Health-Promoting Nature-Based Paradigms in Urban Planning

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Since the 19th century, urban planning has largely been guided by ambitions to improve the population's wellbeing and living conditions. Parks and green areas have played a significant role in this work. However, the confidence in the function of green areas, and thus the motives for creating urban parks and green open spaces, have shifted over the years, which has affected both the planning and design of green areas. This entry describes three overarching paradigm shifts in urban planning, from the end of the 18th century to today, and the focus is on the major paradigm shift that is underway: how green areas can mitigate climate effects, increase biodiversity and at the same time support people's health and living conditions in a smart city.

landscape architecture | biophilic design | restorative environments | smart cities | climate change | attention restoration | stress reduction | calm and connection | perceived sensory dimensions | urban heat islands

A paradigm can be defined as a model that people use as a starting point when discussing a phenomenon. Thomas Kuhn adopted this Greek word to define scientific paradigms as universally accepted theories, which for a time provide models and solutions to a community of practitioners. The paradigm sets the framework for how the phenomenon should be described, how observations of the phenomenon should be interpreted and what predictions can be described. Anomalies are seen as facts that contradict the paradigm, the generally accepted theory. When the anomalies become too many in number, a redefinition of the model takes place—this becomes a paradigm shift [1]. The word paradigm is used widely today, with essentially the same meaning defined by Thomas Kuhn.

Major paradigm shifts have taken place in urban planning, and in this entry we intend to focus on the role that parks and green areas have had since the end of the 18th century. At that time, urban planning came to be characterized by an ambition to strengthen the health and living conditions of the inhabitants, and the introduction of parks and green areas was then seen as a good means of achieving this. A couple of important paradigm shifts regarding the view of the design and function of green areas have taken place since then. The shifts have been characterized by anomalies, of which we are now experiencing the latest. In recent years, the increasingly warmer climate has led to more frequent heat waves and floods, which not least hit densely populated areas hard. Research shows that parks and green spaces can mitigate high temperatures [2] and effects of floods [3] significantly. In addition to their coolness and refuges from rainwater, urban green areas can also harbor an important species richness of plants, animals and microbiota of great importance for human health and wellbeing

[4]. The research shows, among other things, that major parks with large volumes of trees are needed for climate regulation, that low points in the terrain with loose and pervious soil that can absorb large masses of water and thus slow down and store water volumes are needed, and that nontoxic, natural biotopes in cities are needed to preserve a rich biodiversity [2][3][4].

However, a number of researchers believe that the view on urban construction must change radically. Today's densely populated cities with green areas characterized by lawns do not work. Comprehensive visions about the design and planning of green areas are missing. In addition to serving as refuges for biodiversity and mitigating climate effects, the overall ideas about the green areas of the future must also include people's preferences and behaviors. This is because there is evidence that exposure to green areas has positive effects on people's mental health and wellbeing. The availability of green areas also affects how much physical activity people engage in. Therefore, these functions should be included in the planning and design of cities [5][6][7][8][9][10][11]. Section 2 presents today's situation and anomalies related to today's planning of parks and green areas. Next, we describe the two major paradigm shifts that led to the planning and design of the parks and green areas we have in today's cities. The remaining part of this entry describes the gradual emergence of a new paradigm shift, which includes people's behavior and preferences for green areas, how exposure to or stays in green areas of different qualities can positively affect people's health and wellbeing, and also the function of green areas with regard to climate and biodiversity in smart urban areas.

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