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Thinking organic, acting civic: The paradox of planning for *Cities in Evolution*

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HIGHLIGHTS

- Patrick Geddes introduced the theory of evolution to city planning over 100 years ago.
- His evolutionary theory departed from Darwin in linking collaboration to competition.
- He wrestled with the tension between bottom-up and top-down action.
- He never produced his *magnum opus* due the inherent contradictions in his philosophy.
- His approach resonates with contemporary approaches to cities as complex systems.

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ABSTRACT

Patrick Geddes articulated the growth and design of cities in the early years of the town planning movement in Britain using biological principles of which Darwin's (1859) theory of evolution was central. His ideas about social evolution, the design of local communities, and his repeated calls for comprehensive understanding through regional survey and plan laid the groundwork for much practical planning in the mid 20th century, both with respect to an embryonic theory of cities and the practice of planning. But Geddes had a much wider agenda that town planning *per se*. He sought after a philosophy of life that went well beyond Darwinism verging almost on the spiritual at times. Yet his personal approach and the limits he imposed on his formal thinking meant that he was never able to establish his big picture in a way that later generations could easily grasp and build upon. He left us with enticing ideas, evocative phrases, and a practical philosophy of doing planning and building communities that has indeed survived as something more than a footnote in history. In this essay, we identify the key paradox of modern planning which seeks to intervene in systems that have enormous complexity, growing and evolving rather than being designed in any top-down fashion. We illustrate this paradox through Geddes' own career and life in which this tension between bottom up and top down was always to the forefront. We then sketch his influence on practicing planners and key intellectuals of the mid to late 20th century—Abercrombie and Mumford, Jacobs and Alexander. We bring this history of Geddes' influence up to contemporary times when the complexity sciences with all their focus on evolving systems, now permeate our thinking, suggesting various ways in which we might examine the history of the planning in the last 100 years in a new light through the lens of Geddes' arguments and principles

1. Preamble

The 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 Patrick Geddes on planning. 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; and so helped crystallise the emergence of planning as a professional field in the modern era. But while biological analogy with its organic sensibility provides a satisfying grounding for urban theory, it raises a paradox when it comes to our explicit intervention in city design. If a city is a living thing, capable of growing or 'evolving' according to its own dynamic, what is the role for plan-

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ners? How do we create the city as an erstwhile living system whose biological analogue is not the product of design but of evolution? If a city is an example of self-organising complexity, what or who is the 'self' who is doing the organising? How should we 'think organic', but 'act civic'? This is the tension that we believe is intrinsic to the very idea of city planning, something that Geddes was one of the first to recognise, and which he struggled with during his entire life. This essay elaborates this thesis.

Historically, as long as a city could be merely viewed as an aggregate of inert architecture, then it could be legitimately designed, controlled, prescribed, like a building. But as Patrick Abercrombie came to realise, this was just an illusion or "pleasing dream" that was "shattered by Geddes" (quoted by Tyrwhitt, 1949, p. xii). In effect, by invoking the organic nature of urbanism, a complex web involving the growth of cities in relation to their environment, and human society within the built environment of the city, Geddes opened a Pandora's box. This implied that a city was a sort of wilful organism, sometimes having a spirit or mind of its own, with the planner never completely in control. Thus city design could not be treated simply as a soluble problem, hence Abercrombie's discomfiture. It gave rise to this paradox of planning which is probably irresolvable, hence endemic to the nature of city planning.

These questions are complicated by the fact that Geddes had his own theory of evolution – never conclusively articulated nor scientifically validated – which gave rise to different answers to the question of 'how to intervene', compared with Darwinian evolution. Geddes himself believed that cities – as with (other) living beings – evolved from their own impetus. But his inability to make his arguments sufficiently intelligible, or to convince readers of the literal biological veracity of his assertions, meant that his contribution to social sciences and town planning ideology was "littered with wrecks and confusion" (Meller, 1990, p. 320). As a result, he never managed to resolve the paradox, and we continue to live with the confusion to this day – the tension between top-down and bottom-up approaches to planning, which exists in the continued use of organic metaphors in planning rhetoric – even by designers intent on imposing their own will and artificial forms on buildings and urban layouts.

In this essay, we attempt to show how Geddes' thinking created and revealed the paradox of organic planning and we trace how those who followed have attempted – wittingly or otherwise – to grapple with the same problem. In doing so we first intend to crystallise what Geddes thought about evolutionary theory and cities. We need a clear statement so that we can trace how evolution as a central concept in the development and growth of cities and their planning has developed since Geddes and how this has converged on what we loosely call a complexity theory of cities (including their planning), one of the conventional wisdoms of planning in the early 21st century. In short what we will do here is trace evolutionary ideas in planning from the 1930s, through the work of Mumford, MacKaye, and Abercrombie to theories of self-organising city systems associated particularly with Jacobs and Alexander in the 1960s but also noting those who espoused the machine systems theory of cybernetics such as Chadwick and McLoughlin and the wider philosophy of systems articulated by West Churchman and Simon. We then pick up this thread again and tie it ever more closely to Geddes, noting the switch from top down to bottom up that lies at the heart of a much wider movement in the complexity sciences. What we will do is assess the extent to which Geddes has relevance to these more recent approaches to planning—albeit that they cover the 80 or so years since his death. We will conclude with some reflections on the extent to which we think Geddes' ideas will live on into an age where many of our cities are becoming widely automated with consequential implications for the way they function and the way we might plan them. In some respects, what is happening now is somewhat counter to what Geddes thought about the form and function of cities then but there are unusual and intriguing parallels back to this earlier age which we will exploit here.

2. Geddes and evolutionary theory

2.1. Patrick Geddes—a biographical sketch

Patrick Geddes who many refer to as the father of modern town planning (Mumford, 1966), wrote much but published much less than he wrote, spoke often but usually inaudibly in his many formal lectures, yet doggedly preached a message about social evolution that has echoed down the years and which resonates ever more strongly with respect to the way we approach planning one hundred years after the publication of his book **Cities in Evolution**. Unlike the founders of our field in the late 19th and early 20th century, Geddes was not trained in architecture or surveying but in biology, insofar as one could say he was formally trained at all. After a period of private tutelage during which he was exposed to various scientific fields as well as the works of Carlyle, Ruskin and others, Geddes eventually settled on studying botany at Edinburgh University in 1874. However, after only a week of dissecting lifeless plant specimens, he was won over instead by the vivid text of Thomas Huxley's (1870) wonderfully strident and forceful **Lay Sermons, Addresses and Reviews**, published in 1870, a collection of short essays that exhorted the world to accept and celebrate Darwin's theory (Darwin, 1859; Lightman, 2004, p. 764; Meller, 1990, p. 26). Geddes promptly left Edinburgh, and spent the next three years studying science through theory and experiment with Huxley in London. However, Geddes never took a formal degree, his training consisted largely of being exposed to Huxley's lectures at the Royal School of Mines (now Imperial College), and some peripatetic demonstration duties at University College (London) in Britain's first Physiology department, all from 1875 to 1879.

During his time in London, Geddes followed a reasonably classic laboratory training in plant biology and zoology, but he was also attracted early to those philosophers and activities who sought to add to Darwin's theory in terms of social evolutionism. In many senses, all his subsequent ideas developed from the notion that social development, particularly that associated with towns and cities – or more broadly what he termed 'civics' – depended upon the way individuals acted as part of a wider social organism that functioned in the contemporary language of complexity theory, from the 'bottom up'. His view of evolution went well beyond early Darwinism to embrace the writings of Herbert Spencer but what emerged ultimately was a faith in the power of the individual in engendering social change in cooperation with others, albeit with an aversion to state intervention. This was all tied up in somewhat unclear foundations that drew on rather basic evolutionism of a descriptive kind, more like the earlier theory due to Lamarck (Defries, 1927, p. 689; Anonymous (Nature), 1932).

Once back in Edinburgh in the 1880s and working as a demonstrator at the University, Geddes' ideas about society were phrased in these terms. This represented a fairly major departure from developments in evolution where in the late 19th century, genetics and statistics were the real driving forces giving credence to Darwin's theory in both experimental and analytical terms. As far as we can tell, Geddes did not follow closely these lines of thinking, as he was convinced the answer lay elsewhere. To an extent, his interest in the social in contrast to the physical moved him away from mainstream theory. It is possible his difficulties with experimental biology due to his poor eyesight for close range work (Choay, 1969), also compounded his already ideological disaffection with the more mechanical approaches to biology. There is little doubt

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