beyond architecture and engineering—both for our understanding and direct intervention in the planning of cities...” (Batty and Marshall 2017, p. 4). In this regard, McHarg’s 1962 conception of “the ecology of the city”, which was further developed and included in the two chapters in *Design with nature* (McHarg 1969, pp. 175–195), is a manifestation of his idea for, and endeavor to build, such “a different kind of theory” about cities.

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the city and its interacting systems” (McHarg 1963, p. 8), it is necessary to identify and quantify physical and ecological processes in the city “by the discipline of Ecology” (McHarg 1963, p. 8) and “through the perceptions of the ecologist” (McHarg 1962, p. 103); the knowledge so obtained, along with the insights into social processes in the city, would provide an “objective basis for the practice of city planning, landscape architecture and architecture” (McHarg 1969, p. 193).

2 Ecologists’ identification in the 1990s

Fifty years later, in a 2016 review article entitled “Evolution and future of urban ecological science: ecology *in, of, and for* the city”, American urban ecologist Steward Pickett and his coauthor colleagues note that “the ecology *of* the city”, as “a second paradigm” of urban ecological science, was identified in the late 1990s (Pickett et al. 2016, p. 3)³ when “ecology as a whole ... awaken(ed) to urban areas as a legitimate habitat for study...” (*Ibid.*, p. 1).⁴ A comparison between Pickett et al. (2016) and McHarg (1962, 1963, 1969) reveals great commonality in the understanding of “the ecology of the city”. For example, the succinct statement that “[e]cology *of* the city, ... by treating entire urban mosaics as social–ecological systems ... incorporates biological, social, and built components” (Pickett et al. 2016, p. 1) resonates much of McHarg’s conception as summarized above.

3 McHarg sets a venerable and important precedent

These two strikingly parallel yet apparently independent advancements in ecological thinking, three decades apart, substantiate the acknowledgement Pickett and his coauthor colleagues make that there had been “venerable and important precedents” before the paradigm identification in the late

1990s (*Ibid.*, p. 1). Indeed, if there is an honor roll that recognizes people who set such precedents, McHarg’s name should be on it beyond any doubt.

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References

- Batty M, Marshall S (2017) Thinking organic, acting civic: the paradox of planning for cities in evolution. *Landsc Urban Plan* 166:4–14
- Grimm NB, Grove JM, Pickett STA, Redman CL (2000) Integrated approaches to long-term studies of urban ecological systems. *BioScience* 50(7):571–584
- McHarg IL (1962) The ecology of the city. *J Archit Educ* 17(2):101–103
- McHarg IL (1963) Ecology of the city. University of Pennsylvania course syllabus, Spring 1963. The Architectural Archives, School of Design, the University of Pennsylvania, Philadelphia, USA (This is a 17-page PDF, courtesy of the Architectural Archives, School of Design, the University of Pennsylvania; page numbered by the author; the PDF is available upon request from the author wxiang@uncc.edu)
- McHarg IL (1966) The ecology of the city: a plea for environmental consciousness of the city’s physiological and psychological impacts. In: Whiffen M (ed) *The architect and the city; papers from the AIA-ACSA Teacher Seminar, Cranbrook Academy of Art, June 11–22, 1962*. MIT Press, Cambridge, pp 53–65
- McHarg IL (1969) *Design with nature*. Doubleday/Natural History Press, Garden City
- Pickett STA, Burch WR Jr, Dalton SE, Foresman TW (1997) Integrated urban ecosystem research. *Urban Ecosyst* 1(4):183–184
- Pickett STA, Cadenasso ML, McGrath B (2013) Ecology *of* the city as a bridge to urban design. In: Pickett STA, Cadenasso ML, McGrath B (eds) *Resilience in ecology and urban design: linking theory and practice for sustainable cities*, 7–28. Springer, Berlin
- Pickett STA, Cadenasso ML, Childers DL et al (2016) Evolution and future of urban ecological science: ecology *in, of, and for* the city. *Ecosyst Health Sustain* 2(7):e01229. <https://doi.org/10.1002/ehs2.1229>
- Zhou W, Fisher B, Pickett STA (2019) Cities are hungry for actionable ecological knowledge. *Front Ecol Environ* 17(3):135

³ The term “ecology of cities” appeared in a guest editorial in the first volume of *Urban Ecosystems* (Pickett et al. Pickett et al. 1997, p. 183); the term “ecology of urban ecological systems” appeared in Grimm et al. (2000, p. 573). It is through these two scholarly publications, according to Pickett and his coauthor colleagues, that “the paradigm of the ecology of the city” (Pickett et al. 2016, p. 5) was formally identified (*Ibid.*, p. 3). Elsewhere, Pickett and his colleagues provide a concise comparison between this paradigm and that of the ecology *in* the city (Pickett et al. 2013, pp. 21–22).

⁴ In relation to this belated awareness, McHarg noted in 1969 the reluctance of ecologists to study cities. “[T]o bring together the information plant and animal ecologists have developed and apply it to the problems of the city ... is an extremely difficult venture, because ecologists seek the wildest environments—those least affected by man ...” (McHarg 1969, p. 188). Unfortunately, 50 years later, “cities (still—the author) have not been a focal area of work for most ecologists. For example, of the 1195 articles published in ESA’s (ESA stands for Ecological Society of America—the author) journals in 2018, only 28 articles (2.3%) contained the word ‘urban’ in their abstracts.” (Zhou et al. 2019, p. 135).



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