Editorial: Responsive Landscapes

This year's (2017) Digital Landscape Architecture theme is "responsive landscapes". Some people have asked "What is that supposed to mean?" or may wonder "Why is it interesting?" Of course, the broadest general meaning of landscape involves living elements (often e. g. vegetation), and since one definition of 'living' is 'responsive to stimuli', aren't all landscapes 'responsive'? Even then, some may ask "Responsive to what? And how?"

To all of which we say: "Exactly!" Most landscapes are indeed responsive, in some or many ways. The spectra of conditions across which landscapes may be said or designed to be responsive; to what kinds of stimuli; with what kinds of responses or reactions; and across what time scales; etc. are exactly the questions posed in at least one recent book [1], and are the point of this year's DLA theme and conversations.

Even as we expect landscapes to be living, and we know them to be dynamic, not static, still it is not unusual to conceive of only a few stimuli that matter (the presence or absence of light, water, and nutrients, for plants and forests, for example); and of a generally-long time scale (days to years); and of a somewhat limited range of responses (growing, blooming, wilting, dying, for example…). We know that many ecosystems are responsive to environmental conditions, including temperature, humidity, illumination, salinity and other chemical combinations, and the like. Sunflower fields that swivel their blooms in heliotropic coordination; primary dunes that shift and flow with seasonal storms; mangroves that colonize and abandon coastlines; forests and meadows that rejuvenate after fires' flames; farmers' fields that respond to irrigation and fertilization with agricultural bounty; braided streams that reshape themselves with every spring flood; forest groves that may use root networks and electrical pulses to 'communicate' between individual trees to combat injury or perceived threats [2], are all examples of "responsive landscapes" in the wild.

But as our conceptions of landscape become broadened, to include their constituent living animals, including people, and their activities as well as the 'built' and 'infrastructural' elements of urbanized landscapes (and cities), too – especially in this age of ever-more-ubiquitous digital information, ever-closer electro-mechanical coupling, and the 'Internet-of-Things' – it is easy to imagine how, in these ever-more "digital landscapes", a broader range of stimuli and responses, across much shorter and hence more immediately perceptible time scales, may also be included. Water fountains that come alive in response to playing children's activity, outdoor digital lighting that conveys information about the weather or stock conditions, digital sound systems that tailor music to passers-by density and gait, gates and locks that open and close under smart-phone-app control, are increasingly familiar mechanized (robotized?) responses that color and affect our built landscapes, at a range of scales, both spatial and temporal. These kinds of responses and responsive elements are less well categorized, less well-understood, and yet of considerable interest as to how they might be employed and synthesized by landscape designers. What are the many possible responses landscapes and landscape elements may be capable of? In response to what kinds of stimuli? How might these be researched, developed, combined, or evoked? To what effect in designed landscapes, future gardens, cities …?

Motion, as of animals (including people), or physical forces (wind, water, gravity) is one obvious form of responsivity, as well as a stimulus: gates automatically opening to admit people; shutters closing to deflect wind or rain, or to contain falling debris; lights turned on to illuminate pathways or stairways; or water fountains activated to delight and surprise visitors. Light and darkness, similarly, can be detected and invoke changes in landscape conditions; as can humidity/moisture, or hot/cold; as can sounds, or the presence of magnetism, or radio-frequency waves, or other forms of information ... More complex patterns or sequences of conditions may be detected, and evoke complex combinations and sequences of responses. The power of digital controls to respond to, detect, synthesize, and directly control electro-mechanical responses in the landscape are broad and tantalizing.

An emergent challenge to landscape designers of the 21st century is to understand and engage with the ever-broadening array of technologies for responsiveness, incorporating at the same time both natural systems and the aesthetics of centuries of convention and experimentation, alongside more modern, technological, digital and information-based systems, all in the service of ever-broadening human needs, desires, and expectations – both timeless ones (to be comfortable, to experience beauty, to have access to both companionship and isolation, both wilderness and civilization, e. g.) and more contemporary ones (to have access to information, or to WiFi, or social networks, to accommodate prosthetics, to engage in remote control …)

The physical sizes and geographic scales over which landscape responsiveness may be evoked and utilized is also an important consideration: from many-kilometers-long flood control barriers and reforestation-projects, to variable-sized outdoor spaces, adaptive street and garden furnishing, to nanotechnologies and customized microbial communities for particular personal purposes...

The term ‘cyborg’, from the 1960s, was coined (from “cybernetic organism”) to describe a being with both organic and biomechanical body parts. Whether a landscape can be considered a ‘being’, with ‘body parts’, is surely debatable; but metaphorically, the modern world of urban landscapes is surely ‘cyborg’ in nature: increasingly a hybridized environment, with both (natural) organic and (built) cybernetic and electro-mechanical (robotic?) parts… The opportunities and constraints offered by such an environment for landscape architecture as a practice and performative discipline, have only barely begun to be glimpsed. It is in that spirit that the topic is addressed – tentatively, incompletely, both optimistically and skeptically – in some of the papers and presentations collected in this issue of JoDLA.

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References

[1] Cantrell, Bradley E., and Justine Holzman, *Responsive Landscapes; Strategies for Responsive Technologies in Landscape Architecture*, Routledge, 2016.

[2] Wohlleben, Peter, *The Hidden Life of Trees: What They Feel, How They Communicate – Discoveries from a Secret World*. Greystsone Books, 2016.