

GRAFTING

Issue 01

The Society for the Diffusion of Useful Knowledge

June 2018



Joseph Graham, William Newman, and John Stacy, *The Geologic Time Spiral—A Path to the Past* (ver. 1.2, 2008). U.S. GEOLOGICAL SURVEY GENERAL INFORMATION.

graft (n.1)

"shoot inserted into another plant," late 15c. alteration of Middle English *graff* (late 14c.), from Old French *graife* "**grafting knife, carving tool; stylus, pen**," from Latin *graphium* "stylus," from Greek *grapheion* "stylus," from *graphein* "**to write**". So called probably on resemblance of a stylus to the pencil-shaped shoots used in grafting.

graft (n.2)

"**corruption**," 1865, perhaps 1859, American English, perhaps from British slang *graft* "one's occupation" (1853), which is perhaps from the identical word meaning "a ditch, moat," literally "**a digging**" (1640s), from Middle Dutch *graft*, from *graven* "to dig".

The Society for the Diffusion of Useful Knowledge is a serial broadsheet publication produced by the Blackwood Gallery, University of Toronto Mississauga, as part of *The Work of Wind: Air, Land, Sea*, a site-specific exhibition, public program, and publication series designed to expand perspectives on climate change through artistic practices, cultural inquiry, and political mobilization.

The Work of Wind: Air, Land, Sea

Exhibition: 14–23 September 2018

Books: September 2018, June 2019, September 2019

Public Programs: June 2018–April 2019

Broadsheet Series: June 2018–April 2019

The Work of Wind: Air, Land, Sea aims to foster a deeper public awareness of the complex entanglements of ecologies of excess, environmental legacies of colonialism, the financialization of weather, contemporary catastrophism, politics of sustainability, climate justice, and hopeful resilience. It sets out to develop durable visual-cultural literacies and invites publics to create new encounters in the common struggle for a future. The project flows across the city of Mississauga and is distributed locally, nationally, and internationally through a three-volume book series co-published with K. Verlag and *The Society for the Diffusion of Useful Knowledge*, an innovative public program and publishing platform.

The Society for the Diffusion of Useful Knowledge (SDUK)

In order to productively collide with the present crisis, we recognize that ideas cannot be constrained by disciplines. *The Society for the Diffusion of Useful Knowledge* (SDUK) composes and circulates an ecology of knowledge based on the relationship and antagonism of “useful” ideas. The name of this innovative platform is borrowed from a non-profit society founded in London in 1826, focused on publishing inexpensive texts such as the widely read *Penny Magazine* and *The Library of Useful Knowledge*, and aimed at spreading important world knowledge to anyone seeking to self-educate. Both continuing and troubling the origins of the society, the Blackwood Gallery’s SDUK platform circulates research, ideas, and debates from a range of exigent discourses and practices, including those among the visual arts, environmental humanities, public policy, political economy, sustainable design, science and technology studies, extinction studies, and the major scientific and cultural debate of a generation—the Anthropocene.

The **SDUK** broadsheet series brings together contributors from diverse fields in the sciences and humanities, students and faculty from across the University of Toronto Mississauga, community organizations and activists, policy makers and policy agitators, artist researchers and speculative thinkers, all to advance new forms of literacy around climate change discourse.

The Work of Wind: Air, Land, Sea

Curated by Christine Shaw

Presented by the Blackwood Gallery in partnership with the University of Toronto

Mississauga, the City of Mississauga, and K. Verlag.

2018–2019



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On *The Geologic Time Spiral*

Lisa Hall

Drawing attention to the relative scales of geologic and human time, the *Geologic Time Spiral* is an apt starting place for an inquiry into the Anthropocene. Earth’s origin and early life are obscure, receding into a distant past some 4.5 billion years ago—but as time and the spiral unfold, more details emerge. Depicted is the story of a changing planet and evolving life, a story recovered from the rocks that form the planet’s crust. Human-time barely registers, yet our traces may define the next chapter. The spiral image also calls to mind oft-quoted lines from Yeats’s 1919 poem “The Second Coming.” The sentiment continues to resonate:

*Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold...*

How to Read this Broadsheet

The SDUK broadsheet series takes aim at a broad range of concerns—and this issue, **GRAFTING**, explores how we come to know, define, and interact with nature, where we see its boundaries and identify its needs, and how we understand its entanglement with culture. Following on the origins of *The Society for the Diffusion of Useful Knowledge*, and in the spirit of publishing, questioning, and problematizing “useful knowledge,” we recognize our readers as curious people who may pick up this publication with certain questions already in mind.

Perhaps you are asking, “**Where do nature and the city intersect? What does this mean for urbanism?**” We suggest you begin with Shannon Mattern’s “How to Graft a City” (p. 5); Morris Lum’s photographic project on Cooksville, a Mississauga neighbourhood built on intercultural relationships and subject to both urban development and climatic events (p. 6); or The Climate Change Project’s study of natural resource management (p. 25).

We often wonder, “**How can art and culture contribute to an understanding of nature-culture entanglement?**” If you wonder this too, Amanda Boetzkes’s essay on grafting and contemporary art (p. 18), and Kika Thorne’s artist project

Tree Permit TP-2016-00332 Applicant John Ross... (p. 16) are both excellent points of departure for this exploration.

If you are interested in **who is taking action on environmental issues in Mississauga**, profiles of the Association for Canadian Educational Resources, Credit River Anglers Association, HOUSE Lab, Enabling Garden, Making Social Knowledge, and UTM’s Beehives provide short introductions to some important local initiatives (p. 26), and Andrea Olive’s essay on the Credit Valley Conservation Authority (p. 24) offers additional in-depth analysis.

Landowners, residents, and entrepreneurs may be interested in asking, “**What are the implications of environmental degradation on land ownership and the economy?**” D.T. Cochrane and Fraser McCallum address this question through the lenses of economics and biodiversity, respectively (pp. 22–23).

“**How is climate change related to Indigenous knowledge, sovereignty, and kinship?**” is a central, vital question for reckoning with our relationship to land and the legacies of colonialism. It is taken up by many contributors in this issue, but you might begin with EDAction & CLEAR’s “Pollution is Colonialism”

(p. 20) and then move on to Heather Davis and Zoe Todd’s “Decolonizing the Anthropocene” (p. 12).

In the face of environmental catastrophe, many of us are asking, “**How do we reckon with time? How do we repair? What can we do?**” If you are too, a poem by Julie Joosten (p. 14) exploring the many histories bound up in climate’s present may deeply resonate with you, and Kyle Powys Whyte’s “Climate Change as an Unprecedentedly Old Catastrophe” (p. 8) may offer some ideas for grappling with the timeline(s) of climate change and prevention. The Leap Manifesto (p. 10) calls for a Canada based on caring for each other and the planet, moving swiftly to a post-carbon future, upholding Indigenous rights, and pursuing economic justice for all.

Finally, this publication closes with a glossary—a tool designed to help define the unfamiliar, but also describe, develop, connect, and trouble existing terminology. Words, too, are shifting ground, and each broadsheet’s glossary will respond to its contents, accumulating new language, and attesting to the need for a complex, entangled lexicon that equips us to learn, understand, and confront a rapidly changing world.



Brampton Flood, March 1948. Photograph by Russell K. Cooper. COURTESY REGION OF PEEL ARCHIVES.

How to Graft a City

Shannon Mattern

The machine-learning algorithm processes a training set composed of images of grafted fruit trees. It watches as gardeners and farmers cut underperforming-but-still-sturdy trees down to a stubby rootstock, trim healthy shoots from more desirable trees, insert those shoots—or scions—around the bark of the rootstock, bandage it all up, then fashion for our Siamesed tree-twins a rehabilitative greenhouse from a plastic bag. Over time, the rootstock’s and scion’s vascular tissues grow together: they “inosculate.” And after a couple of growing seasons, the machine observes, our gardeners yield sturdier, hardier, disease-resistant trees that produce more fruit, at much younger ages, than their unadulterated kin. The machine has learned to observe, and it’s observed which methods generate the greatest yield.

We then port that grafting algorithm over to the urban planning lab, where our data scientists aim to graft a healthier, sturdier, more fruitful city—an urban scion—onto some underperforming rootstock. Our planning algorithm searches aerial imagery and Street View images to identify barren waterfronts, brownfields, and blighted neighbourhoods with potential for resuscitation. It then grafts onto that urban rootstock a lattice of urban systems—pipes and cables and roads and buildings—in patterns it has learned from other successful cities (with “success,” of course, determined by the optimization of various urban indices). Over time, the root’s and scion’s infrastructural veins and arteries are sutured together. And after a few months, the urban machine is able to sustain a vibrant ecosystem of people and Dutch grocery bikes and King Charles spaniels and vegan eateries. And its yield—of data and profit—is abundant.

This is how cities are cultivated in an age in which the “science” in urban science draws more from data and computer science than from horticulture and ecology. Here, the old art of grafting is algorithmized and engineered.

Yet cities have always been grafted terrains. Those that have sustained more than a couple generations of inhabitants bear layers of their material history. In their urban strata we find evidence of the Anthropocene: trash, construction materials, and ruins that chronicle humans’ alteration of the planet. Urban facades sport shrouds of territorial markings, official proclamations, and commercial insignia. And enduring cities that, over the course of their long lives, have been usurped by

empires or claimed by colonizers often host grafted architectures and infrastructures manifesting their mixed lineages—their entangled roots and scrambled genetic codes.

The term graft derives from the Greek *graphein*, or stylus—probably because those scion shoots looked a lot like writing implements. The city is grafted in this graphic sense, too: it’s a polyglot palimpsest of codes and scripts and plans. If we trace its lineage all the way back to Uruk and Çatalhöyük, among the earliest large-scale human settlements, we can see that the city has long mediated between multiple modes and means of inscription, transmission, and storage: legal codes and copper cables, algorithms and antennae, public proclamations and system protocols, clay tablets and ceramic type. Over generations and millennia, urban inhabitants have grafted code to clay, data to dirt, ether to ore.

But today’s data-grafters tend to cut the rootstock off at the stump, excising all inconvenient precedent, erasing legacy scripts. A too-low tree graft makes the organism susceptible to soil pathogens. Or it can entice a scion to plant its own roots, which can’t defend themselves against infection. The scion depends on the rootstock’s built-up immunities. Similarly, when our contemporary “urban test bed” prospectors, in their pursuit of *tabula rasa*, uproot the foundations of the city, they forsake the immunities of experience, the accreted defenses of history, the embedded and embodied knowledges of local communities.

Yet “a city is not a tree,” as architect Christopher Alexander reminds us.¹ He contrasts two urban structures: that of the “semilattice” and that of the “tree.” The “organic” semilattice city is a “complex fabric,” a structure that has “arisen more or less spontaneously over many, many years.” It is thick, tough, and subtle. The tree city, by contrast, is characterized by its structural simplicity and minimal overlap among its urban units—whether zones or arteries or superblocks. The tree is the signature form of the “artificial” city, the city “deliberately created by designers and planners” to reflect their “compulsive desire for neatness and order.”

Designers and planners have supposedly evolved beyond the hubris and folly of the master-planned city. Instead, maybe they’ve merely sublimated the master plan in the machine, grafted algorithms onto blue-

prints. They’ve swapped neural nets for compulsive desires, automation for deliberation, sublimely exhaustive datasets for neatness and order. In the end, though, they’re still grafting city-trees. “When we think in terms of trees,” Alexander warns, “we are trading the humanity and richness of the living city for a conceptual simplicity which benefits only designers, planners, administrators and developers. Every time a piece of a city is torn out, and a tree made to replace the semilattice that was there before, the city takes a further step toward dissociation.”

Those planners’ and developers’ interests remind us that there’s yet another traditional grafting technique involved in urban development: the graft of corruption. With the rise of urban-tech companies, data brokers, and black-boxed administrative platforms, and with the spread of public-private partnerships, our newly grafted cities are even more at risk of infection. Urban inhabitants are ever more susceptible to surveillance and hacking and data-mining, while the city itself is exposed to corporate rot, and the social contract is subject to decay.

Grafting is an integral component of urban evolution. But in this newest variation on a well-rehearsed practice, we have to be wary of our new scions, those offshoots of the tech giants. And we must protect the rootstock, which is what keeps us grounded and resilient—and, at the same time, mindful of the many foregoing graftings that have produced the thick, tough, and subtle semilattice structure of our organic cities.

¹ The following quoted passages are drawn from Christopher Alexander, “A City Is Not a Tree: Part I” *Architectural Forum* 122, no. 1 (April 1965): 58–62; and “A City Is Not a Tree: Part II,” *Architectural Forum* 122, no. 2 (May 1965): 58–62, <https://www.patternlanguage.com/archive/cityisnotatree.html>.