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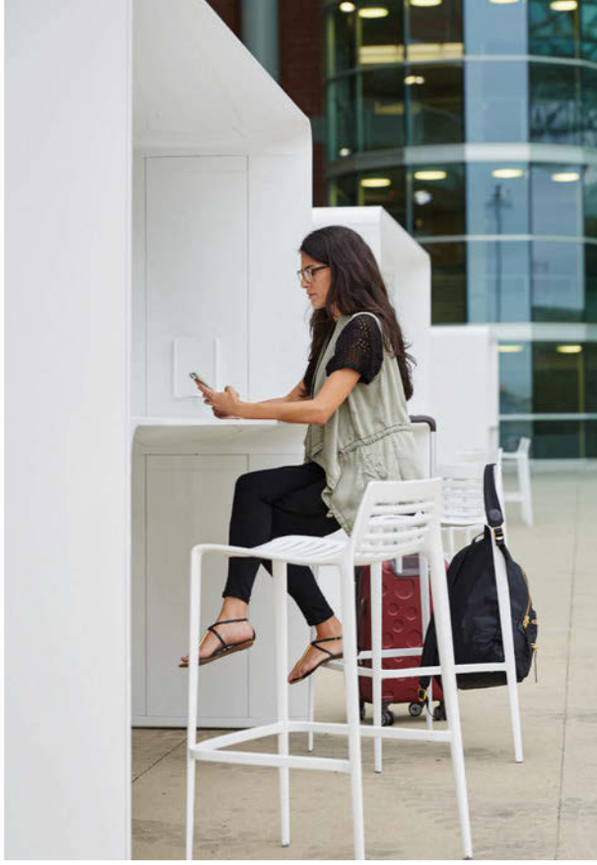

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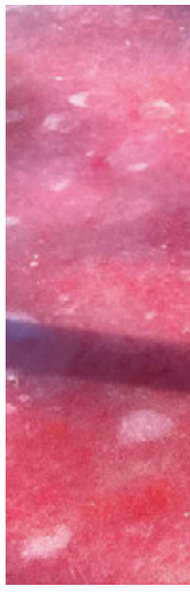
CONTENTS | SOMMAIRE

PROLOGUE

LP+ ONLINE | EN LIGNE

TRANSLATIONS | TRADUCTIONS
> **FR_LP+** | VERSION EN FRANÇAIS
> **EN_LP+** | ENGLISH VERSION



1 SEE | VOIR « CROKICURLING IS A THING », P 18
PHOTO LEANNE MUIR

COVER | COUVERTURE
CROKICURLING AT THE FORKS IN WINNIPEG, P 18 |
LE CROKICURLING À LA FOURCHE DE WINNIPEG, P 18
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DESIGN | GRAPHISME WENDY GRAHAM

INVENTION

FORUM

FOCUS

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summer 18 | **awards of excellence**
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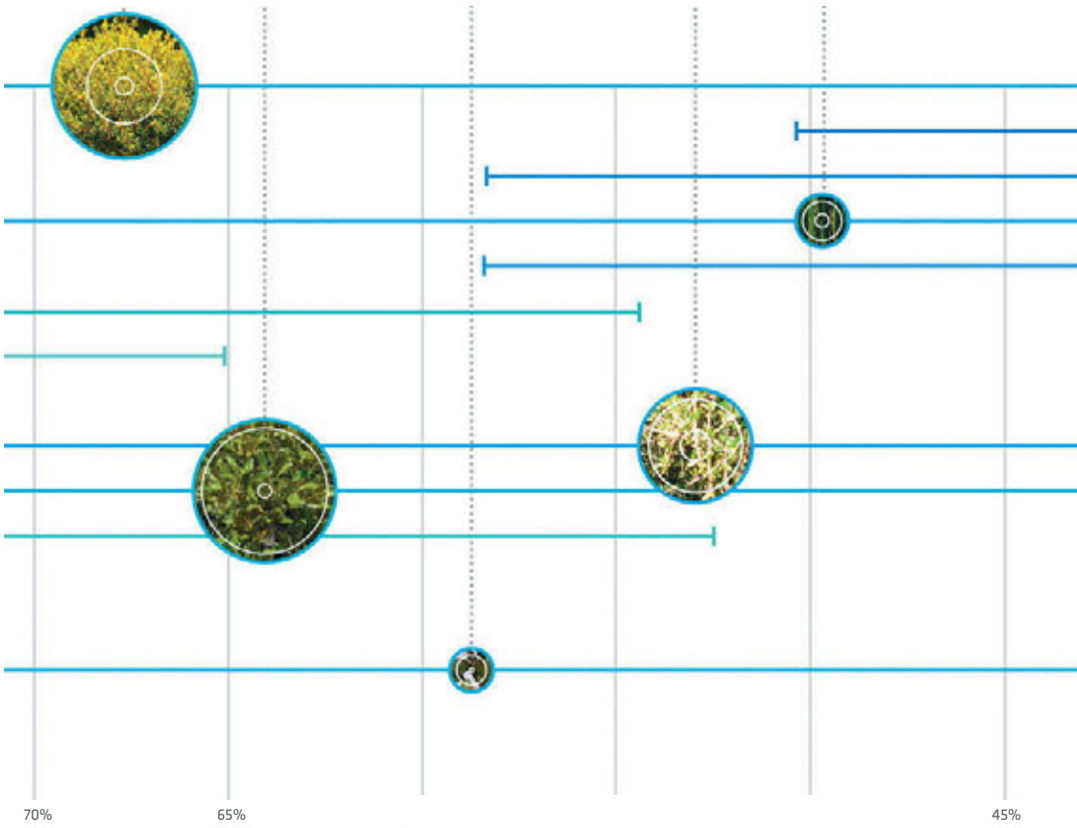
FR_LANDSCAPES | PAYSAGES est publiée par l'Association des architectes paysagistes du Canada pour servir de plate-forme nationale destinée à l'échange d'idées sur la profession. Les opinions exprimées dans LANDSCAPES | PAYSAGES appartiennent aux auteurs et ne reflètent pas forcément celles de l'AAPC. Nos rédacteurs invités contribuent bénévolement. Nous attendons, en français ou en anglais, vos propositions d'articles.



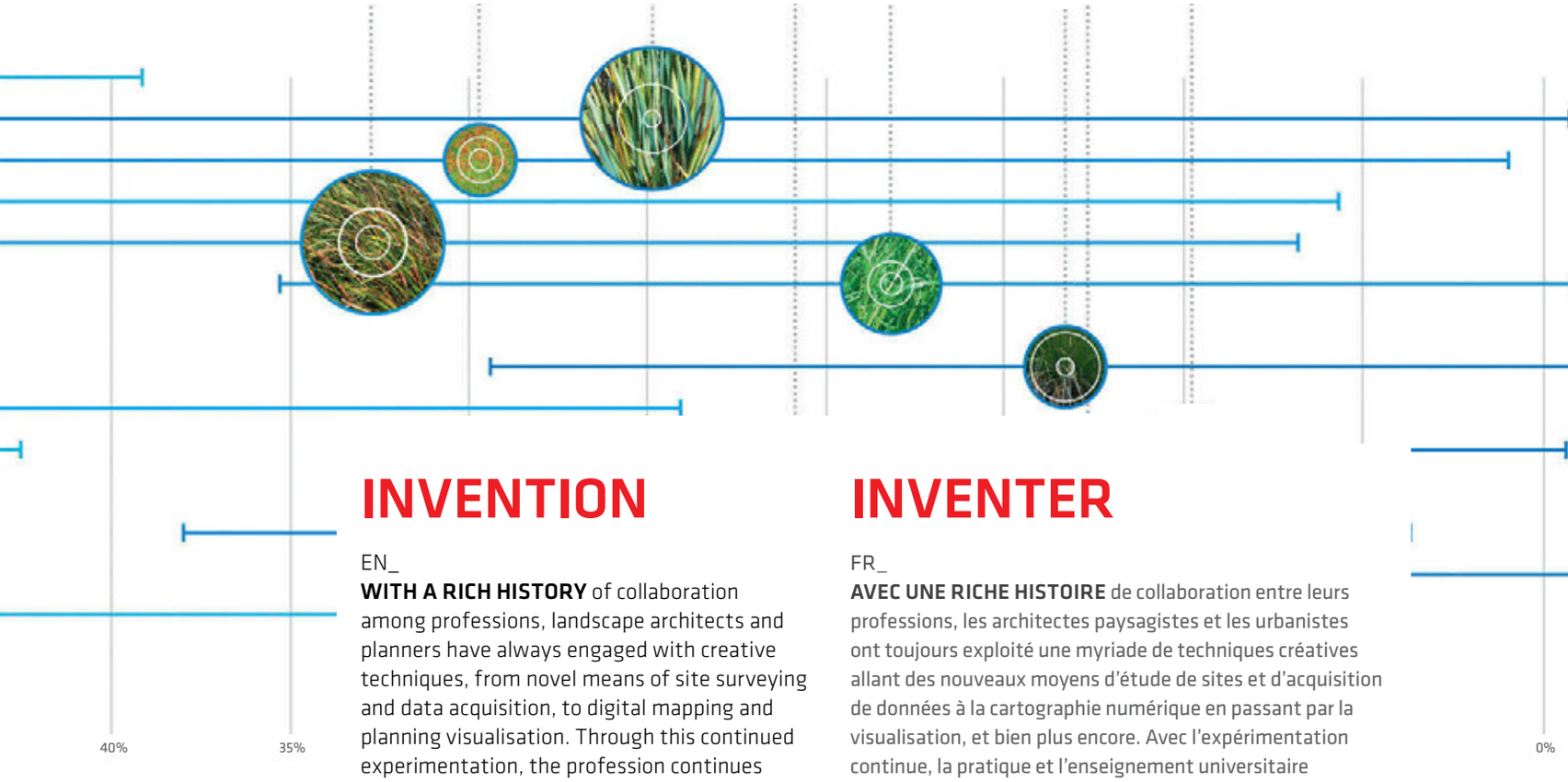
"I can't understand why people are frightened of new ideas. I'm frightened of the old ones."

« Je ne vois pas pourquoi les gens ont peur des nouvelles idées. Moi, j'ai plutôt peur des anciennes. »

...JOHN CAGE

1 PARAMETRIC MODELLING: CROSS-REFERENCING A PLANTING PALETTE WITH A SPATIAL MODEL OF SOIL CONDITIONS ACROSS A SITE; SEE P 46. **2** GRASSHOPPER
PHOTO 1 PHILIP BELESKY (SEE | VOIR P 46) **2** ©ISTOCKPHOTO.COM/CABEZONICATION

JASON HARE
GUEST EDITOR | RÉDACTEUR INVITÉ



INVENTION

EN_

WITH A RICH HISTORY of collaboration among professions, landscape architects and planners have always engaged with creative techniques, from novel means of site surveying and data acquisition, to digital mapping and planning visualisation. Through this continued experimentation, the profession continues to evolve.

Less about the object, outcome or space in which landscapes exist, invention facilitates our collective journey. It is often manifested in tools and techniques that elevate a project or simply help uncover that which was not immediately visible: the novel is part of daily practice.

We explore innovations which combine reliable old technology (think bicycles!) with the strikingly new: from the creation of custom mapping applications put to work on mountain bikes in B.C.'s Chilcotin Mountains, to a "climacycle" that carries a revolutionary instrument pack to measure invisible thermal landscapes. Other inventions are the brainchildren of young LAs, from crokicurling (yes! A blend of crokinole and curling) to Winnipeg's Actif Epica ultramarathon with its furry "Maniyeti." Still others are design triumphs, like the perfect blend of metaphor and technology in the creation of an 83-metre rock bluff in Toronto's Trillium Park. Finally we look to researchers at the periphery of hardware and software development to discover what lies beyond the horizon. I hope you enjoy the journey.

INVENTER

FR_

AVEC UNE RICHE HISTOIRE de collaboration entre leurs professions, les architectes paysagistes et les urbanistes ont toujours exploité une myriade de techniques créatives allant des nouveaux moyens d'étude de sites et d'acquisition de données à la cartographie numérique en passant par la visualisation, et bien plus encore. Avec l'expérimentation continue, la pratique et l'enseignement universitaire continuent d'évoluer.

Moins centrée sur l'objet, le résultat ou l'espace dans lequel les paysages existent, l'invention facilite notre parcours collectif. La « nouveauté » se manifeste souvent par une série d'outils et de techniques qui élèvent un projet ou simplement contribuent à découvrir ce qui n'était pas immédiatement visible : la nouveauté fait partie de la pratique quotidienne.

Nous explorons des innovations qui combinent une ancienne technologie fiable (pensez au vélo!) avec la dernière nouveauté : de la création d'applications de cartographie personnalisées mises en œuvre sur des vélos de montagne pour tracer les sentiers éloignés des montagnes Chilcotin de la Colombie-Britannique, à un « climacycle » qui porte un ensemble d'instruments révolutionnaires pour mesurer des paysages thermiques invisibles. D'autres inventions sont créées par les jeunes AP, du crokicurling (oui! un mélange de croquignole et de curling) à l'ultramarathon Actif Epica de Winnipeg avec son « Maniyeti » à fourrure. Et d'autres encore sont des triomphes de conception, comme le mélange parfait de la métaphore et de la technologie dans le processus d'érection d'une microfalaise de moraine de 270 pieds dans le parc Trillium de Toronto. Enfin, nous nous tournons vers des chercheurs à la périphérie du développement du matériel et des logiciels pour découvrir ce qui se profile au-delà de l'horizon. J'espère que notre parcours vous enchantera.

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OUR WRITERS

JASON HARE

finds comfort in the construction of relationships – in combining disparate elements or areas of expertise to explore new forms. The question he poses: what novel means of landscape design lie just beyond our periphery? You can find him wandering though spaces, between places or amongst varying disciplines. You can also find him in a basement, managing the University of Manitoba's FABLab.
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B.A. (Design de l'environnement), M.A.P. (candidate), AAPQ, elle adore la campagne et la pelouse d'herbes sauvages. Lorsqu'elle ne cultive pas son analyse holistique des espaces de nidification des pollinisateurs indigènes, elle s'occupe à générer des maquettes évolutives et ambigües. Elle apprécie le mouvement des bourdons et les espaces générateurs d'émotions.
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> LP+: mothers and brothers of invention

> LP+ : mères et frères de l'invention

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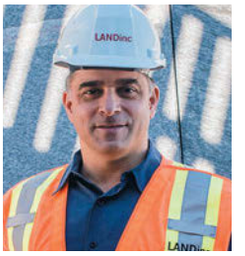

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OALA, CSLA, ASLA, IFLA is a landscape architect and urban designer who has led LANDinc's international business development since founding the firm in 1999. Patrick also conducts professional visioning and design workshops internationally. His practice bridges conceptual planning and built work, from Brampton's world-renowned community skatepark to Morocco's first Sustainable City.
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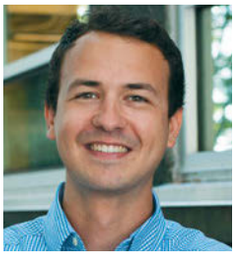

SHAWN STANKEWICH

is a landscape architect at Swift Company LLC in Seattle. Shawn's Manitoba roots drive a personal passion for the natural and cultural history of the prairies. He aims to tackle environmental issues by creating resilient urban infrastructure that also fosters ecological literacy in the public.
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PROLOGUE

THE HYBRID DESIGNER BY JANE HILDER

01 / THE HYBRID DESIGNER

JONATHAN WATTS

EN_ **IS A NEW ERA OF DESIGN** upon us? Have we have put down our drafting pencils for the last time, as we focus upon our computer screens? Has the human hand, armed with a pencil and a T-square, been trumped by digital drafting's production speed, dynamism and customizability?
It is true that hand drawing remains a valuable skill. Drawing and conceptualizing cannot be replicated by a machine, and sketching is a difficult task to perform digitally. Nevertheless, hand drawn ideas transition well into digital drawings: both are based on lines, curves, circles and arcs. But with digital drafting, multiple designers and engineers can simultaneously edit a plethora of layers of information in a single drawing set.

NEW LEVELS OF COMPLEXITY
Digital drafting has evolved into 3D techniques, including parametric modelling. Parametric modelling involves writing complex computer scripts for use in the design process. Is the creator of these scripts a hybrid between a programmer and a designer?
Because the complexity can be daunting, it is perhaps best to explain parametric modelling by describing how a model is created and used. I have created a parametric tool called *CUT.fill,* in which the hybrid designer first inputs a series of 3D models grouped as the existing topography. Then, he/she adds another set of models: the proposed design. Each element of each group of models can overlap, and do not need to be closed geometry. *CUT.fill* then calculates the volume difference between each set of models, outputting the total volume difference between the two.
This information can be used to balance cut and fill on a site, and predict costs associated with the earthmoving for the project under study. This script runs almost instantaneously, allowing the user to work through many iterations of a design. Because the script does exactly what it is programmed to do extremely fast, the technical data can be processed in the background while the designer considers other creative aspects of the design.
What role does this hybrid programmer-designer play in a firm? If a programmer is going to make effective scripts for design colleagues to utilize, he/she needs to understand the design process. This means writing scripts that can be tweaked by the designer, allowing creative input. Without this direct connection, we risk outputting designs that have been cranked out solely by a software. It is crucial the designer's hand and mind play a major role in this process. Parametric scripts are just tools, be they powerful ones.

JONATHAN WATTS, who recently competed his MLA, is a technician at the University of Manitoba's FABLab. His research focuses on advanced 3D modelling involving the development of parametric computer scripts.
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02 / IN LEFT FIELD AND ON THE SIDELINES

ALEX BOROWIECKA

EN_ **MY FIRST PROJECT** in the Northwest Territories was the design of the grounds of a high school in a small mining community which is now a ghost town. The consultations and site inspections involved a short flight from Yellowknife across Great Slave Lake to Hay River and then an hour-long drive to Pine Point, on what was largely a two-lane gravel road through the isolation and beauty of a ghostly boreal forest. Today, only community memory holds on to "my" project, which has since been absorbed by the land around it.
I have not contributed to the growth or demise of ghost towns since then. But many projects and many travels later, I am now something of a "ghost" landscape architect in my Yellowknife neighbourhood. I live in a small manufactured home in what an ex-friend of mine called "just a trailer park." The acre or so of land has slowly evolved into what I think is a wonderful neighbourhood. My place sits on top of a rock hill; it can barely be seen because of all the trees. I have my own forest and meadows. My neighbours, whom I consider the best, vary in age from 30 to 60 years old. Their children range in age from a month to 15 years old.

JUST A NEIGHBOUR

Most of my neighbours know that I am a landscape architect by occupation, but the design of the community garden and park proceed with me just as a neighbour, one whose stuff rarely sells at community bazaars, one who doesn't bake very well, and one whose garden is unintentionally very, very wild. I have learned to accept things that are not considered (by some) to be aesthetically pleasing, but these things encourage people to interact with their environment. I have dirtied my hands planting shrubs that were selected by others and that I thought were not hardy, but are now thriving.
Spring initiates garden clean up. Summer sees the frantic planting of the garden, barbecues and complex watering schedules set up on the computer. Fall brings harvest and attendant community celebrations. Winter spurs collections of snowmen and snow forts. All of this is about a five-minute walk from the centre of town, and in the other direction a five-minute walk to Great Slave Lake.

DOES NOVELTY EVOLVE?

We do have some problems. Currently we are wondering what to name the neighbourhood and the park, and figuring out how to welcome "downtown creep": can we take advantage of its positive aspects, while maintaining a neighbourhood identity?
The novelty of all this is the growing stability of a community of people who have taken power for themselves and made use of the power of those around them. Our community "square" combines street art, food security and environmental rehabilitation, all because a group of people were sitting around one night and started wondering what might be done with a no longer functioning power line and its overgrown and abandoned hydro line right-of-way. Is the community a novel one because it is this particular place and this particular group of people? Is this novel because it is evolving without a plan and over time? But perhaps all of this is part of the evolution of novelty itself.

ALEX BOROWIECKA is the NWTALA representative on the CSLA Editorial Board.
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03 / THE JOYS OF LANDSCAPE PRIZE

RYAN WAKSHINSKI

EN_ **IN 2016, SIX UNIVERSITY OF MANITOBA** LA graduates (Robert Fershau, Gareth Loveridge, Bob Somers, Grant Stewart, Chris Veres and Ryan Wakshinski), along with department head Dr. Alan Tate, combined forces (and funds!) to create The Joys of Landscape Prize. This (initially) $1000 annual award recognizes students who show commitment to their academic endeavors and, more importantly, to fostering school spirit and Departmental growth through extracurricular activity.
Janelle Harper received the first award, presented in January, 2017. A student of great accomplishment, well-thought-of by her peers and faculty, Janelle is active in countless endeavors including student and MALA Council, Ditchball and The Warming Huts Competition. She is a Faculty Ambassador for the Partner's Program to Architects without Borders, and on and on. To quote her letter of reference from Dr. Marcella Eaton, "she has the spirit that the creators of this prize carried through the Faculty, and that spirit is exemplified in her actions."

FABRICAMI

The Joys of Landscape competition is open to all students in Landscape Architecture at U of M. Requirements include passing grades, a commitment to working in studio, letters of support from both faculty and fellow students and, most importantly, the performance and documentation of a creative public act of social commentary and artistic expression for the benefit of a larger audience.

Janelle participated in the creation of Spaceland and Spaceland 2 in 2016, temporary installations that brought live music to different Winnipeg neighbourhoods. With seating, a DJ booth and visual elements created out of milk crates, and some night-time lighting, Spaceland enlivened underutilized and marginal spaces.

U of M students! Start preparing your submission for the 2018 Joys of Landscape Prize today!

bit.ly/JoysofLandscape
Ryan.Wakshinski@gov.mb.ca

04 /

WE NEED MESSY LANDSCAPES

REAL EGUCHI, OALA, CSLA

"Life is about not knowing..."
—Gilda Radner

EN_ **IT WAS WITH GREAT EXCITEMENT** that I recently reviewed my copy of the Summer 2017 issue of LANDSCAPES | PAYSAGES. My personal exploration in landscape architecture bears a direct relationship to the theme of "Messy," a concept that I first focussed on in my presentation "Botox and Blossoms: Toward a Sustainable Beauty" at a 2010 symposium, organized by the Canadian Institute for Sustainable Biodiversity.

I believe that messiness must be central to our design efforts as the writers in the issue assert, provided we acknowledge our cultural, aesthetic biases. As well, we need to maintain an awareness that nature is *not* messy, but simply ordered in a manner that may not often conform to our preferences while embodying processes we don't fully understand.

One particular line, in an article by Joan Iverson Nassauer (pg. 21), stands out for me in the "Messy" issue: "...our experience of messiness gives us reason to fear what we do not know." It is perhaps a misconception to think that it is messiness that we need to incorporate into our proximate, designed cultural landscapes. Rather, as landscape architects we need to utilize the landscape's capacity to help individuals experience their existential fears and trauma. The landscapes in which we dwell must be the foundation for somatic based, cognitive/emotional shifts that will lead us to an ecologically, sustainable future or that will render us sufficiently resilient to exist in an extremely challenging eco-social environment.

THE REBIRTH OF WONDER

In my article "Toward Mindful Design," (LP vol. 17, no.4, 2015) I wrote, "Let's enjoy the wonder and anticipation of living mindfully in the moment, the subtle sensuousness of the messy present..." My research continues to suggest that we need messy landscapes, within which we feel awe and vulnerability, in order to practice the acceptance of the uncertain and ultimately uncontrollable reality of our lives. It is only through acceptance of our own impermanent, biological existence that we can feel securely attached to, and respect, the earth as a living organism. The unconditional love and respect for the outer landscape must first begin with the same for the inner landscape.

Congratulations to LP for taking on such challenging subject matter. I hope this can become an important part of our ongoing dialogue.

May our local landscapes teach us what physical, messy, disorder taught Gilda Radner:

"I always wanted a happy ending...Now I've learned, the hard way, that some poems don't rhyme, and some stories don't have a clear beginning, middle and end. Life is about not knowing, having to change, taking the moment and making the best of it without knowing what's going to happen next. Delicious ambiguity."

real@breal.ca

05 / “NO JOKE-I-KING! Crokicurling is a thing...”

–Winnipeg Free Press, January 26, 2017

LEANNE MUIR

PAUL PETERS

> FR_LP+
CROKICURLING

EN_ **WINTER ON THE PRAIRIES** can be harsh, but for the past few seasons, Winnipeggers have been running (and skating) towards – rather than away from – the snow and ice. Activities and events are clustered around the junction of the Red and Assiniboine Rivers. The Red River Mutual Trail is the longest naturally frozen skating trail in the world. The perennial favourites, Festival de Voyageur and the celebrated Warming Huts competition, continue to attract more people each year. RAW: Almond’s pop-up restaurant on the ice, which offers two-weeks of fine dining in February, sells out its dinner tickets in minutes. And in the winter of 2017, Crokicurl made its debut as the newest addition to the roster.

CROK-I-CURL??

What is Crokicurl? Co-inventors Liz Wreford and I think of it as Landscape Architecture camouflaged as a sport and packaged to appeal to athletes and enthusiasts, the competitive and the curious, the young and the old. The game, which combines the sport of curling with crokinole, was first introduced last winter at The Forks, the unofficial centre of Winnipeg’s winter. The playing surface is simple to construct (similar to a backyard hockey rink), and iconic in its form, combining the red and blue painted rings of a curling sheet with the octagonal shape of a crokinole board. The 15-metre diameter pebbled ice surface is big enough for effective gameplay, and small enough to allow players to socialize around the ice.

THE PLAY

Teams of one or two slide junior outdoor curling rocks, which are slightly smaller and lighter weight than regulation curling rocks, from opposite edges of the ice surface, so they remain within the highest scoring circles at the end of the round. (As in regular curling, they aim to knock opponent rocks out of play.) Steel bollards wrapped in rubber encircle a recessed centre button making the coveted 20-point shot difficult to achieve. The game is free to play and accessed on a first-come, first-served basis.

Crokicurl requires no previous skill and no personal equipment. It levels the playing field for winter sports, allowing people who avoid winter activities to participate in a new and distinctly Canadian experience.

Early conceptual versions of Crokicurl included a much larger rink on the frozen Assiniboine River, with a diameter similar to the length of a curling sheet, full-size rocks and curling brooms. But bringing it up to the plaza at the Forks Market and decreasing its size, meant the season could extend beyond the timeframe of frozen river access.

During its short inaugural season, visitors to The Forks played Crokicurl day and night. It captured the interest of the media, and word of the new sport travelled quickly. To keep up with requests for information, we made plans and rules downloadable from the Public City Architecture website in exchange for stories and photos of versions of Crokicurl from across Canada. Winter 2017 saw Crokicurl rinks built in Winnipeg, Edmonton, rural Saskatchewan, the Yukon and Ontario. So far, 2018 is shaping up to be an exciting follow-up season. For landscape architects like me, Crokicurl will continue to be viewed as a tool for activating winter landscapes and imaginations across the country.

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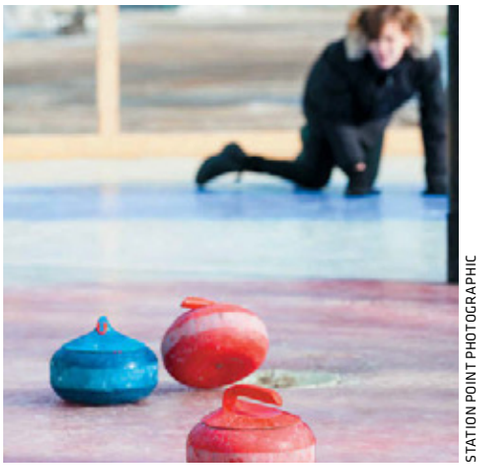
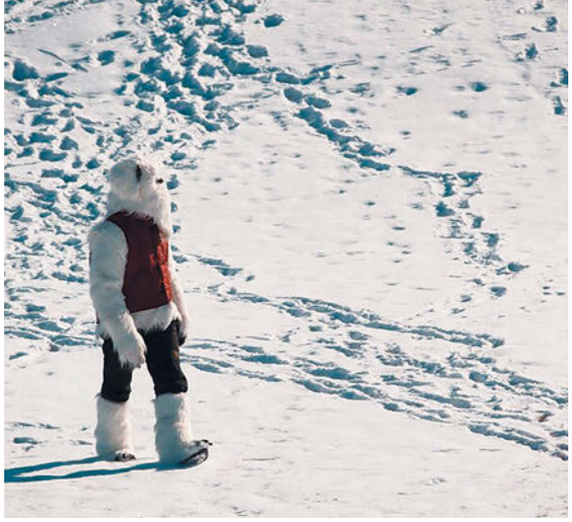


STATION POINT PHOTOGRAPHIC



KYLE THOMAS PHOTO

06 / THE MANITOBA MANIYETI

IAN HALL + DAVID PENSATO

EN_ **THE WIND-SWEPT LANDSCAPE** looks otherworldly once the sun finally rises, revealing a seemingly endless stretch of nothing but flat, naked prairie. The howling wind and bitter frost-bite conditions of a -30C mid-February Manitoba morning aren't deterrents. They're the main attraction.
Under three layers of clothing, goggles and overboots, 100 runners and cyclists from places as disparate as BC's west coast, Brazil, Tennessee and India are lined up and ready to bike or run their way through an epic adventure of up to 200 km. This "celebration of human resilience" is rooted in the winter geography: this is an all-day (and for some, all-night) ultramarathon across the Manitoba prairie. This is Actif Epica, one of Canada's premiere winter ultramarathons.
The event's founders, Ian Hall and David Pensato, wanted a way to stimulate the ingenuity and tenacity that enable survival—and even enjoyment – in the silent, frozen wild of the winter prairie. Together with Lucas Pauls and Kyle Thomas, they devised a novel plan. They "discovered" the Manitoba Yeti (or ManiYeti).

ENTER THE MANIYETI
Given life through social media (Twitter: @Maniyeti), the ManiYeti is composed of equal parts nature, mythology and humour, and appears large-as-life thanks to a seven-foot tall costume created by local Winnipeg artist Katie Kroeker. His duds embody what it means to be at one with the prairie winter. Beyond the widely-known Yeti characteristics – that thick coat of fur, those large horns, those sharp teeth – the Manitoba Yeti sports a trucker vest, blue jeans and a healthy social media following. ManiYeti likes bikes and looking after one's own mobility. He speaks simply and compellingly with a quality approaching Zen poetry about the things that matter: food, sleep, friends, coffee.
After his long, warm-weather hibernation and subsequent migration south from an undisclosed northern locale, the furry creature is known to pop-up in a downtown Winnipeg coffee shop in the weeks before Actif Epica to "say hello to friend" (timidly at first). He can be seen giving furry high-fives to self-propelled commuters on the frozen Red River trail. People are happy to see him. The Manitoba Yeti has come to represent a bigger idea of place and an enthusiasm for the human activity rooted in it.

> www.actifepi.ca for upcoming events

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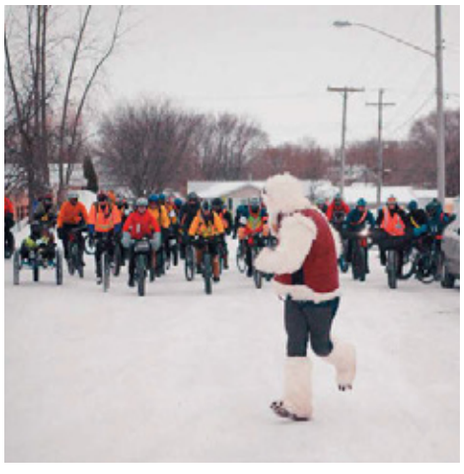
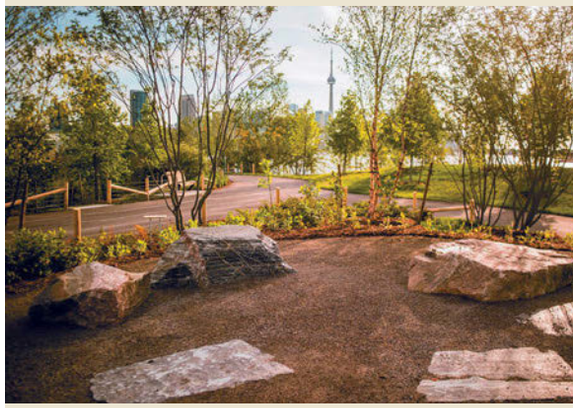


KYLE THOMAS PHOTO



LANDINC.

07 / THE MICHAEL HOUGH WOODLAND GLADE

> FR_LP+ CLAIRIÈRE MICHAEL HOUGH

EN_**THIS INTIMATE SITE** dedicated to the late Michael Hough is on a prominent point adjacent to the drumlin summit at Toronto's Trillium Park, the newest addition to Ontario Place, opened in June. The Michael Hough Woodland Glade offers an expansive and unobstructed orientation to the rising sun over Lake Ontario, and to the city.
Michael Hough was the original Landscape Architect for Ontario Place. The woodland glade is a tribute to his work and philosophy. It is a quiet area for repose and reflection, accessible only by foot and planted entirely with indigenous species that will be left to self-regenerate in perpetuity. Each sitting height rock represents a member of Michael's immediate family.
The grove planting of trees and informal groupings of shrubs is set against the futuristic, high technology architecture of the pavilions and IMAX theatre. The grove imparts the sense of an urban treed wilderness on the waterfront. It is a place apart, picturesque and natural.

> See "Romancing the Stone" on page 22.

MARILOU CHAMPAGNE

LA VAGUE

> EN_LP+ THE WAVE

1

FR_ ***LA VAGUE*, UNE INSTALLATION** estivale artistique et ludique, débarque sur la Saint-Denis à Montréal. Dans ce secteur, c'est sous l'ombrage presque imperceptible des féviers d'Amérique que les piétons progressent – l'arrivée de cet aménagement rafraîchissant est la bienvenue au cœur de cet îlot de chaleur. En fin de journée, alors que les terrasses sont encore en attente d'une foule nocturne, *La Vague*, elle, est en pleine effervescence. Son espace exigu mais vibrant, propice à la création de 'micro rassemblements', favorise les interactions chez les usagers au cœur d'une urbanité quelquefois trop individuelle.

L'EXPÉRIENCE DE *LA VAGUE*

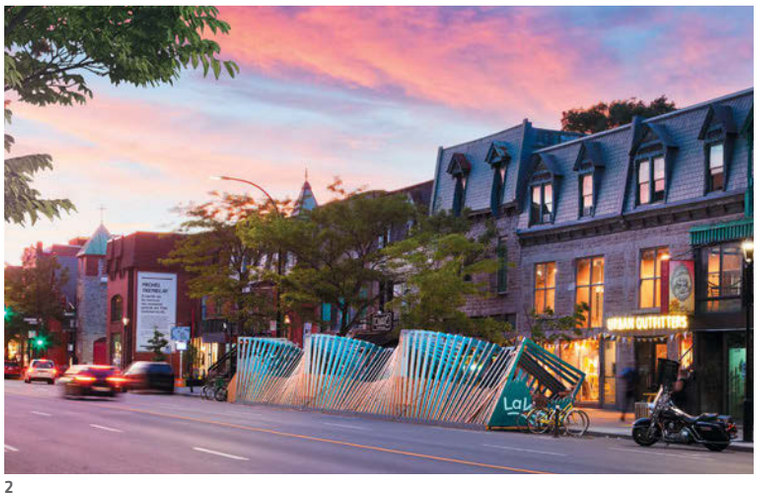
Réminiscence du mouvement de la vague, l'architecture dynamique de l'œuvre réalisée par Arcadia Studio et son équipe multidisciplinaire crée un effet inattendu : celui d'un cocon où on se sent protégé. Avec seulement 22 mètres de long (la grandeur de cinq cases de stationnement), l'espace y est restreint mais confortable. En s'y asseyant, l'envie de toucher les rondeurs du bois nous prend. Les éléments -coins arrondis, forme des bacs de plantation, mobilier - sont conçus pour s'imbriquer harmonieusement dans le patron fractal de *La Vague*.

En marchant, on y étire le bras et les montants forment maintenant un xylophone géant. À travers ce projet, l'équipe d'Arcadia a su recentrer une partie du parcours urbain autour de l'humain. Pour expérimenter *La Vague*, les visiteurs font le détour. Malgré la précarité de la rue, on s'y sent projeté ailleurs.

QUELLE SENSATION!

Les données techniques sur la nouvelle installation *La Vague*, vous les trouverez partout : 74 cadres de bois, 5 degrés de réduction de la chaleur, 45 brumisateurs n'utilisant que 0.0222 litre d'eau par heure lorsqu'ils sont déclenchés par la présence des passants lors des chaudes journées d'été. Il est cependant plus difficile de dépeindre adéquatement son expérience en mots. On y retrouve principalement trois types d'utilisateurs : les solitaires méditatifs (ils l'ont adoptée), les couples symbiotiques (ils s'y arrêtent le temps d'un baiser ou le temps d'un cliché) et les familles aux petites personnes émerveillées. Une femme assise sur un banc m'y décrit sa propre rêverie : « Je fredonnais 'We all live in a yellow submarine...', » dit-elle. « Moi, pour tout vous dire, je l'ai adoptée *La Vague*. »

« Avec ses fleurs et ses couleurs, c'est reposant. On s'y sent comme dans une petite bulle. L'endroit permet même de rencontrer des gens et de faire des photos inédites. Ça a été une bonne initiative. Moi je viens du sud



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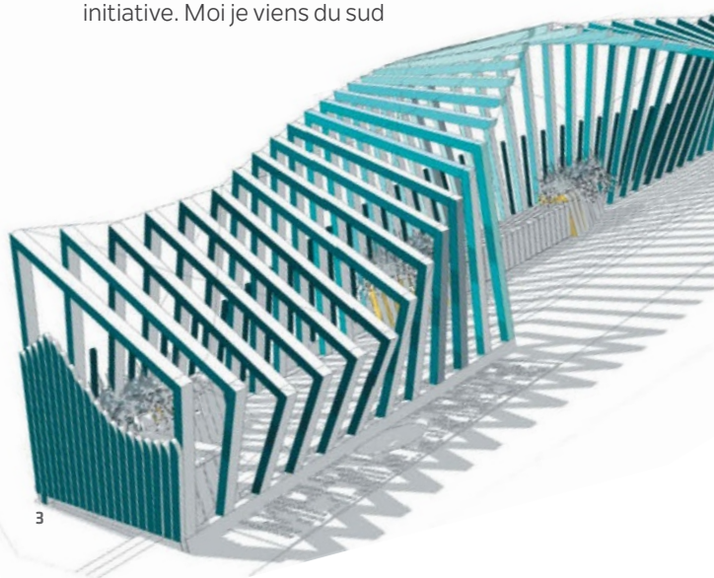

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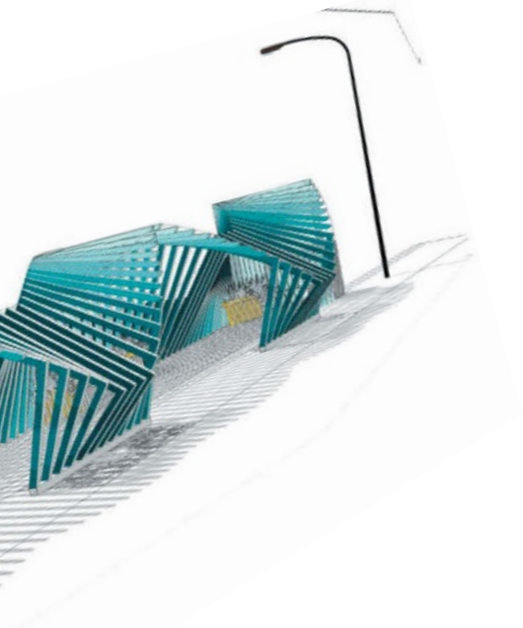
1 LES ONDULATIONS D'UNE VAGUE AGRÉMENTENT LE PAYSAGE DE LA RUE SAINT-DENIS **2** LA VAGUE OCCUPE CINQ PLACES DE STATIONNEMENT **3** ESQUISSE
PHOTOS 1-2 ALEXANDRE GUILBEAULT **3** CAMILLE ZAROUBI

Ce qu'on a créé, c'est un moment de déconnexion du tintamarre urbain engendré à même son chaos

et ça me permet de rêver de chez moi, sur le bord de la plage. »

Ici tout le monde crée sa petite histoire. On s'assoit dans *la vague* et le grondement du transit des voitures évoque étrangement la turbulence et le flot incessant des bords de mer. Ce qu'on a créé, c'est un moment de déconnexion du tintamarre urbain engendré à même son chaos. Au lieu de se battre contre le milieu, le bruit de fond généré par la circulation travaille en synergie avec l'expérience - les irritants deviennent acteurs de l'installation.



4+5 UN CLAIR-OBSCUR EN SEPT NUANCES DE BLEU **6** LE PREMIER MICROPARC AVEC BRUMISATEURS AU CANADA : LES 45 BUSES PROJETTENT 0,022 L/MIN
PHOTOS 4-6 ALEXANDRE GUILBEAULT

FORMES ET COULEURS
Le choix des formes et des tons de bleu de *La Vague* s'agencent en pleine complémentarité avec l'identité graphique du projet Fréquence - projet de revitalisation de l'artère Saint-Denis - formé par de grands triangles isocèles jaunes marquant l'entrée de chacun des commerces.
Le projet, initié par le maire de l'arrondissement du Plateau-Mont-Royal, M. Luc Ferrandez, est soutenu par la Société de Développement Commercial (SOC) (association vouée à l'amélioration des entreprises) et l'organisme Conscience urbaine.

UNE PERSONNALITÉ PROPRE
Dans *La Vague*, ce sont des interactions humaines de petite échelle qui jouent le rôle d'éléments rassembleurs ; les visiteurs, en s'appropriant le lieu chacun à leur façon, lui confèrent une personnalité propre. Mais ici, 1+1 ne font plus 2 puisque le tout dépasse la somme des parties. Avec *La Vague*, Arcadia a accompli plus qu'il n'était planifié.

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Découvrir un espace à la personnalité aussi forte mais appropriable est sans contredit une richesse marquante à laquelle se soumet volontiers l'intensité du contexte urbain.

NOTE : La Vague était démantelée le 30 octobre. Elle sera réinstallé en avril, et ce, pendant environ 5 années.

VOIR LA VAGUE EN LIGNE:
www.arcadia.studio
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5, 6

PATRICK MORELLO

ROMANCE OF THE STONE

When metaphor meets technology

1

> FR_ LP+
LA PIERRE ROMANCÉE : MÉTAPHORE ET TECHNOLOGIE

EN_

No stone too large ...

THOSE LANDSCAPE ARCHITECTS who know Walter Kehm – and a great many do – will understand that part of every process will become an educational experience. Walter is a Past Director of the School of Landscape Architecture at the University of Guelph. But I watched first hand as Walter, Senior Principal at LANDinc, became a professor of Geology, Sculpture, Art and Structure.

The teaching ground was the floor of a quarry in Dwight, Ontario on the fringes of Algonquin Park; the project, the construction of a 83-metre rock bluff, which would then be deconstructed and reconstructed on the Toronto waterfront, becoming the 1,700 tonne Oak Ridges Moraine Bluff at Trillium Park.

The construction of a massive wall some 200-plus kilometres from its intended site was a leap of faith. It was a challenge to imagine how it could be re-assembled at Ontario Place. It took a dedicated team effort including: Infrastructure Ontario, Urbacon, Aldershot, B.O.R. Aggregate Company and Muskoka Stone artisans who worked with LANDinc on the approach Within three months, the vision of a natural moraine bluff came to life. On the quarry site, where granite material has historically been pulverized into gravel for highways, over 2000 pieces of rock were blasted into varying sized pieces, and sorted by colour and size in rows to be hand selected for the bluff. There was no stone too large. Heavy equipment lifted and placed 30 to 50 tonne rocks, all under the supervision of Walter Kehm.

THE NARRATIVE OF THE BLUFF

Yet here the story is getting ahead of itself. The narrative of the creation of Trillium Park's Oak Ridges Moraine Bluff began in the winter of 2014, when the concept of Trillium Park at Ontario Place was originally conceived. It was to be a showcase for technology innovation, set within a natural environment that reflected several Ontario landscape typologies: Boreal forest, glacial moraine, drumlins, eskers, pebble beaches, Carolinian and northern deciduous forests. The design that was envisioned and ultimately constructed evolved, in Walter Kehm's words, around two key factors: "metaphor and technology."

1 LANDINC'S WALTER KEHM AND PATRICK MORELLO **2** FROM TRILLIUM PARK'S 83-METRE OAK RIDGES MORAINE BLUFF
ALL PHOTOS COURTESY LANDINC

2

3

4, 5, 6

METAPHOR

At its narrowest section, the Trillium Park site needed a scramble wall to mediate the elevation change between the lake edge waterfront pathway and an upper path. But if the wall were to exceed its pragmatic origins, the LANDinc team believed it needed to be built from magnificent rock, ideally from a northern quarry, where the team could inspect the beautiful striations of the pre-Cambrian stone they wanted to use.

As the design evolved, LANDinc initiated sketch designs to respond to the quarried stone forms. But early three-dimensional computer models did not capture the uniqueness of the stone or the rugged beauty inherent in the quarried granite. Erratic boulders worked far better, and became the designers' palette. LANDinc staff headed to northern quarries, studying the character of the stone and the geologic variety in its striations. Infrastructure Ontario, the province's project managers, reviewed samples and participated in costing exercises. The province and its Ministry of Tourism, Culture and Sport (MTCS) embraced the concept, and in the many public forums that followed, so did the public.

ART IN LANDSCAPE ARCHITECTURE

With hundreds of photographs and this wealth of on-the-ground knowledge in hand, Yulia Tsareva, Senior Designer at LANDinc, began to realize three-dimensional abstractions from the images. She modeled individual granite stone blocks from soft floral foam that could easily be carved and dented to create the same visual form experiences found walking through the quarry or in a natural setting.

3 RENDERING: A MORAINE BLUFF BUILT FROM MAGNIFICENT NORTHERN ROCK, WITH THE GRANITE SAND AND PEBBLE BEACH OF THE WATERFRONT AT ITS FEET **4** MODELLING: USING HUNDREDS OF PHOTOGRAPHS OF THE QUARRY ROCK, LANDINC'S YULIA TSAREVA BEGAN TO REALIZE THREE-DIMENSIONAL ABSTRACTIONS **5 + 6** THE QUARRY IN DWIGHT, ONTARIO: CONSTRUCTING A MASSIVE WALL 200-PLUS KILOMETERS FROM ITS INTENDED SITE **7** EIGHTY TRACTOR-TRAILER TRUCKS TRANSPORTED THE CAREFULLY LABELLED BOULDERS TO TORONTO **8** RECONSTRUCTION WITH PHOTO MONTAGES + ON-SITE GPS SURVEYS

...heavy cranes transferred the rocks to the exact locations, literally moving them into place with millimetre accuracy.

7

TECHNOLOGY

Closely coupled with the art was the technology that is essential to converting each vision into reality. Using 3D scanning technology, we documented the physical model to generate a computer 3D model, which allowed us to accurately calculate the volume and weight of the granite required for the job. With this data, other consultants could assess the required geotechnical foundations the site could manage, and assess the costs of the decisions we needed to make as the design unfolded.

By developing sections through the CAD model, we could study various construction opportunities more efficiently than with the physical model. We could be more flexible in the sizes of stone and the joint tolerances, which kept the project competitive from a tendering point of view. The mass and void could be achieved with either a few 30-tonne stones or with a larger number of 3-5 tonne rocks. As well, LANDinc could more easily realize its vision at the quarry. We could make certain that the end creation could be assembled into a bluff in a natural yet sculptural and playful manner.

A BLUFF TO EXPERIENCE

The approach led to success in finding an appropriate rock face at B.O.R. Aggregates, where we worked with Aldershot Landscape Contractors and HGH Granite experts to achieve the character we were seeking and to create an efficient selection and building process.

Within a month, Walter Kehm, and the team brought life to the vision that would create new recreational and aesthetic benchmarks along the Toronto Waterfront. The flexibility in the process became a major asset as they realized new opportunities on the quarry site. One of these opportunities, the human imperative, revealed itself to Walter and I as we witnessed a young child at the quarry discover a natural carved stone that was perfect for a seat. New criteria were introduced that day.

The wall is built to human scale. “The ability for people to sit, climb, find retreat areas in caves, find overlooks and perches...all were carefully integrated into a visually exciting composition,” said Walter Kehm. With the images and models in hand, he stressed the careful coordination of “the varying colours, forms, seams and geometries to form a unified composition.”

RAISING THE WALL

Urbacon, the project’s construction manager, and Infrastructure Ontario accepted the project’s unusual approach, and the entire bluff wall was constructed on the floor of the quarry, then de-constructed to be transported to Toronto in over 80 tractor-trailer trucks. Every stone was numbered, a photomontage created to show exact locations and elevations. An on-site survey using a GPS system marked each stone’s corners and key features. This layout was transferred to the Toronto site, GPS points marked by painted nails hammered into the ground. When the stones arrived, heavy cranes transferred the rocks to the exact locations, literally moving them into place with millimetre accuracy. The entire bluff was reconstructed in six weeks.

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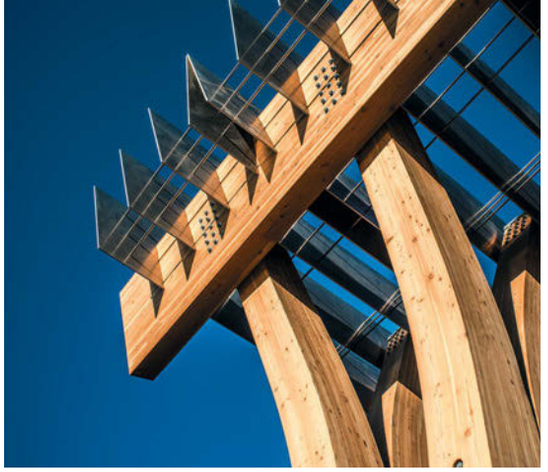

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10

TECHNOLOGY FOR THE FUTURE

After the excitement of the park opening and while beginning to see people interact with the diverse spaces on the bluff, we moved our minds once again from metaphor to technology for the warranty period. In a park implementation project such as this, a typical topographical survey that is mandated as part of the construction project forms part of the as-built documents. However, this traditional method failed to capture the complexity of this three-dimensional granite carved form.

Mansoor Ma, Associate Partner at LANDinc and a leader in computer visualization and virtual reality simulation, has developed a method that allows landscape architects and related professionals to document their projects in three dimensions. Mansoor explains. "The scalable 3D photographic quality scan survey contains quantifiable data that can reveal cracks millimetres in length on a textured surface in a park or space that is acres in size."

LANDinc has tested this approach on the bluff for future use, as well as documenting other elements of the first phase of the revitalization of Ontario Place, including both Trillium Park and William G. Davis Waterfront Trail. But this technology is becoming more relevant on a far wider scale. The visual 3D data is easily accessible and interactive. Owners and site managers can use it to assess built work over several years, or to inform their operations and maintenance programs, or to keep up-to-date public asset audits. Mansoor says it will be used in all project stages: it can document a complete streetscape corridor or a reclamation site, or track the changes in topography from erosion, and so on. It promises to be a hugely welcome tool for landscape architects.

THE ROMANCE OF THE STONE

Meanwhile, the metaphor plays very well indeed. The Oak Ridges Moraine Bluff is richly integrated with the native trees and shrubs surrounding the site. With the granite sand and pebble beach of the waterfront in the foreground, and the rising drumlin knoll-like formation in the background, it is hard to imagine anything else in its place.

Each time we visit, we are inspired by the activity, and we are grateful. Adults and kids alike play in and around the stones, exploring the abstract caves and crevices, finding places to relax in the shade. But there is also a sense of peace and romance from sunrise to sunset. Here the eye can wander during the changing light of day, and wonder at the changing colours of the stone.

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11

9 WESTERN GATEWAY **10** WITH THE MORAINE BLUFF RICHLY INTEGRATED WITH THE NATIVE TREES AND SHRUBS, IT IS HARD TO IMAGINE ANYTHING ELSE IN ITS PLACE **11** ENTRANCE TO THE PARK **12** PEACE, ROMANCE AND ACTIVITY.
PHOTO 12 NADIA MOLINARI

...the eye can wander during the changing light of day and wonder at the colours of the stone.

1

TOM BARRATT, WITH LISA RICHARDSON

RIDING TECHNOLOGY'S WILD INTERFACE

> FR_ LP+ NUMÉRISER LA NATURE

EN_

FOR BC PARKS, the South Chilcotin Mountains Provincial Park presented a daunting dilemma: how to oversee a 56,796 hectare unstaffed, off-grid wilderness park, where self-sufficient mountain bikers re-purpose old horse-trails, where summer snow storms arrive without warning, where floatplanes turn glacial lakes into adventure landing strips…and where grizzlies roam?

Although protection of grizzly habitat was a major reason the park was created in 2001, today its 200 kilometres of single-track trail are shared by a growing cast of users – deer, bears, hikers, horseback riders, mountain bikers, hunters – all with competing needs, all drawn by the untrammeled wildness of the place.

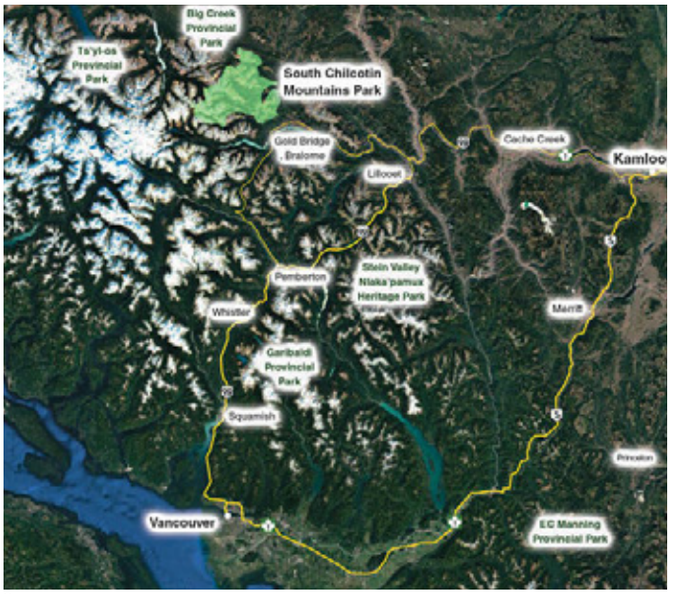
And the allure of the vast and remote South Chilcotins is precisely its biggest challenge. Management takes on a different meaning when there is a complete dearth of infrastructure and servicing. The Park is five-hours from Whistler, and the drive includes long stretches on rough, steep dirt roads. Access to many locations within the park requires a float plane. What to do?

SEND IN THE LAs

BC Parks urgently required a Facility Design Concept Plan to guide their planning. In 2016, they hired Tom Barratt Landscape Architects Ltd., and Barratt in turn, turned to the community. "The depth of professional skills in Whistler allowed us to draw on skillsets you just couldn't find elsewhere," said Barratt. "Whistler is full of these mountain bike nuts who have a built-in set of know-how on how to develop huge trail systems and who happen to be planners, architects, biologists or GIS specialists. It's rewarding to have these homegrown skills applied to nurture sustainable recreation up in our hinterland."

GIS specialist Todd Hellinga, with Whistler-based Cascade Environmental Resource Group Ltd., was one of the first professionals Barratt called. "The South Chilcotin is one of those special places that grabs you straight away," said Hellinga, who is a mad keen mountain biker, and a leader in planning and trail development within Whistler's zealous mountain bike community. Mountain

1 FLOAT PLANES DROPPED MOUNTAIN BIKES ON HISTORIC HORSE AND WILDLIFE TRAILS **2** THE SOUTH CHILCOTIN MOUNTAINS PROVINCIAL PARK IS 56,797 HECTARES OF VISUALLY SPECTACULAR LANDSCAPE, 150 KM NORTH OF WHISTLER **3** SOUTH CHILCOTIN MOUNTAINS LAS AND BEAR BIOLOGISTS ASSESSED RISKS OF DISPACING BEARS AT 14 CAMPGROUNDS + RISKS TO HUMAN SAFETY
ALL IMAGES COURTESY TOM BARRATT



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...the allure of the vast and remote South Chilcotins is precisely its biggest challenge.

bikes were just one of the two key pieces of technology required to enable the team of landscape architects, GIS specialists, and grizzly bear biologists to physically survey 14 remote campgrounds and 146 km of wilderness trails over the summer of 2016.

THE ENORMITY OF THE PROJECT

"Once the enormity of the project started to drive home, we imagined being out on bikes in the pouring rain with reefs of paper, stopping continually to record trail conditions and problems," said Barratt. "Each coordinate would have to be recorded from a GPS tool and individual comments for each spot made on forms. It was just untenable.

"We started to consider data entry criteria to match our needs, with a capacity to make comments and recommendations on the spot along with a photo: perhaps iPads and a customized Esri Collector in the ArcGis program. This would save the need for manual record taking requiring later digital entry," explained Barratt.

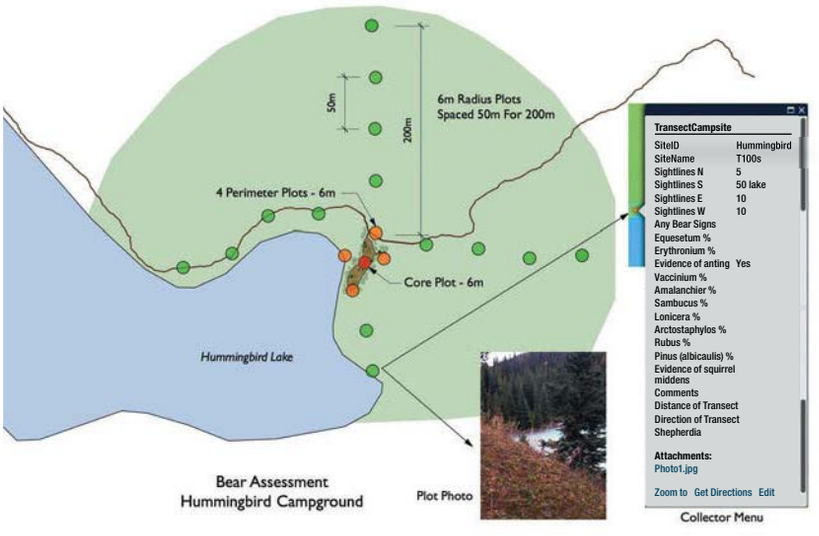
The team had a limited timeframe to track huge distances and inventory a laundry list of items. The first field tests revealed that an iPhone would work even better than an iPad. With a bit of practice, they became adept at standing astride their bikes to record observations of invasive plants, windfall, erosion and grizzly bear sign. Just tap once for the category, select from a pull down menu of trail conditions, write a comment, take a picture and be on the way again.

BONUS FEATURES

Even better, the app could be fine-tuned throughout the process, with new categories added as needed. And although the team's mandate was primarily to inventory campgrounds and record trail conditions, thanks to the app, any wildlife encounters, invasive plants or historic structures could be recorded, as well as the numbers of hikers, campers and bikers. "We could track almost anything that would be of interest to a land manager, to help inform future planning. And most critically, we were able to do it without losing time," said Barratt.

SOUTH CHILCOTIN MOUNTAINS PROVINCIAL PARK

3



Collector Menu

With a bit of practice, they became adept at standing astride their bikes to record observations of invasive plants, windfall, erosion and grizzly bear sign.

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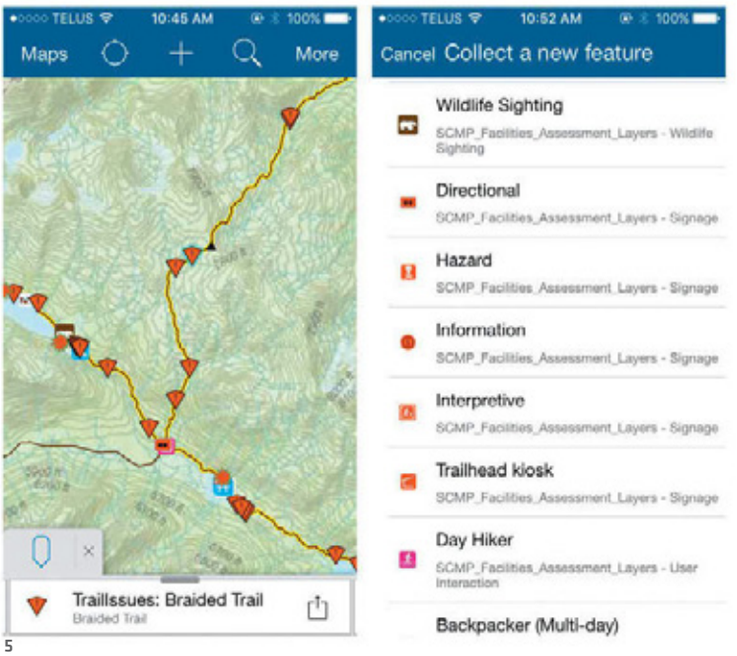

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AND WHAT OF THE BEARS?

Since the driving purpose of the study was to better manage users and facilities to reduce human-bear conflict, the team worked with bear biologists to assess risks to human safety and the relative risk of displacing a bear from habitat, prioritizing mitigation measures. The grizzly population in the Southern Chilcotins is considered threatened. Its population of 203 animals (a density of 13 bears per 1000 square kilometres), is just half the carrying capacity the land base could support.

The team completed mapping, site plans and detailed grizzly bear assessments for 14 campgrounds. The collection method made it clear that experts aren't best deployed in silos. By riding together, the landscape architects lent their knowledge of native plants to the bear biologists, while they themselves learned more about grizzlies than they ever imagined possible.

4 ASTRIDE THEIR BIKES, TEAM MEMBERS LIKE ANNIE OJA ENCOUNTERED STEEP TERRAIN, DETERIORATING TRAIL CONDITIONS AND INCLEMENT WEATHER **5** A PRIMARY TOOL: A CUSTOM APPLICATION FOR SMART PHONES

Additionally, the team examined wayfinding signs and trail conditions over 140 km of trail, noting priorities. "There was a lot of cross referencing and overlap in our duties. And later, sitting around the campfire in the evening, we discussed all that we were discovering," said Barratt.

TECH SUCCESS

Cascade Environmental Resource Group is adapting the technology for future environmental assessment and data recording. And for landscape architects, the new app offers the option of maintaining a continual dynamic database that anyone can help update. Barratt compares the method with his arduous work less than a decade ago, to plan the 2010 Winter Olympic cross-country skiing venue. "Sports experts from the National Sports Federations would bushwhack through the site marking up maps and flagging trails. We would have to take their information and digitize it to try and plot where they were. Imagine if we'd had this technology then, and could have captured all that collective wisdom from their years creating other venues, along with their observations, photos and insights. They tended to be suspicious of computers and CAD in general, but this method would have enthralled them."

PARKS IN THE BLOOD

For Barratt, a landscape architect for 35years with deep experience in resort development and municipal parks planning, the South Chilcotins project was a chance to work with the BC Parks office in Kamloops for the first time since 1979, when he worked a summer as a parks planner. "Once you've worked for BC Parks, it never leaves your blood," Barratt admitted. "You're outside, dealing with huge landscapes. It felt a bit like coming full circle."

This time, he was back in the saddle with the right tools to stretch a budget and crowd-source the best intelligence one can gather. The South Chilcotin Mountains are simultaneously a recreational refuge, an economic engine and an endangered habitat. The dynamics can't easily be navigated in focus groups and off-site stakeholder meetings. On the ground, in the field, amongst the wild skies, around the campfire, however, answers were more evident.

"It's easy to understand why so many users are protective of this place," said Hellinga. "We strived to ensure BC Parks has all necessary data to help make the park safer and more sustainable for all the users and wildlife."

But it's not just the recommendations that BC Parks is interested in. They've asked for a detailed follow up presentation on the methodology as well. Dynamic landscape warrants a dynamic interface, after all.

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6

"We could track almost anything of interest to a land manager... And we were able to do it without losing time."

6 COLLECTING DATA FROM MOTION DETECTING CAMERAS AT TRAILHEADS: IMAGES FROM THE SAME CAMERA **7** LANDSCAPE ARCHITECTS WITH BIOLOGISTS & GIS EXPERTS

7

PROJECT TEAM

LANDSCAPE ARCHITECTS
TOM BARRATT + ANNIE OJA, DAVE WILLIAMSON, CASCADE ENVIRONMENTAL RESOURCE GROUP,
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TODD HELLINGA AND NICOLA CHURCH
BIOLOGISTS
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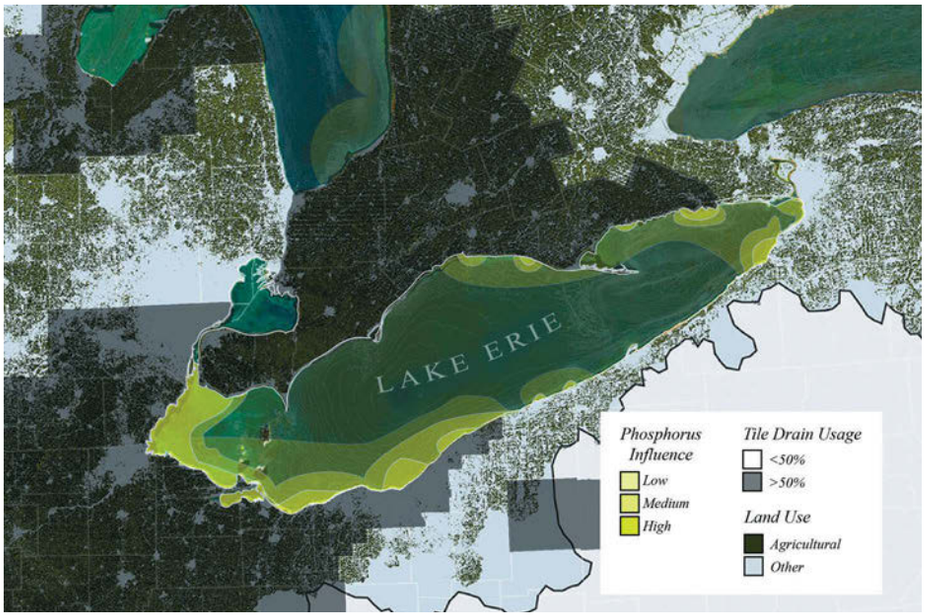
JUSTINE HOLZMAN + SANDRA COOK

FLOODINGF IELDS

Designing the strategic inundation of Lake Erie's agricultural landscape



MAPPING OF PHOSPHOROUS IMPACTS ON LAKE ERIE, AGRICULTURAL LANDSCAPES AND AREAS USING TILE DRAINAGE
ALL FIGURES + RENDERINGS BY JUSTINE HOLZMAN + SANDRA COOK

FR_ RESUMÉ
CHAMPS INONDES
Pour réduire la pollution par le phosphore, le projet Wet Lands propose des interventions appliquées à chaque ferme qui réduisent les émissions tout en soutenant l'économie agricole. Chaque ferme étant unique, Wet Lands utilise les données historiques et actuelles pour modéliser les paramètres et visualiser les effets des politiques flexibles.

> LP+_FOR MORE FLOODING FIELDS IMAGES + FIGURES

EN_
WATER DOWN THE DRAIN

Millions of metres of drainage tiles and canals swiftly carry nutrient-rich water off the agricultural landscapes of Southern Ontario and into rivers and waterbodies. Lake Erie, once proclaimed "dead," has for decades suffered from massive algal blooms. The culprit, phosphorous, is a main ingredient in agricultural fertilizers. Once a land of swamps and marshes, the now heavily fertilized agricultural landscapes of Essex County are a main contributor to the yearly Harmful Algal Blooms (HABs) of Lake Erie.

To reduce phosphorous across Essex County, the design research project *Wet Lands*, proposes policies and landscape design interventions specific to individual farms that reduce phosphorous while supporting the agricultural economy. Because the landscape is variable and each farm is unique, *Wet Lands* uses historic and current data with parametric modelling techniques to visualize the effects of flexible policies across the region.

PIPES AND POLICIES

In North America, the draining of inundated lands for agricultural land reclamation began long ago as a primary tool of colonization. Unsurprisingly, this practice has been the leading cause of historic wetland loss. Essex was settled by French soldiers and later British loyalists after the American revolution. Once all the naturally draining land was deforested and settled, early subsurface drainage methods were employed. Introduced from Britain, Canadian farmers began digging trenches to fill with sticks and stones and cover with earth to remove excess water from the soil. However, the majority of Essex remained swamp until the *Ontario Drainage Acts* of 1869 and 1873, which made the drainage of large swaths of land achievable.

Main drains were cut through swamps and marshes and guaranteed by the municipal council, who collected annual rent from landowners benefiting from the drain. As manufacturing advanced, subsurface rubble was replaced with agricultural tile drains. Clay pipes were extruded in mass and placed end to end in trenches allowing water to seep into the tube through small gaps. And in the 1950s, polyethylene corrugated drainage tube was manufactured in long segments to be laid down in one continuous piece by trenching machines and tractors.

ESSEX COUNTY IN SPRING

RENDERING: INUNDATING CAREFULLY SELECTED SECTIONS OF ESSEX FARMLAND IN SPRING

However, despite the technical advances, ultimately it was the policy and financial incentive for municipal drainage infrastructure that transformed the landscape. The result for Essex has been a 97 percent loss of historic wetlands. Currently, 72 percent of the land is agricultural, the majority of which is tile drained.

BLOCKING PHOSPHOROUS AT ITS SOURCE

The Lake Erie Basin receives 44 per cent of the phosphorus entering the Great Lakes. Rather than address the phosphorous once it is already in the lake, there is tremendous opportunity to reduce the phosphorus at the source. While landscape architects certainly have the skills to design landscape infrastructural solutions, the dispersed nature of phosphorus runoff and limited capital of farming municipalities, leave large-scale interventions too expensive with minimal impact. Designing for a broad scale often requires an understanding of the legal and political landscape that, in many cases, becomes a more challenging design project.

In Essex County, this places pressure on individual farmers to apply green infrastructure and amend their practices. Real change will hinge on using policy, incentives, and a knowledge of the farming economy to design a regional program that will assist individual farmers in implementing strategies without economic loss.

MAKING LANDS WET ON A BROAD SCALE

Wet Lands suggests that to counter the effects of centuries long drainage practices for agricultural land use, we must make lands *wet* again. Spring rainfall events are the most critical time to prevent agricultural runoff from entering waterbodies. This can be accomplished by holding water on farmlands and within drainage infrastructure. A series of bermed fields would be used during the wet season by pumping nutrient-rich spring runoff from the municipal drains – preventing the immediate entry of nutrient rich water into Lake Erie. This method allows nutrients to bond with soil particles over a period of one to three months, enriching the soil and cleaning the water: a mutually beneficial endeavor for farmers and Lake Erie.

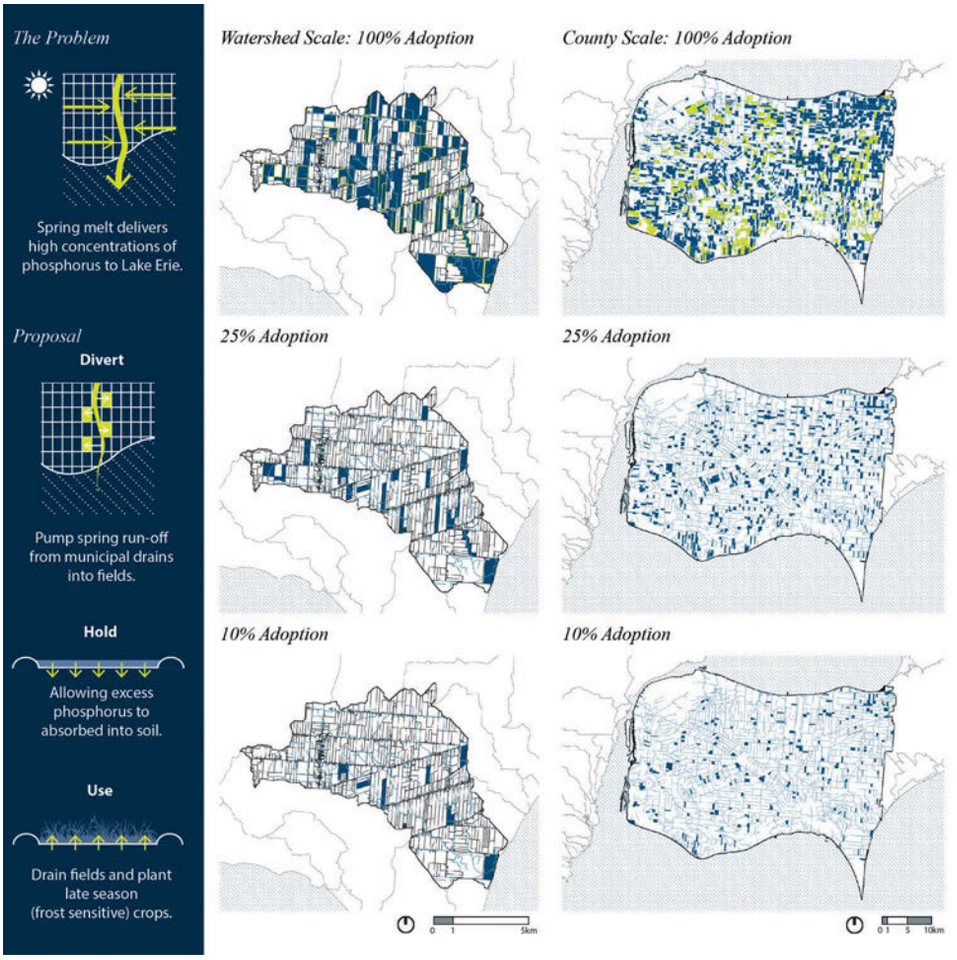
Parametric design offers a dynamic way of spatially modelling scenarios and calculating outcomes to adjust for potential effects and varying numbers of farmers adopting the suggested practices. To develop the model, geographic information systems (GIS) datasets of property lines, municipal drains, soil type, and land cover were exported from ArcGIS into the 3D modelling software Rhino to work with using the parametric modelling plug-in Grasshopper, a visual coding software developed for users who are unfamiliar with code.

MAPPING IDEAL SITES

To identify properties adjacent to a municipal drain for strategic inundation, a basic Grasshopper script was created to select all closed curves of the property lines containing part of a municipal drain within its boundary. The search was narrowed by eliminating properties with small footprints or sandy soil, and highlighting properties which already contain wetland or forest cover. This categorization produced a map of ideal inundation sites to calculate the potential area of seasonal wetlands and the volume of water held within them. 473 sites, equal to 18,200 hectares of land, were identified for potential inundation. By pumping nutrient-rich spring runoff into these areas for the wet spring season, farmers would not only enrich their farmlands and mitigate flooding, they would create habitat during the peak migratory bird season while clarifying the drainage headed for the lake.

This method of modelling is helpful to understand the scale and effects of the proposed interventions in reducing phosphorous in Lake Erie, using measures such as the volume of spring runoff that might captured during an average spring season in relation to land area. According to our study, if only 25 per cent of the farms adjacent to a municipal drain adopted the proposed practices, 41 per cent of the spring rainfall would be captured and the habitat area available to migratory birds would increase from 7 per cent to 16 per cent.

Spring rainfall events are the most critical time to prevent agricultural runoff from entering waterbodies



SPATIALIZING POSSIBLE POLICIES

The model was also used to explore additional benefits which could be achieved through policy changes. For instance, widening and deepening certain municipal drains that connect to Lake Erie could provide increased opportunities for recreation as well as increased habitat. Considering the varying sizes of individual farms, what would be the outcome of mandatory buffers along all municipal drains based on farm size? *Wet Lands* proposes policies based on individual farm metrics that recognize farmers alongside watershed scale issues.

INCENTIVES: MAPPING SCENARIOS

A shift from large monocultures to high value intensive diversified farming, would allow farmers to concentrate farming to a smaller area of their property and increase profitability, freeing lands for phosphorous absorption and habitat. In exchange for the conversion of part of their land into managed woodlots or permanent wetlands, farmers might be offered a range of government incentives and loans to invest in intensive farming practices. Grasshopper scripts were designed to map locations where government loans would have the greatest environmental impact, lowest investment requirement, and highest rate of adoption.

Wet Lands considers several variables. The first scenario maps farms where a shift to non-commodity crops would be more likely to be accepted. Because farmers who can talk to a neighbour currently growing a non-commodity crop are more likely to consider growing alternate crops themselves, *Wet Lands* highlights potential lands adjacent to farms that currently grow a crop which is not soy, corn or wheat.

Habitat patch sizes in Essex County are small and fragmented. The second scenario maps properties already containing habitat patches greater than one acre to indicate where habitat can be expanded by farmers who may switch to a more intensive versus extensive crop.

And in the third scenario, the most intensive and potentially profitable method of farming is considered: greenhouses. Kingsville in Essex County already has the highest concentration of greenhouses in North America, but there is room for growth. Government investment would help offset the limiting factor: access to affordable power in the coldest and darkest months of the year. In this scenario, *Wet Lands* shows farms adjacent to urban areas with basic infrastructure already in place.

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DAN NUTTALL SPEAKS WITH JANET ROSENBERG

THE HEALING GARDEN

A consideration of the novel

1

> **FR_ LP+** LE JARDIN DE VERRE

EN_

THE MAX TANENBAUM *Healing Garden opened in November, 2014, on the 14th floor of the Princess Margaret Cancer Centre in Toronto. It is a "glass garden" of incredible beauty, a stunning testament to hope in the face of extraordinary obstacles.*

The garden, with its drifts of translucent flowers of blown glass, was created by Janet Rosenberg & Studio, a firm well known for its masterful and inventive design solutions over many decades. Landscapes | Paysages asked artist and former landscape architect ***Dan Nuttall*** *to speak with* ***Janet Rosenberg*** *about the genesis of the design and also about the place of the "novel" in landscape architecture.*

DAN NUTTALL [DN]: Janet, thank you for taking the time to speak with us. I have visited the Max Tanenbaum Healing Garden, and although I had read about its inventive design, I was surprised by its power, particularly in terms of colour and impact upon mood. From the information I gathered about the design it seems that the process of developing this space might even be described as, if I can use the phrase, "a constellation of novelties."

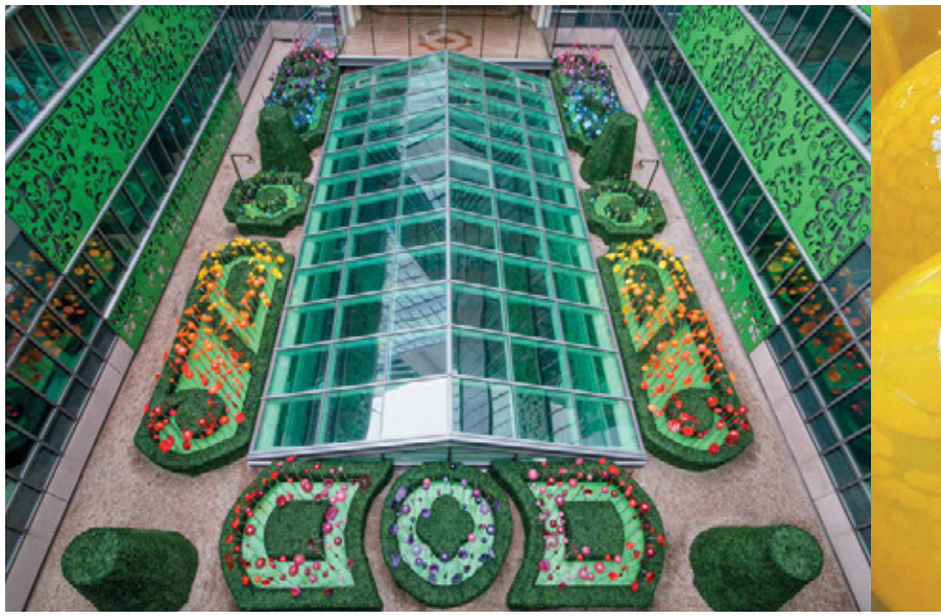
JANET ROSENBERG [JR]: Well, the novelty about it first of all, is that it exists…Hospitals, especially a place like The Princess Margaret Cancer Centre, are really about sick people who need to believe in wellness. To be able to give [those patients] some pleasure, was an amazing novelty, as you use the term. The response has been incredible. Patients come out with their IVs and they sit there [looking through the glass], and they see the colour and it reminds them very much of a garden. But at the same time it follows all the requirements that were set out by the University Health Network and Princess Margaret Hospital.

DN: The construction, I understand, posed substantial challenges. Can you tell us about the garden's inception and the constraints you encountered?

JR: Princess Margaret is one of the leading cancer hospitals in the world and because of that the healing garden is a very important place. They wanted a really beautiful natural space, without living plants, and they wanted to ensure year-round beauty. But the constraints were so incredible. Basically the garden could not be accessible, it couldn't be alive, it couldn't have any maintenance…

"It's a reminder that life is beautiful."
—Patient, Princess Margaret Cancer Centre

2



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no water, no weight or structural loads. All materials had to be delivered to the site via a standard elevator, through an operating functional hospital and its doors, and construction noise had to be kept to a minimum because of patients in surrounding rooms. Disruption had to be minimal, and there was also a very tight schedule and budget.

So there were a lot of constraints, yes, but [the design solution] came to us really quite quickly: we're all connected through our own personal experiences with hospitals and cancer, and [we all know] the patients need so much hope and positivity. The concept evolved because of that.

DN: You mention "hope," and I can tell you, as a visitor, that despite the lack of living plants, there was that connection with nature. The garden is a riot of colour and diversity. And that's a cornerstone in terms of therapeutic effect.

JR: Especially in the wintertime. I love it through all the seasons, but the winter is great.

Artech Glass Blowing Studio [who created the flowers], were incredible. There was a fair amount of technical work to make sure [the garden] withstood wintertime and the flowers would be resilient to site conditions – the flowers are angled to prevent any sitting water that might freeze, and they are mounted securely on steel rods (stems) to ensure that there was no movement. Through our research we learned that movement of elements could have a negative effect on patients undergoing treatment.

DN: How did you arrive at the forms and colours?

JR: We actually started looking at what the flower types meant symbolically, whether it's love or hope or bereavement. Then we considered different shaped flowers that would make a great composition, inspired by the texture and variety of English border gardens , and we looked at colour – the full cycle of colour that's very much there to inform moods. Red and orange is about being hot, and stubborn and full of fire, and pastels are about being quieter and more thoughtful. We were able to cover the whole range of emotions.

1 THE 14TH FLOOR LOBBY AT PRINCESS MARGARET CANCER CENTRE WAS EXPANDED TO CREATE A LOUNGE SPACE, LINKED TO THE COURTYARD BY FLOOR TO CEILING GLAZING **2** JANET ROSENBERG IN THE MAX TANENBAUM HEALING GARDEN **3** BIRD'S EYE VIEW TAKEN FROM THE 16TH FLOOR TERRACE OVERLOOKING THE HEALING GARDEN

PHOTOS 1 DAN NUTTALL **2** PRINCESS MARGARET FOUNDATION **3** OVERSTREET PHOTOGRAPHY

4

DN: And despite its materiality this garden actually grows?

JR: When we saw how beautiful and evocative these sculptural flowers were, with the vivid colours that we had chosen with the artist, we began to explore with the hospital team the opportunity to raise funds for cancer research by allowing people to dedicate a flower to a loved one.

DN: One of the tenets of therapeutic landscapes is to be unambiguously positive. That is really entrenched in the garden…right to the walls.

JR: We had to work really hard to find somebody who would create the boxwood hedging for us, because, you know, the space was a pretty ugly box, square with a glass window in the middle of it, so we wanted the curves and the magic to happen, we wanted beautiful lighting at night, and we wanted it to be really beautiful in the wintertime so that people would always have the joy of colour. Hospitals are pretty colourless, so having the garden outside in some ways lent itself to allowing a different palette of colours. Custom laser-cut steel panels in a vibrant green were mounted on the exterior walls, which are open to the 16th floor, and reinforce the courtyard as a garden room. The panels extend the parterre's influence with a pattern of arabesques modeled on trimmed hedges.

5

DN: This was in every way an unusual project, such a novel interpretation of a garden. Has the garden met your own expectations?

JR: Oh my goodness, absolutely. We have received some very positive and deeply personal feedback from people who have experienced the garden. I think of the people who worked to put the garden together: all my office was there helping to install the garden on site by hand. My sister Debbie joined us too, and she passed away at the end of November from her own battle with cancer. This project gave her hope the way the garden is supposed to give hope, and she was able to dedicate flowers as part of her own experience and process. We also had wonderful support from the UHN and PMH. This is all really important.

And yes, working on the Princess Margaret was an incredibly novel experience, there's no doubt about it. It allowed the office to stretch. But you know, "novel" is an odd word because I don't actually feel like the garden is a novelty.

DN: Because you've also created so many other surprising designs?

JR: Yes. All of our projects are really about coming forward with novel ideas to change the perception of how places are used… there's so much range for creativity [in landscape architecture].

I believe that something is novel when it's specific to the people who are going to be using it and very specific to the site. We listen to people, talk to people, look at the situation. And I think that's where we find our fresh ideas… our pioneering ideas. Our imagination, our innovation, our inventiveness…The studio is filled with people who really love the challenge of doing different things and so we go the extra mile. And… at the end of the day you really see it, because the outcomes are not similar to anything else. It is really about coming forward with novel ideas to change… how places are used and experienced.

DN: So in this sense, the novel solution is integral to the profession of landscape architecture as a whole?

JR: People come to work for us for the stimulation of finding new solutions to old ways of doing things… to look at things with fresh eyes…to be experimental.

4 THE FIVE FLOWER FORMS ARE RENDERED IN SEVEN COLOURS **5** THE PARTERRE HEDGES AND TOPIARIES ARE CUSTOM-BUILT SILK LIGHTWEIGHT BOXWOOD FORMS, BUILT TO LAST

PHOTOS 4 OVERSTREET PHOTOGRAPHY **5** JANET ROSENBERG & STUDIO LANDSCAPE ARCHITECTS

"All of our projects are really about coming forward with novel ideas to change the perception of how places are used..."

But you know it's funny, because I get caught on the word novelty, because novelty has this sense of being about things that are a real treat to have, whereas our profession is a necessity. We're not a "novelty"; landscape architecture is a fundamental necessity now.

DN: Was this always the case?

JR: When I started this practice over 30 years ago, what were we doing? We were basically planting trees on boulevards, we were fighting with architects about landscape architecture and the purpose and value that it had. [Yet now] it's really the landscape architects who are leading major projects in city building, park development and intensification. Now it's our time...

But you really need the right sites and the right clients who will trust you, who will allow you to do your best work, to take a stand, to do something different. Then we set new precedents; it becomes a new paradigm; the profession marches forward.

DN: So this idea of novelty can trivialize what landscape architects do?

JR: I think you understand what I'm getting at. In the dictionary, novelty is described as "new, original, unusual, unfamiliar, unconventional, different, fresh, innovative," so I don't feel comfortable with it. It's been too long a battle to get us to this point.

Our strength is to take a standard and often formulaic engineered solution and turn it into something beautiful, or to take the functional requirements and insist that they work from a landscape point of view — for people. It's about the public realm now. And certainly with climate change, it's about the need for resilient landscape solutions.

DN: Yes, and the rules are changing. A recent article from the Society of Ecological Restoration said that one third of the planet's ecosystems are now "novel". So contemporary landscape architecture is increasingly going to need to develop inventive solutions to deal with ecological crises, using all the tools we have.

JR: But you know, you also need people with passion, you need voices, you need commitment and you need to care. Landscape architects are really the voices of the natural environment.

DN: We are the profession that's going to be dealing with this ongoing dialogue between humans and anthropogenic change. The solutions are going to be challenging and intricate, but I think we're the profession that can keep pace with that.

JR: But Dan, you have to be brave. And you have to *say* that it's important. There are very few passionate professions... I mean, it breaks my heart when I look at some of the things that are happening. Listen, the President of the United States doesn't believe in climate change... and he's putting coal mines back into parks, and you don't see a big uprising because of it.

6

6 THE SATURATED COLOURS WILL EVEN PUNCTUATE WINTER SNOW.
PHOTO 6 OVERSTREET PHOTOGRAPHY

"My studio is just so much fun to come to every single day. To work with 25 educated, passionate believers in the profession is an incredible novelty."

7 FLOWERS ARE USED AS SYMBOLS OF VIGOUR IN A POEM OF COLOURS
PHOTO OVERSTREET PHOTOGRAPHY

DN: There's a need then for lobbying and engaging in politics?

JR: I believe we have to think about the big picture and make smart long term decisions. Every project is important. Every project has implications. If projects are done poorly they have consequences, individually and collectively, across all scales.

We're working on Mirvish Village, and it's a great opportunity to put innovative thinking into action. We have a great client and a great architect, and that's really important in terms of designing for a new kind of lifestyle: walkability, bike jockeys to take your bike downstairs and fix it while you're having dinner, marketplaces that have more organic food. Those are all important.

DN: So perhaps the most novel aspect of the profession is how we work?

JR: The novelty of working with great professionals is such a treat…but it has to be paired with cohesion, a design team where everybody has the same goals and vision. When we did the design for a wildlife crossing bridge [in Colorado] we had such a fabulous team of people talking about how animals crossed, and how they acted and what they would see. (See *LP* 2011 Spring.) Where you have a number of different voices, you can make decisions differently. Great clients are also an incredible treat because they support you: they're re-establishing the vision.

DN: This is the way of the future? Your future?

JR: I'm 66 and not having any thoughts of retirement. My studio is just so much fun to come to every single day. To work with 25 educated, passionate believers in the profession is an incredible novelty. This doesn't just happen…It's about picking the right people who are on the same wavelength, who look at the profession the same way as you do, who do things on their own outside of the office because they believe so much in it. I think I could go on forever and ever when I'm surrounded with a group of people like this and I feel like I have a lot left to contribute.

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JANET ROSENBERG & STUDIO LANDSCAPE ARCHITECTS

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STEFANO GIANINNI - PROJECT MANAGER;
TODD DOUGLAS - COORDINATOR.

THE UNIVERSITY HEALTH NETWORK:
RUDY DAHDAL;
REA CONSTRUCTION;
FUEL GLASSWORKS;
MAF INDUSTRIES (PANEL + FLOWER ROD FABRICATION);
NORR ARCHITECTS (ARCHITECTS FOR THE LOBBY EXTENSION);
MAKE BE-LEAVES (ARTIFICIAL BOXWOOD HEDGE FABRICATION)

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ROBERT BROWN + ROB LEBLANC

DESIGNING INVISIBLE LANDSCAPES

1 FACE COOLING IN WINTER CONDITIONS
PHOTO ANDREW BRIGGS

EN_

MYSTERIOUS FORCES ARE AT WORK in the landscape. At times these invisible forces gently nudge people out of some landscapes; at other times they forcibly expel everyone, emptying the site. These forces are *flows of energy* and although our eyes can't see them, they are perhaps the most powerful determinant of the success or failure of a landscape designed for people.

Landscape elements like soil, water and vegetation can all be seen, quantified, inventoried and modified, yet we only catch fleeting glimpses of the flows of energy. Our eyes can't see convection, evaporation, terrestrial radiation, metabolism or conduction. Yet all of these have a strong influence on how and where people will spend time in the landscape.

Collaborations between landscape architects, micrometeorologists and biometeorologists have yielded some remarkable advances not only in jointly developing instruments that make these unseen elements visible, but also in understanding how humans respond to microclimates. When we design landscapes where the amount of energy people receive in the space is the same as the amount they are losing…where gains and losses are in balance…we create comfortable landscapes.

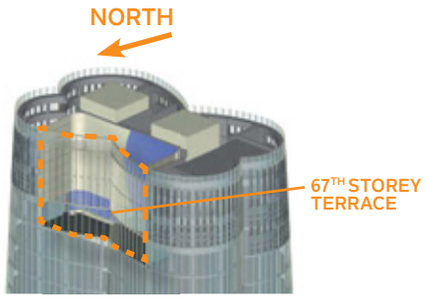
EVERYTHING EMITS RADIATION

For most people one of the most difficult energy flows to visualize is terrestrial radiation. Everything on earth (and in fact everything in the universe) emits radiation. The hotter the object the more radiation it emits. Think of a time when you were standing near an outdoor fire. The fire was not warming the air; the heat that you were feeling was arriving as terrestrial radiation. There is now an amazing instrument that turns terrestrial radiation into colour images and allows us to see the temperature of any object and how much radiation it's emitting. It's called a forward looking infrared (FLIR) camera. Andrew Briggs, now with Enns Gauthier Landscape Architects in Vancouver, used one of these cameras in his MLA research to measure how faces cool down in windy winter conditions. The results deepen our understanding of how to design outdoor places that people will use during winter. (Ask us for a PDF of the paper printed in *International Journal of Biometeorology:*
rbrown@arch.tamu.edu)

DUOS AND DRONES

A miniature version of the FLIR, called *duo,* can be attached to a drone. At Texas A&M University, Dr. Eric Bardenhagen and I are using this technology to study the thermal conditions of outdoor areas of long-term care facilities for the elderly. By analyzing the aerial thermal images we can identify dangerously hot locations (bright red areas) and pleasantly cool spots (blue areas).

Microclimate measurements have traditionally been taken at one place – usually at an airport. But when we're considering people using a landscape we really need to be able to measure the microclimate along a transect on site. Another mobile measurement tool, a mobile microclimate station attached to a bicycle, was pioneered by University of Guelph student Graham Slater. His MLA research won an ASLA Award of Excellence. Now, PhD student Wenwen Cheng is taking that design to a higher level. The climacycle (or microbike — we're not sure of the right name yet) is a very stable mobile station that takes measures along transects. While we're measuring with the bike, we also have a station on the ground and a drone in the air…and we do it all while LANDSAT is going overhead, so we can see the microclimate from several different perspectives.



...microclimate site analysis...can inform designers working to create the most comfortable designs...

WHY MICROCLIMATES MATTER

Landscape architects can gain powerful design insights through microclimatic site analysis. The science can inform designers working to create the most comfortable designs, often in intensely challenging environments. In the case of the New York Times Tower, we worked with HMWhite Architecture and Planning and Cornelia Oberlander, helping them design both a ground level courtyard and rooftop decks that would maximize human thermal comfort. On the 53rd storey roof deck, we added ceramic windscreens to reduce wind and improve comfort.

MORE COMFORTABLE ROOF DECKS

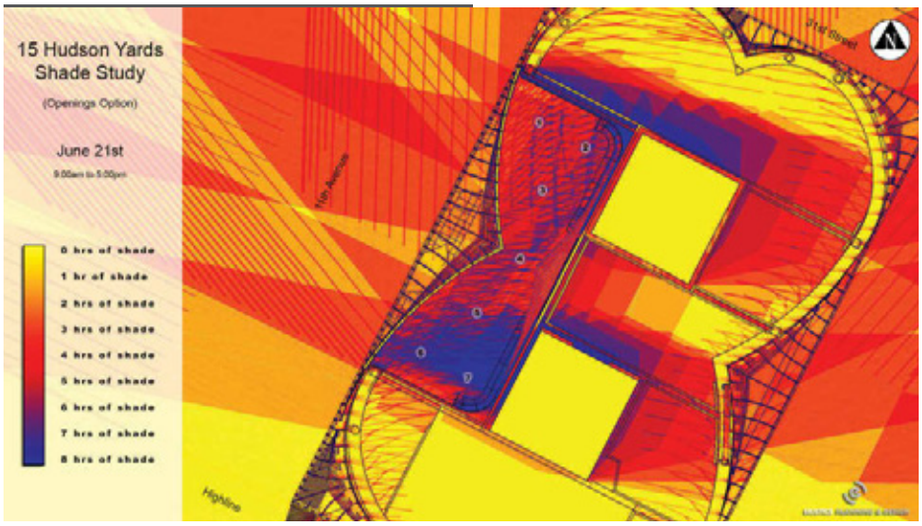
More recently we've worked with HMWhite in New York on the 15 Hudson Yards project, where we looked at the impacts of adding full or partial glass panels to improve both human comfort and plant health on the 67th storey roofdeck terrace. Using Autodesk Flow, we simulated the wind impacts of the various design options and then simulated other microclimate variables as inputs into the COMFA Model to assess human thermal comfort in specific places on the roofdeck. The results, which were simple plots of comfort at various locations on the rooftop, provided designers with the information they needed to modify their designs to make deck spaces more comfortable.

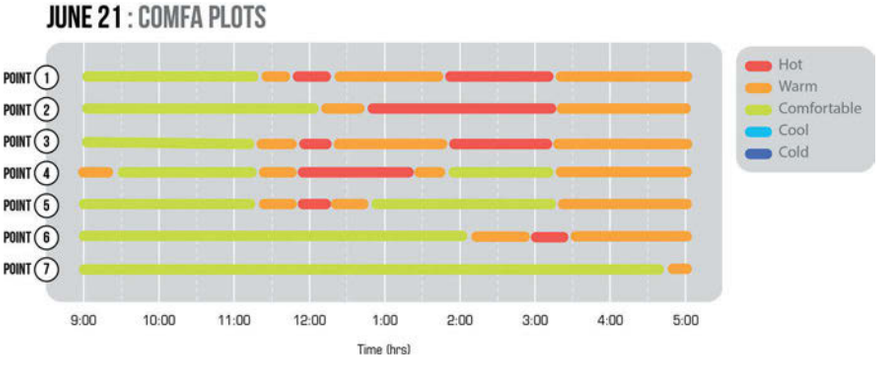
COMFA identifies problematic energy flows which can be addressed through design. For example, when COMFA pinpointed locations that received too much solar radiation during mid-summer, we tested various shading devices to see which had the best effect. In some areas trees were sufficient to achieve thermal comfort, while in other areas we needed umbrellas or other solid structures. The same analysis shows designers how to increase winter comfort, by blocking wind, for example, and increasing access to shortwave radiation (allowing the sun to shine in).

THE SOLAR CARVE

Working again with HMWhite and StudioGang, we analyzed two rooftop spaces (the 2nd and 11th storeys) on the new Solar Carve project along the High Line. Since it is important that no shadows be cast on the High Line *Sun Deck*, the shape of the building was 'carved' according to angles of the sun. The process was similar to that used at Hudson Yards: the scientists and designers worked together to understand the base conditions of the site and then to modify the design.

What does the future look like? We're collaborating with Dr. Tim Logan, an atmospheric scientist, to develop a new kind of instrument pack. Check out our sidebar of new instruments, page 45.





FIGURES 2-3-4 HUDSON YARDS SHADE STUDY FOR 67TH FLOOR, JUNE 21, WITH COMFA PLOTS FIGURE
COURTESY ROB LEBLANC, EKISTICS

THE INSTRUMENT PACK OF THE FUTURE

CURRENTLY INSTRUMENTS which collect high quality microclimate data are large, delicate and expensive. A typical set of instruments costs $20,000 and requires an expert to operate. We want to produce an instrument pack that is smaller than a deck of cards, costs less than $100, and will transmit measurements of current conditions to mobile devices that anyone can use.

As far back as the 1980s, when I was still an MLA student, Dr. Terry Gillespie and I invented a simple but powerful instrument called a Cylindrical Radiation Thermometer (CRT) to measure amounts of solar and terrestrial radiation that a person receives. It's a cylinder with a thermometer in it which, combined with measurements of wind and air temperature and some complex mathematics, yields surprisingly accurate measurements. The new electronic version, shown in Photo 1, is used widely in the academic community and hopefully will soon be used in the professional community as well.

A miniature anemometer, shown in Photo 2 in magnified image, measures the wind speed. Dr. Tim Logan has developed a tiny instrument, shown in Photo 3, that senses aerosols, and thus can measure air pollution levels. In Photo 4, we are making our own parts using a 3-D printer.

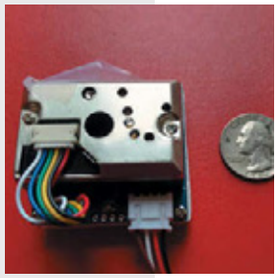
This tiny package will be easily deployed in a landscape (or mounted on a bicycle, or carried by a person) to measure all the key aspects of microclimate that affect a person's thermal comfort. Photo 5 shows the "ClimaCycle" fitted with instruments to measure temperature, humidity, wind speed and direction, terrestrial radiation, solar radiation and albedo rates. Data is stored in a datalogger and the bike is equipped with a GPS-equipped tablet to guide the rider, Ph.D. student Wenwen Cheng, to pre-planned waypoints for data capture. A 3DR drone outfitted with a FlirDuo camera, shown in Photo 6, simultaneously captures video and still images of side-by-side thermal infrared and visible light imagery. We're hoping to build and deploy several prototypes in 2018, with the idea of helping disadvantaged neighbourhoods in Houston be safer during heat waves, and more thermally comfortable throughout the year. We're optimistic that we are making good progress – even taming the invisible forces at work in the landscape – to create safe and thermally comfortable urban environments even in an uncertain future climate.

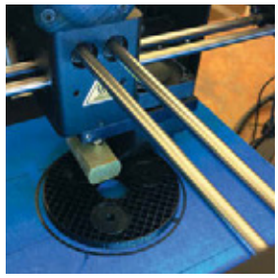
rbrown@arch.tamu.edu

1, 2

...an instrument pack that is smaller than a deck of cards...

3, 4

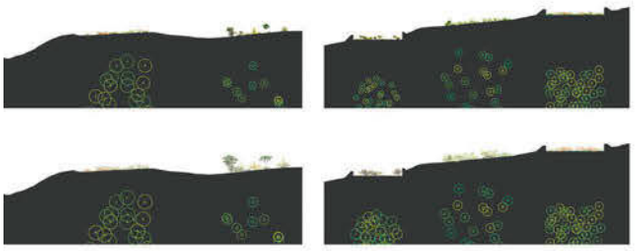




5, 6

1 THE CYLINDRICAL RADIATION THERMOMETER (CRT) RECORDS DIRECT + RADIATED TEMPERATURES **2** TINY ANEMOMETER **3** AGGIE AEROSOL SENSOR **4** 3-D PRINTING INSTRUMENT BASE **5** PH.D. STUDENT WENWEN CHANG ON THE CLIMACYCLE, AND **6** FLYING A 3DR DRONE OUTFITTED WITH A FLIRDUO CAMERA TO CAPTURE IMAGES OF THERMAL INFARED AND VISIBLE LIGHT

PHOTOS 1 WENWEN CHENG **2** ROBERT BROWN **3** TIMOTHY LOGAN **4** ERIC BARDENHAGEN **5+6** JOHN PETERS, COLLEGE OF ARCHITECTURE, TEXAS A & M



PHILIP BELESKY

STACKING UP

A Groundhog plugin for Grasshopper

How to achieve higher levels of resolution earlier in the design process without risking rework...

FR_ RESUMÉ

GRASSHOPPER GAGNE UN PLUGICIEL

La taille relativement petite de notre discipline limite les incitations commerciales à créer des logiciels spécialisés répondant à nos besoins. Le génie logiciel nous permet de développer nos propres outils de modélisation des systèmes naturels. Le plugiciel Groundhog s'ajoute ainsi à Grasshopper pour modéliser les flux d'eau de surface.

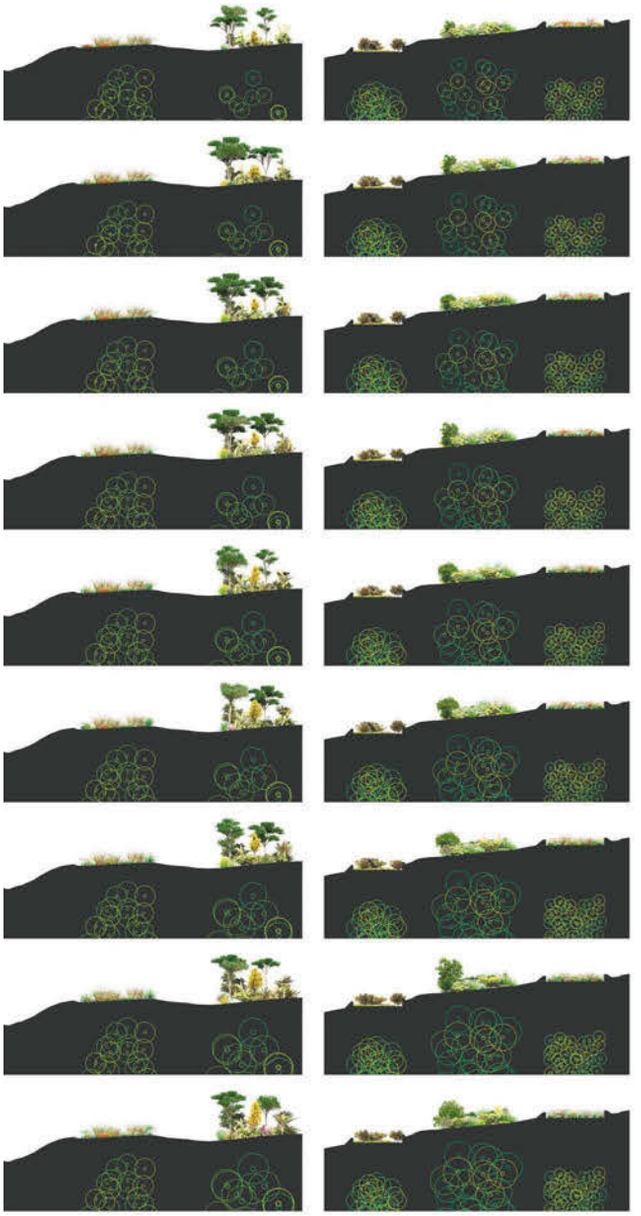
EN_

IN PROGRAMMING THERE IS A TERM known as "the stack." A stack is a strata of software: the layers of underpinning tools that provide functionality, such as a database or an operating system which a program can build upon. Each part of the stack has its own stack, as tools are built on other tools that are in turn built on yet more tools. The *raison d'être* here is modularity and interoperability, whereby each piece of each layer can be freely mixed in order to provide a panoply of options for achieving a desired task.

MONOLITHIC TOOLS

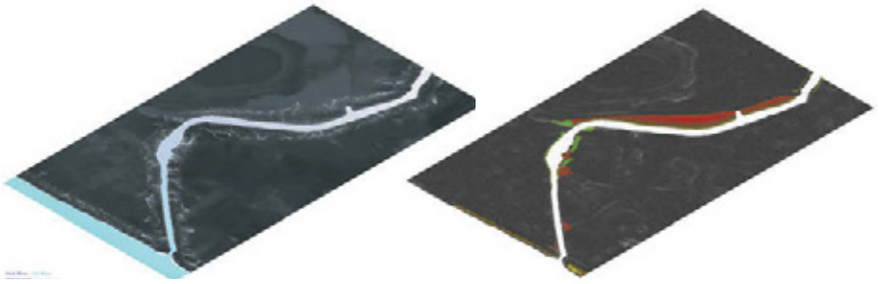
In contrast, the software used to design the built environment is a small series of monolithic tools. The majority of computer-aided design development occurs in one of a few major programs that attempt to be all things to all people. That was true in 1997, and is still true in 2017.

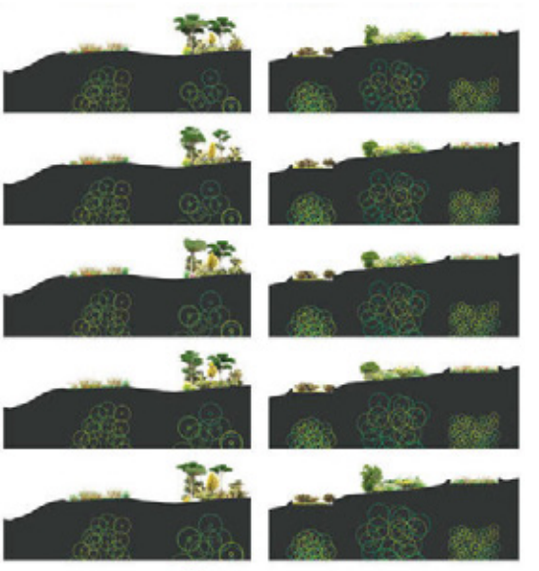
One exception is found in the use of computational design tools over the last several decades. While their effects are most readily recognised in exuberant architectural geometries, computational practices have much wider applications and constitute a shift in the way that designers engage with their stack. Methods such as parametric modelling or scripting allow for a procedure to be extracted from a given design context



SERIAL SECTIONS PLANT GROWTH: PROGRAMMATICALLY-GENERATED SERIES OF PLANS AND SECTIONS. EACH COLUMN DEPICTS THE PLANT GEOMETRY AND APPEARANCE IN SECTION. EACH ROW SHOWS PROJECTIONS BASED ON SPECIFIC GROWTH RATES AND PRESENTED AT 1-YEAR INTERVALS.

ALL FIGURES PHILIP BELESKY





FIGURES 1, 2

to become a reusable general-purpose tool. For example, a script for measuring shading effects might have been originally developed to meet the needs of a particular project, but because each necessary step has been enacted as a logical procedure that responds to a given site or design, it can be easily redeployed in a subsequent project.

IN THE BAZAAR

While computational methods can trace their lineage back to the dawn of computer-aided design, the recent emergence of platforms such as Grasshopper and Dynamo has made these tools much more approachable. The communities surrounding these platforms often mirror those of open-source software where development follows the Bazaar model – public and distributed across individuals and companies – rather than the Cathedral model – closed and centrally controlled by companies or institutions.

This shift should be of special interest to landscape architects. The comparatively smaller size of our discipline limits the commercial incentives to create software specialised to our needs, leaving us often working with generic or under-developed tools that do not cater to distinctly landscape architectural approaches. Computational design offers a means for us to work around this shortfall by developing and distributing our own tools. For example, while software such as Grasshopper provides many inbuilt and community-authored techniques for geometric development, these capacities are often implicitly or explicitly architectonic, ignoring or marginalising the unique complexities of landscapes. To suit our purposes, computational design needs to not only provide general methods for describing and testing *formal* systems but also general methods for modelling natural systems as they are relevant to the design of landscapes.

FIGURE 1 PARAMETRIC MODEL ANALYZING HYDROLOGICAL CONDITIONS ALONG A RIVER AND SHORELINE. SIMULATIONS OF SURFACE WATER FLOWS IDENTIFY KEY PATHS WHILE A MODEL PREDICTS SALINITY ACROSS THE RIVER'S MOUTH
FIGURE 2 PARAMETRIC MODEL: INDEX OF GROUND CONDITIONS ACROSS A GIVEN RIPARIAN AREA. THE SIZE AND COLOR OF CIRCLES REPRESENT THE SLOPE, SUBSTRATE AND SATURATION LEVELS AT EACH SPATIAL POINT.

These methods…have great potential to better test our intuition…

Taking ownership over our tools becomes increasingly important as design modelling becomes ever-more complex. If drone-based methods become the norm for many survey tasks, for example, or if virtual and augmented reality visualisations become common, these technologies will need to be adapted to our specific needs. Looking just at a present example: many software implementations of Building Information Modeling fall short as tools for developing landscape architectural features, undermining the methodology's (and our discipline's) promise of coordinating collaboration.

TOOLS THAT TEST OUR INTUITION

Within my own work, I'm developing tools that augment parametric modelling platforms with the capability to help understand and test how natural systems operate. As in other disciplines, methods for analysis and simulation have great potential to better test our intuition or to achieve higher levels of resolution earlier in the design process without risking rework.

"GROUNDHOG" FOR GRASSHOPPER

For example, part of the Grasshopper plugin I'm developing ("Groundhog") offers capabilities for modelling surface water flows. Like most common parametric methods, these capabilities operate as an extensible kit of parts intended to be combined. Initially, a single component might run a simulation of flow paths along a given topography to identify areas where drainage needs are highest. Taking this as a starting point, further components can identify catchment areas (based on

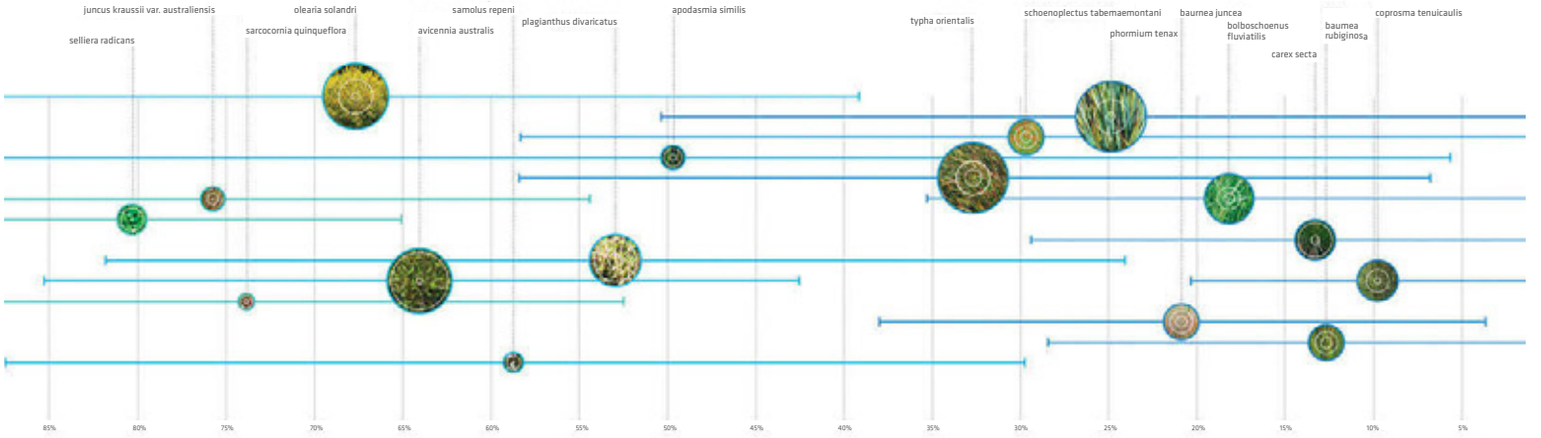


FIGURE 3

the end points of each path), calculate surface absorption (by cross-referencing a terrain's permeability), or model pooling effects (by summing the total expected water volumes in a given area). In each case the degree of resolution is arbitrary: capable of working with areas totalling square metres or square kilometres.

For example, as part of the development process for the Groundhog plugin, we analysed a river mouth area in Wellington, New Zealand. Many stretches of the river bank face erosion and flooding, and the soil contains pollutants from industrial run-off. The landscape study itself looked at how to extend a standard set of site data through parametric analysis to give a more precise understanding of the local conditions along the river, and to aid community-led restoration.

Initially, parametric models synthesized existing site data to create a detailed profile of the public space along the riverside and shoreline. The first model simulated surface water flows and projected salinity gradients in water bodies (Figure 01). In the second, we deployed an algorithm to create an index of the ground conditions present within a spatial grid. At each grid point, the model 'sampled' the given substrate, slope and saturation levels of the soil, and translated these into a single metric, as measured along a red-yellow spectra (Figure 02).

This measure then became a valuable guide in deciding how to develop a planting plan that could help re-vegetate the river banks and mitigate erosion. This too started in a simple fashion, with a planting palette represented as a spreadsheet. In our study area, the appropriate species were already known. The spatial index became a way to automatically identify where they would be best distributed, as it allowed for cross-referencing between species characteristics (slope or saturation tolerances) and the localised variations within these conditions at a given point on site. A diagram (Figure 03) represents this process, where each species is classified against the spatial index given their preferences and their tolerances. As such it allows for a kind of pseudo-planting plan to be automatically generated for any given portion of the site, whereby volunteer planters could easily identify which species is best suited for each location.

...these models are not meant to supplant specialist knowledge, but to allow for better collaboration between specialists and designers.

SEEING INTO THE FUTURE

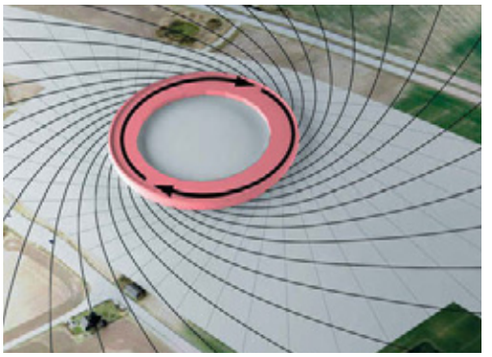
Once set, the model can project how the distribution will look at a given point in the future, by extrapolating species' growth rates and mature dimensions. This is useful for visualisation but it also provides opportunities to explicitly tie planting design to the project's performance goals, such as by optimising the selection and distribution of species according to erosion vulnerability present in particular slope conditions. Similarly, shading effects could be considered at both ends of the project, either as a consideration for selection and distribution (i.e., determining the annual sunlight hours in a given location) or to simulate outcomes (i.e., the amount of annual sunlight hours in a mixed seating/planting area).

DESIGNING SYSTEMS THAT EVOLVE

Each of these techniques can be useful enough for investigating a particular design concern, but it is in their union (alongside established parametric techniques) that something more novel can be developed: a more comprehensive understanding of how a designed landscape, as a series of evolving and interconnected systems, can perform across spatial and temporal scales. Models of flooding or sea-level rise can begin to better tune topographic manipulation or hardscape design to respond to future contingencies, by offering fine-tuned projections that consider seasonal tidal action or longer-term sea-level rises.

FIGURE 3 HOW TO CROSS-REFERENCE A GIVEN PLANTING PALETTE WITH A SPATIAL MODEL OF SOIL CONDITIONS ACROSS A SITE. EACH SPECIES IS INDEXED ALONG A RED-YELLOW SPECTRA ACCORDING TO ITS PREFERENCES (POSITION) AND TOLERANCES (BAR WIDTHS).

...a parametric model defined the topography as a series of geometric rules that produced an undulating wave-like pattern that spiralled out from the building in plan.



FOR THE LANDSCAPE SURROUNDING THE MAX LAB IV BUILDING, SNØHETTA DEVELOPED A TOPOGRAPHIC FORM TO MITIGATE THE IMPACT OF SURFACE VIBRATIONS ON SENSITIVE SCIENTIFIC EQUIPMENT.

ALL MAX LAB IV PHOTOS HTTP://SNOHETTA.COM/PROJECTS/70-MAX-IV-LABORATORY-LANDSCAPE

SNØHETTA'S MAX LAB IV: PRECISION TO IMPROVE TEAM WORK

In each case, however, these models are not meant to supplant specialist knowledge, but to provide fall-backs when it is not available, or to allow for better collaboration between specialists and designers. For instance, Snøhetta's design for the landscape surrounding the Max Lab IV building sought to develop a topographic form that would help mitigate the impact of surface vibrations from surrounding roads on the facility's sensitive scientific equipment. To do so, a parametric model defined the topography as a series of geometric rules that produced an undulating wave-like pattern that spiralled out from the building in plan. Defining the exact rules and parameters of this pattern meant they could then become an explicit consideration when collaborating with the engineering team, as the wavelength, amplitude and other factors could be finely tuned in numeric terms according to their knowledge and simulations of vibration dispersal. As the design developed, ongoing updates to the pattern could be tested against more traditional landscape architectural criteria, such as quantifying the topography in terms of cut and fill volumes, its effects on wind modulation, and the interaction between the grading, stormwater run-off and the proposed ephemeral wetland areas.

A TOOL EXCHANGE

While landscape architects were among the pioneers of computer-aided design, the software tools that dominate our present practices are in effect hand-me-downs – a stack largely catering to, and created by, other disciplines. Architects have long benefited from the flow of digital tools by considering software development as an activity that can take part within, not outside, a design discipline. Doubtless many landscape architectural practices already engage in some digital toolmaking, but as a discipline the more novel potential comes when we begin to exchange our work in a transparent and collaborative manner. We should look to computational design as an opportunity to impart knowledge of how we work into our design tools and in doing so claim greater agency over many stages of the design process. As landscape architects we shouldn't always blame our tools, but we also shouldn't shy from fixing them.

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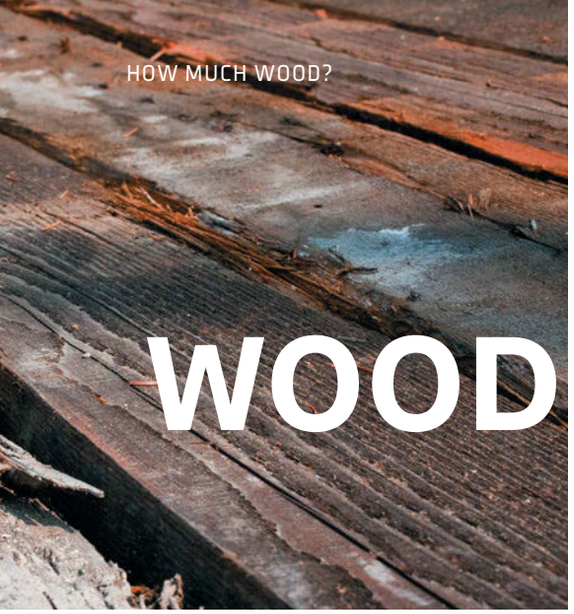

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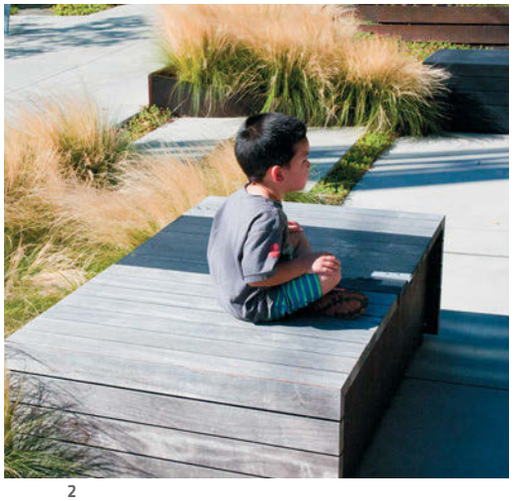
GARETH LOVERIDGE, THERESA NEYLON, SHAWN STANKEWICH

WOOD WORKS

...the selection of sustainable and socially responsible products needs to remain at the forefront of our design considerations.



2

1, 3 + 6 2 + U: SALVAGED DOUGLAS FIR TIMBER FROM DEMOLISHED FLOOR BEAMS WILL BE USED TO CREATE PUBLIC OVERLOOK SITE BENCHES; OTHER CUSTOM SEATING (# 3) EMPLOYS SALVAGED WOOD WITH MECHANICAL CONNECTIONS **2, 4 + 5** STONE 34: RUMBER AND IPE BENCHES, WHERE SIMON (**PHOTO 2**) TAKES A BREAK AFTER SOME HORSEPLAY **(PHOTO 4)** SITE FURNITURE ON THE PLAZA, WHERE ALTERNATING, ASYMMETRICAL MATERIAL PATTERNS GIVE EACH OBJECT A DISTINCT PERSONALITY
ALL IMAGES COURTESY SWIFT COMPANY LLC

EN_
WOOD AS AN OUTDOOR BUILDING material is something most landscape architects take for granted. It is readily available, can be milled and cut to become almost any shape, and generally resonates with people in a positive way. Yet, for those searching for long-term, low-maintenance materials, wood has well-known downsides.

Because wood is subject to degradation and decay, landscape architects often look past locally available cedar and pine to tropical hardwoods that are much denser, rot resistant and, therefore, more stable for long-term installations. However, responsibly sourcing tropical hardwood products can be difficult, due to unreliable supply and documentation. The physical distance between a project site and the tropical hardwood forest also complicates the calculation of sustainable "trade-offs." This can make a designer and specifier nervous enough to question the use of tropical hardwoods entirely.

Alternatives such as processed wood products mimic the characteristics of tropical hardwoods, and several are manufactured in an environmentally sensitive manner. Unfortunately, many suppliers currently have processing plants only in Europe, and some are sourcing wood from New Zealand, so the products must travel a substantial distance around the world – not the most sustainable practice!

Yet the selection of sustainable and socially responsible products needs to remain at the forefront of our design considerations. For most landscape architects who want to capitalize on the warmth and appeal of wood while meeting sustainability goals, updating our material palette demands continual exploration of new wood and wood alternative options. This includes ongoing engagement of clients and suppliers in embracing opportunities for innovation.

Project-specific demands have a significant impact on what forms of wood are most feasible. There is no one-size-fits all solution, but the following examples illustrate an evolving process of conceptualizing, designing and implementing wood alternatives.

DEEP GREEN IN SEATTLE
For the Stone 34 project, a five-storey commercial building which is part of the City of Seattle's Deep Green Pilot Program, the developers envisaged a site that would function as an urban "trailhead" to Seattle's popular Burke-Gilman Trail. To connect the LEED Platinum building with its local setting, Swift Company framed the edge of the building with a tiered plaza, which offers seating, drinking fountains, bicycle racks, and landscaping features designed for runners, walkers and cyclists. Because the plaza required materials capable of standing up to heavy use, the playful design of the site benches mixes tropical hardwood lumber with a rubber lumber product called Rumber. The addition of Rumber helped give the benches a unique aesthetic, and also reduced the amount of wood used by 50 per cent, in favour of recycled product. Since Rumber, like the tropical wood, has a long life cycle, the project reduced its impact on the tropical forest without increasing long-term maintenance or replacement cost. But it must be made clear, while Rumber is not plastic, it does not pretend to look like wood or feel like wood.

DOUGLAS FIR THAT TELLS A STORY
A second Seattle LEED Platinum project, Skanska USA's 336,000-square-foot complex at 400 Fairview, began with the demolition of an old warehouse with significant Douglas Fir timber structural beams. Early in the design phase, the designers recognized the fir's value, and its ability to subtly communicate the site's history. The wood was carefully salvaged

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and stored, milled and finished for use in the large-scaled site benches along the public frontage.

The salvaged wood did not save the developers any money, as is generally the case: the costs of salvaging, selecting, storing and re-finishing typically push prices above that of commercially available wood. However, the aged Douglas Fir, with its weathering and marks of fabrication, continues to bring value and meaning to the landscape.

AN ANIMATED AFTERLIFE

The 2+U project, named for its location at Seattle's Second Avenue and University Street, also had considerable wood salvage potential. Designers, contractors and owners together surveyed the existing buildings on the downtown site, which occupies a city block, examining the potential for salvage. They documented Douglas Fir timber joists, beams and columns of various sizes for salvage prior to the completion of the construction documents.

Because the 2+U project will include multiple, large-scale wood deck areas that will see high pedestrian volumes in a dense urban neighborhood, the designers also launched a vigorous debate about the best wood decking options. The design team considered tropical hardwoods, which were supplanted by Black Locust, which in turn was surpassed by thermally-modified domestic hardwoods. Designers carefully weighed each criteria, from visual character and finish, to FSC certified domestic lumber sources, to extended durability.

The wood, perhaps inevitably, became a theme which visually connects areas of the site from the public sidewalks to each integrated level of open space. As the design of site furniture evolved, wood became the dominant material, with designers challenged to use the available timbers in the most cost-effective, creative manner. With only minimal milling and reproduction of the wood, playfully crafted wood seat pods will animate the space, while monolithic timber benches will create lasting elements to serve the bustling urban space.

"NO MAINTENANCE" IS A MYTH

These Seattle projects recognize that "no-maintenance" is a myth. All wood will require some surface treatment and maintenance over time as it weathers and ages. But the character of wood is what makes it special. We recognize where it comes from, we appreciate the soft warmth it provides, we understand its needs, and yes, we know that at some point, it will need to be replaced.

The strength of wood as a useful material that can be simply harvested, milled, refined and assembled will keep it relevant for the foreseeable future, but we are increasingly required to look beyond the obvious. Landscape architects need to understand a wide range of wood alternatives from acetylated products to thermally modified timber products, to reclamation details and techniques, and keep abreast of developments as technology gallops ahead.

As the urban environment evolves before our eyes, we must continue to push the boundaries of how, where and when wood works. We understand how to use it very well, but we will need to increasingly work within the framework of the global ecosystem.

6

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SHAWN STANKEWICH

FLOATING A NEW IDEA

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FR_ RESUMÉ

UNE NOUVELLE IDEE

Les proliférations d'algues ont pris de l'ampleur dans le lac Winnipeg, dont le bassin hydrographique canalise le ruissellement riche en éléments nutritifs. Une nouvelle technologie prometteuse permet non seulement de réduire la charge de nutriments, mais aussi de créer une bioéconomie des zones humides. Shawn Stankewich discute du potentiel des bioplateformes.

EN_

IN LAKE WINNIPEG, algal blooms have been growing in size and frequency for decades as the watershed funnels nutrient-rich runoff into the world's 10th largest freshwater lake. Monitoring and observation technologies have increased in sophistication and we now have a clearer understanding of what is going wrong. However, solutions are not so unequivocal.

THE END OF THE PIPE

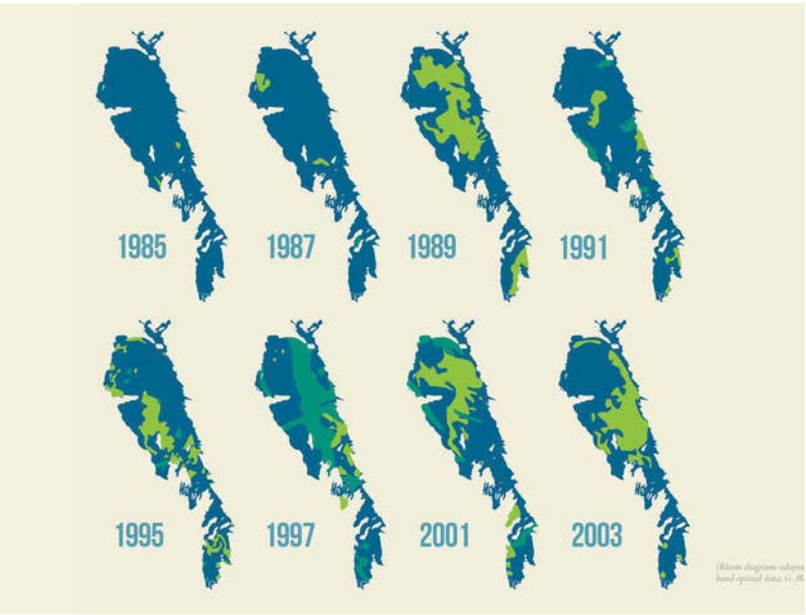
In Manitoba, fresh water is abundant, but not exclusively our own. Seventy per cent of the 900 trillion litres of surface water that flows through the province originates in other jurisdictions. In fact, the Lake Winnipeg watershed occupies over 1,000,000 square kilometres and encompasses parts of four Canadian provinces and four American states. Lake Winnipeg is at the end of the pipe and is, therefore, affected by varied land use practices and regulations in a multitude of regions. Nonpoint sources of eutrophication such as excess nutrients in runoff can be difficult to control or coordinate. Because cross-border water stewardship remains a challenge, researchers are searching for alternative ways to reduce the volume of nutrients flowing into the lake.

THE PROMISE OF A BIOECONOMY

One very promising possibility is a new technology that not only reduces nutrient loading, but also turns the problem into an opportunity. Researchers based at Winnipeg's International Institute for Sustainable Development (IISD) are asking an intriguing question. What if there was a way to recapture the nutrients, to create a wetland bioeconomy?

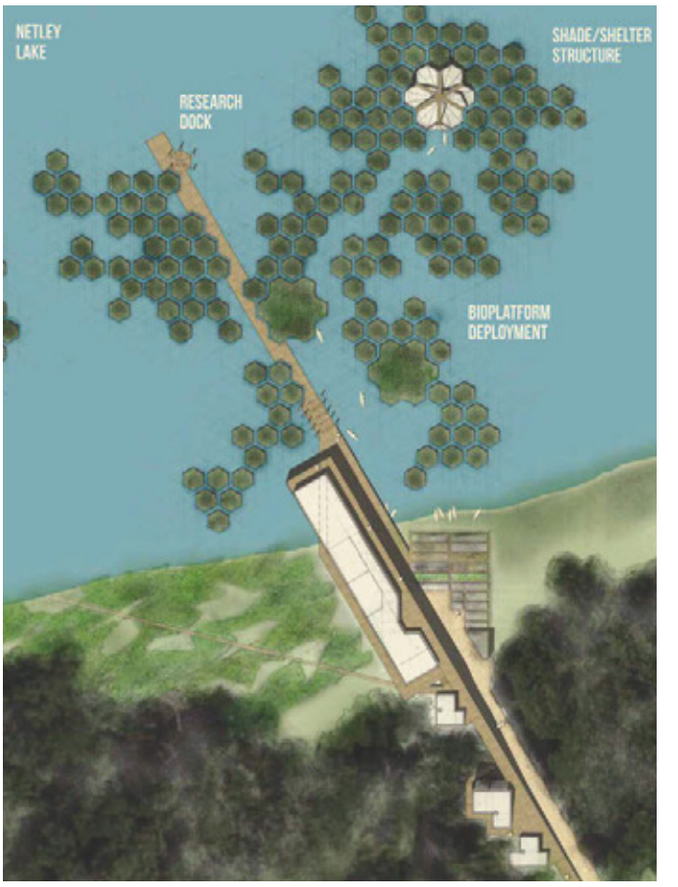
Phosphorus, the principal nutrient responsible for eutrophication, is also a limited resource which is often used in agricultural production. After use on the fields, and the subsequent potential runoff, it is "lost" in the watershed and fuels the unsightly algal blooms found in the lake.

IISD's Netley-Libau Nutrient-Bioenergy Project provides concrete evidence of the benefits of using wetland vegetation, specifically cattails (Typha spp), to pull nutrients from the system while providing plant mass for biofuel. When burned, the ash from this biofuel can be processed to extract phosphorus for re-use in fertilizers, providing potential to sell it back to the agricultural industry. The pilot project also proves that harvesting wetland biomass as an alternative fuel source would offset carbon emissions, generating potential for carbon credits



PROGRESSION OF ALGAL BLOOM PROLIFERATION ON LAKE WINNIPEG. ADAPTED FROM AVHRR BAND OPTICAL DATA. G. MCCULLOUGH

BIOPLATFORM PROTOTYPES AT FORT WHYTE: TESTING STABILITY AND METHODS TO LIMIT PREDATION



PROPOSAL FOR NETLEY-LIBAU MARSH BIOECONOMY INTERPRETIVE CENTRE

that could be sold on the carbon market. In addition, the process of harvesting opens up wetland habitats to sunlight, allowing rejuvenation and improving wildlife habitat.

AN EMERGENT TECHNOLOGY

But if we are to reap the benefits of wetland biomass, the plants must be actively managed and extracted from the system. Since it has proven difficult to harvest wetland vegetation in-situ, researchers have developed wetland bioplatforms. These floating wetland cells can be transported to nearby facilities where the biomass can be efficiently harvested. As well, the bioplatforms allow plants to grow in waterways where water depth may not allow for vegetation growth.

Bioplatforms: floating wetland cells can be transported to nearby facilities where the biomass can be efficiently harvested...

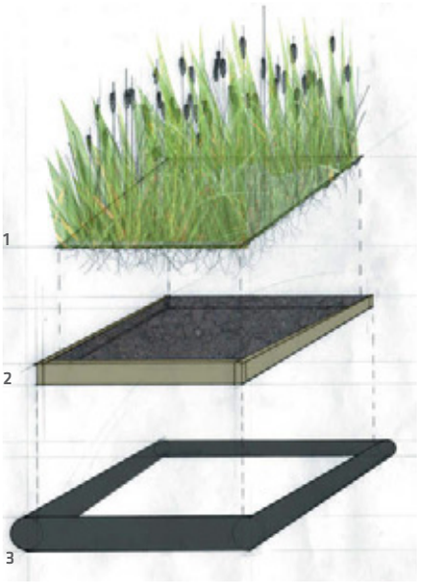
Bioplatforms are made up of three components.

1. THE PLANTS, *Typha spp.* (cattails), sequester carbon and remove nitrogen, phosphorus and contaminants from water. Cattails grow from seed to over two metres tall in only a few short months, soaking up nutrients and incorporating them into their plant tissues.

2. THE SOIL is contained in special soil trays in which cattails can be grown from seed. Only a few inches of soil are needed to provide the initial nutrients and structure for the plants to establish.

3. THE FRAME is a buoyant casing for soil trays. The design and development of the frame is the most challenging, as the frame must be stable in the water and also be robust enough to withstand a range of weather conditions and disturbance by wildlife, such as muskrats. Due to these limitations, durable synthetic materials have been used with the greatest success.

Bioplatform technology from around the world has proven that these floating systems can have a major impact on uptake of nutrients from waterways. Floating Island International's Biohaven technology is one example of a commercially available product that can increase removal of nitrogen and phosphorus by over 40 per cent.



BIOPLATFORMS FOR NETLEY-LIBAU MARSH

How could landscape architecture help to solve one of the province's most challenging environmental issues? I examined the issue in my graduate thesis, which focused on the lake's Netley-Libau marsh. The marsh is the perfect candidate for wetland bioplatforms. Located at the confluence of the Red River and Lake Winnipeg, this once thriving, diverse ecosystem is now a series of shallow, turbid channels of open water. The natural drawdown and regeneration of the marsh has been compromised by water level regulation and dredging for navigation. Bioplatforms would dramatically increase the nutrient uptake capacity of the wetland, and also provide a means for extracting biomass from the system.

My thesis further proposed that the site become a centre for public education and engagement, since the marsh is in close proximity to Winnipeg. By locating a field camp, public access points, and a large biofuel harvesting centre close to the deployment site, this project could successfully engage Manitobans in the process of reversing eutrophication and restoring balance and resilience to Lake Winnipeg.

My thesis work was completed by 2013, and to date bioplatforms have not yet been deployed in the marsh. However, researchers believe the technology is close! For a review of the situation today, I spoke with my former thesis advisor, mentor, water guru, and generalist Manitoba historian, Dr. Gordon Goldsborough. It was just like old times. Please join our conversation (this page).

shawn@swiftcompany.com

DESIGN PROPOSAL FOR NETLEY LAKE FIELD CAMP: RESEARCH DOCK, SHADE/SHELTER STRUCTURE AND BIOPLATFORM DEPLOYMENT

CONVERSATION

Shawn Stankewich talks with Dr. Gordon Goldsborough...

EN_

DR. GORDON GOLDSBOROUGH is a wetland ecologist and Associate Professor of Biological Sciences at the University of Manitoba. I spoke to him about the state of Lake Winnipeg, about bioplatforms, and also about the impact which landscape architects can make.

SS: The Lake Winnipeg eutrophication crisis has garnered a great deal of attention in the past 5-10 years. When did this become international news?

GG: An episode of CBC's "The Nature of Things" in 2011 brought attention to the eutrophication to a national audience, [but] the turning point was probably the designation of Lake Winnipeg as the "most threatened lake in the world" in 2013. [The Global Nature Fund (Germany) provided this designation.] Whether or not this statement is true is debatable.

SS: I understand that visually, the lake is looking better. Is this good news?

GG: We now have a zebra mussel infestation...my sister-in-law sent us a photo of the beach in front of her lake-front cottage that was littered with thousands of mussel shells. Experience in the Great Lakes has shown that mussels can counteract the visual impact of eutrophication because they are very effective filter-feeders which consume sufficient quantities of phytoplankton (water-borne algae) so the greenness of the water diminishes.

However, with respect to the lake's level of eutrophication and the levels of phosphorus that are driving it, very little has changed.

SS: It has been five years since your floating wetland program began, in a small research lake in Winnipeg. Can you update us on its progress?

GG: In 2012, I was contacted by entrepreneur Mike Currie about developing some technology for dealing with nutrient loading to Lake Winnipeg. Together, we developed the "cattail bioplatform" whereby cattails (*Typha spp.*) would

DR. GORDON GOLDSBOROUGH

...the bioplatform technology is now sufficiently mature that commercial applications could begin.

be grown hydroponically. The initial concept was tested on small versions of the platforms in 2013, 2014, 2015, and 2016 in small water bodies at FortWhyte Alive [a nature, wildlife refuge and education centre in Winnipeg] that were subject to eutrophication.

We encountered problems with herbivory by birds and muskrats, and insect infestations, and modified the bioplatform design accordingly. We feel that the technology is now sufficiently mature that commercial applications could begin and we are presently preparing a scientific paper on the results.

SS: How do floating wetlands compare to traditional wetland restoration/planting techniques?

GG: There has not been a quantitative evaluation [but] my view is that the floating wetlands are preferred for environments where planting is not possible, such as in water too deep for vegetation establishment or where it is not desirable to develop permanent vegetation cover. (The platforms are capable of being moved.)

The biggest limitation of the floating wetlands is that they are intensely susceptible to herbivory and wave action: both factors must be acknowledged in a commercial setting. I am hopeful that making the bioplatforms much larger and more numerous at a deployment site would make them much less prone to herbivory because it would enlarge the "target."

SS: Do you grow *Typha* exclusively?

GG: *Typha spp.* are ideal because they are rapidly growing, robust, and produce abundant biomass that can be used for biofuel or other co-benefits. It is possible that, under different environmental conditions, other species may be acceptable substitutes.

The platforms...facilitate the harvesting process needed to truly recapture the nutrients sequestered by the plants. In essence, the cattails [on the bioplatform] can be brought to the harvester [and the bioplatform] returned to the environment for further growth. Otherwise, plants used in traditional planting would require a mobile, amphibious harvester which is logistically more complex and, I suspect, more costly.

SS: Were you able to quantify how effective the system has proven to be in terms of its ability to mitigate the effects of eutrophication?

One of the aspects of the research project was to assess whether or not the cattails could remove enough phosphorus from the water below the bioplatform on which they are growing. We found that we would have to have considerably more bioplatforms than used in our test project but the number was reasonable. To see measurable decreases in phosphorus concentration in the water, we estimated that less than 15 percent of the lakes we were studying would have to be covered with bioplatforms.

SS: Could these platforms be used to educate Manitobans, as I hoped in my thesis work some five years ago?

GG: The bioplatforms could be deployed, for example, at sites such as FortWhyte Alive and along the reaches of the Assiniboine and Red Rivers where it would be easy to bring them to the attention of schools on field trips.

SS: What other technologies have potential to spur new breakthroughs for Lake Winnipeg, or in water management generally? Drones?

GG: Drones will be great for wetland and small lake monitoring and I see enormous potential there over the coming years. But high-resolution satellite imagery is the way to go for large-lake monitoring, in my view. There are increasing capabilities for remotely-sensed data acquisition from such sources as LandSat and other orbiting satellites. These give us a lake-wide picture of eutrophication that is, I think, more viscerally impressive and detailed than any spot measurements of phosphorus or chlorophyll in the lake itself.

Author's note: For research conducted in the Pacific Northwest (architecture thesis by Matthew MacDonald, University of Washington), go to: bit.ly/FloatingWetlands.

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CAMILLA ALLEN

THE MAN OF THE TREES

Richard St. Barbe Baker

1

FR_ RESUMÉ
RICHARD ST. BARBE BAKER
LE VOYAGE DE Camilla Allen au Canada a facilité sa recherche sur le forestier, humanitaire et environnementaliste britannique Richard St. Barbe Baker, (1889-1982), fondateur des Men of the Trees et l'instigateur visionnaire de la Grande Muraille verte de l'Afrique. Bien que son histoire soit internationale et qu'elle couvre l'Afrique, le Moyen-Orient, l'Inde, la Chine, l'Australie et les Amériques, l'importance du Canada signifiait qu'un voyage à Saskatoon était essentiel pour comprendre l'évolution de sa vie et de son travail.

"During my time in Saskatchewan, I felt closer than ever to this extraordinary man."

EN_
IN APRIL 2016 I was flying across the snow-dusted prairie of central Canada on my way to Saskatoon where I was about to spend two weeks buried deep in the University Archives and Special Collections of the University of Saskatchewan. I'm sure that I raised a few eyebrows as I took photos from the airplane windows. The land stretched out below me, tufted and undulating yet with a grid demarked upon its surface, the likes of which I had never seen before.

The trip to Canada, made possible by generous grants from the LACF as well as the Canada UK Foundation, was key to the research I am doing on English forester, humanitarian and environmentalist Richard St. Barbe Baker, 1889-1982, founder of the Men of the Trees and the visionary instigator of Africa's Great Green Wall. Although his story is an international one – spanning Africa, the Middle East, India, China, Australia and the Americas – the significance of Canada meant that a journey to Saskatoon was critical to understanding the evolution of his life and work.

THE SASKATOON CONNECTION
I quickly settled into life in Saskatoon with a daily cycle ride along the South Saskatchewan River to the University. There I would spend the day in the company of the wonderful staff in the Archives, surrounded by multiple taupe boxes, the contents of which were a treasure trove of information and delight for me.

The reason that the Baker Papers are held at the University of Saskatchewan stretches all the way back to 1909 when a twenty-year-old Richard Baker, aware of Saskatoon's identity as a temperance colony, emigrated to Canada to enrol at Emmanuel College to study Divinity. Baker was one of the first hundred students at the school, and his alma mater continued to occupy a special place in his story for the rest of his life. Canada's 13th Prime Minister John George Diefenbaker was a contemporary there, and became a friend.

2

1 BAKER IN HIS LATER YEARS **2** CAMILLA ALLEN, TREE LOVER, RESEARCHER, AUTHOR
PHOTO 1,2,3,4,6 COURTESY CAMILLA ALLEN

3

...his story is an international one - spanning Africa, the Middle East, India, China, Australia and the Americas.

A LUMBERJACK WHO PLANTED SHELTERBELTS

Whilst in Saskatchewan, Baker took the Bible to far-flung communities, but he also worked as a lumberjack near Prince Albert, and tried his hand at homesteading. He planted shelterbelts on local farms and witnessed the beginnings of the dust bowl. The sight of the fragile soil of the Prairie blowing away in the wind was to stay with him for the rest of his life.

Baker left Canada in 1913 to study Theology at Cambridge, but the Great War intervened. Thereafter, he switched to Forestry, and would spend his life addressing the interrelation between tree cover and the erosion of farmland.

AN AGRO AND SOCIAL PIONEER

A wonderful tangential addition to his time at Cambridge was that, in 1919, he invented the modern caravan. This event in itself is often seen as a footnote in his history, but for me it exemplifies his resourceful and compassionate social and economic acumen. He repurposed timber airplane parts which were surplus after the war and recruited disabled ex-soldiers in the construction of the caravans. The enterprise was a way of addressing the housing crisis faced by returning servicemen. One early jewel that I found in the archives was a photo of Baker and the Navarac caravan – the first piece of visual evidence that I had seen of this part of his story.

PEOPLE OF THE TREES

Upon graduation, Baker was appointed Assistant Conservator of Forests in Kenya, a post he held from 1920-23. It was there that he formed the Watu Wa Miti – People of the Trees – a voluntary tree planting organisation within the Kikuyu tribe. Baker wanted to draw attention to the deforestation that was a consequence of colonial extraction and local farming practices, and the lack of funding to deal with the problem.

With the Watu Wa Miti, he planned an initial event, a Dance of the Trees, in which the group adapted traditional Kikuyu dances for planting and harvesting. Attended by thousands of young men and women, this Dance of the Trees cemented Baker's reputation as a pioneer of agro and social forestry and became his international calling card. In two particularly heavy boxes I found heavy glass slides of objects like the bracelets worn by the Watu Wa Miti, and photos of the tree nurseries where small seedlings were sheltered from the sun.

The Watu Wa Miti went on to become the Men of the Trees in Britain in 1924, with chapters being formed across the English speaking world. There were active groups in Canada from the 1930s, as well as in Australia, New Zealand and elsewhere.

One of the first environmental NGOs, the group described themselves as 'a society of earth healers...working to create a universal tree sense and to encourage all to plant, protect and love trees everywhere.' In the UK the organization formally became the International Tree Foundation in the 1990s, and still funds tree planting projects at home and in Africa.

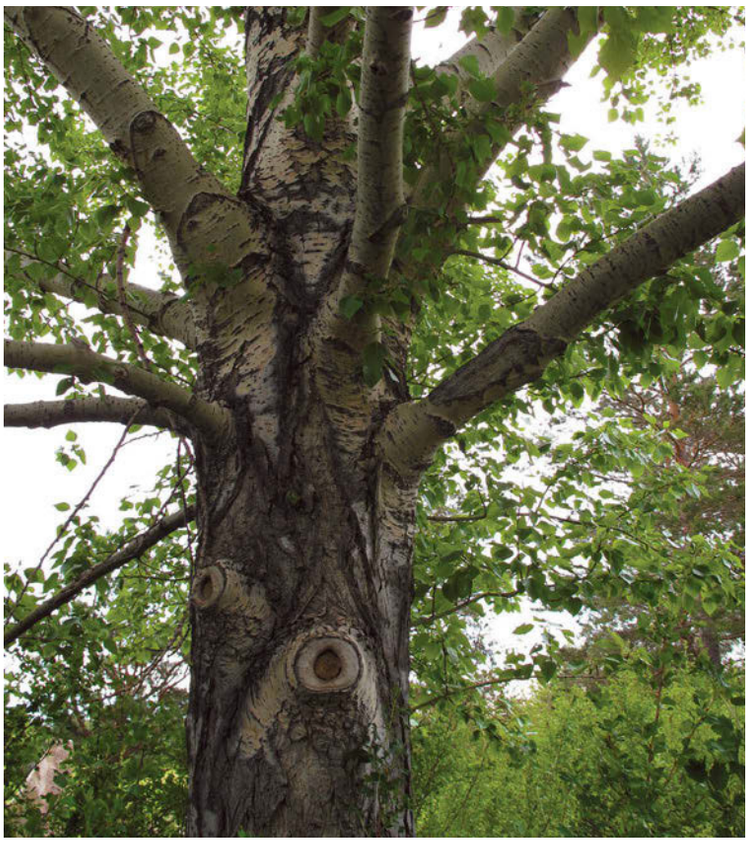
THE POWER OF THE VISIONARY

Baker was a prodigious and innovative broadcaster and lecturer, writing more than thirty books and tirelessly travelling the world spreading the message about the essential role that trees have in creating and regulating the earth's atmosphere. In the 1930s he toured North America, where he was involved in the creation of the Civilian Conservation Corps under F.D. Roosevelt, in bringing the Save the Redwoods campaign to an international audience, and in proposing ways of averting a humanitarian crisis in Sub Saharan Africa through afforestation. Only now is this becoming a reality across the Sahel, as the African Union implements Africa's Great Green Wall.

Baker was made an Honorary Doctor of Laws by the University of Saskatchewan in 1971 and awarded an OBE in 1978 for his tireless dedication to conservation and

4

3 BAKER VISITED PALESTINE IN 1929 WHERE HE WAS STYLED AS A 'LAURENCE OF THE TREES' FIGURE. **4** A LANTERN SLIDE SHOWING A TREE NURSERY WITH THE SMALL PLANTS BEING CAREFULLY TENDED



5

5 A POPLAR HYBRID, THE LAST TREE THAT BAKER PLANTED AT THE UNIVERSITY OF SASKATCHEWAN.

PHOTO PATRICK HAYES, UNIVERSITY OF SASKATCHEWAN.

the environment. During my own time in Saskatchewan, I felt closer than ever to this extraordinary man as I heard his voice, learnt to decipher his handwriting and felt my heart skip as I opened folders containing notes and pictures from his childhood. The experience of delving into the Baker Papers allowed me to understand more fully the evolution of his environmental philosophy, and to access for the first-time remarkable artefacts and documents – from 16mm footage from his extraordinary journey across the Sahara in 1956, to a box containing the paints with which he tinted the heavy lantern slides which he used to illustrate his lectures about trees.

Baker counted many people in Canada as close friends, and so it was a natural place to stop on a round-the-world trip to mark the 60th anniversary of the founding of the Men of the Trees. After planting a tree in the grounds of the University, Baker's health – already weakened by a fall earlier in the trip – gave way, and he passed away. In respect of his Bahá'í faith, he was buried shortly after under a tree in Woodlawn Cemetery, a beautiful place near to the river in a city which he had once called home.

CAMILLA ALLEN is midway through writing a thesis on Richard St. Barbe Baker at the University of Sheffield. Her research stems from her interest in voluntary and professional efforts to address many of the world's problems through the planting and care of trees.

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READ BY | LU PAR ROBERT DESJARDINS

LIEU DE PLAISIR...

> EN_LP+ A PLACE OF JOY

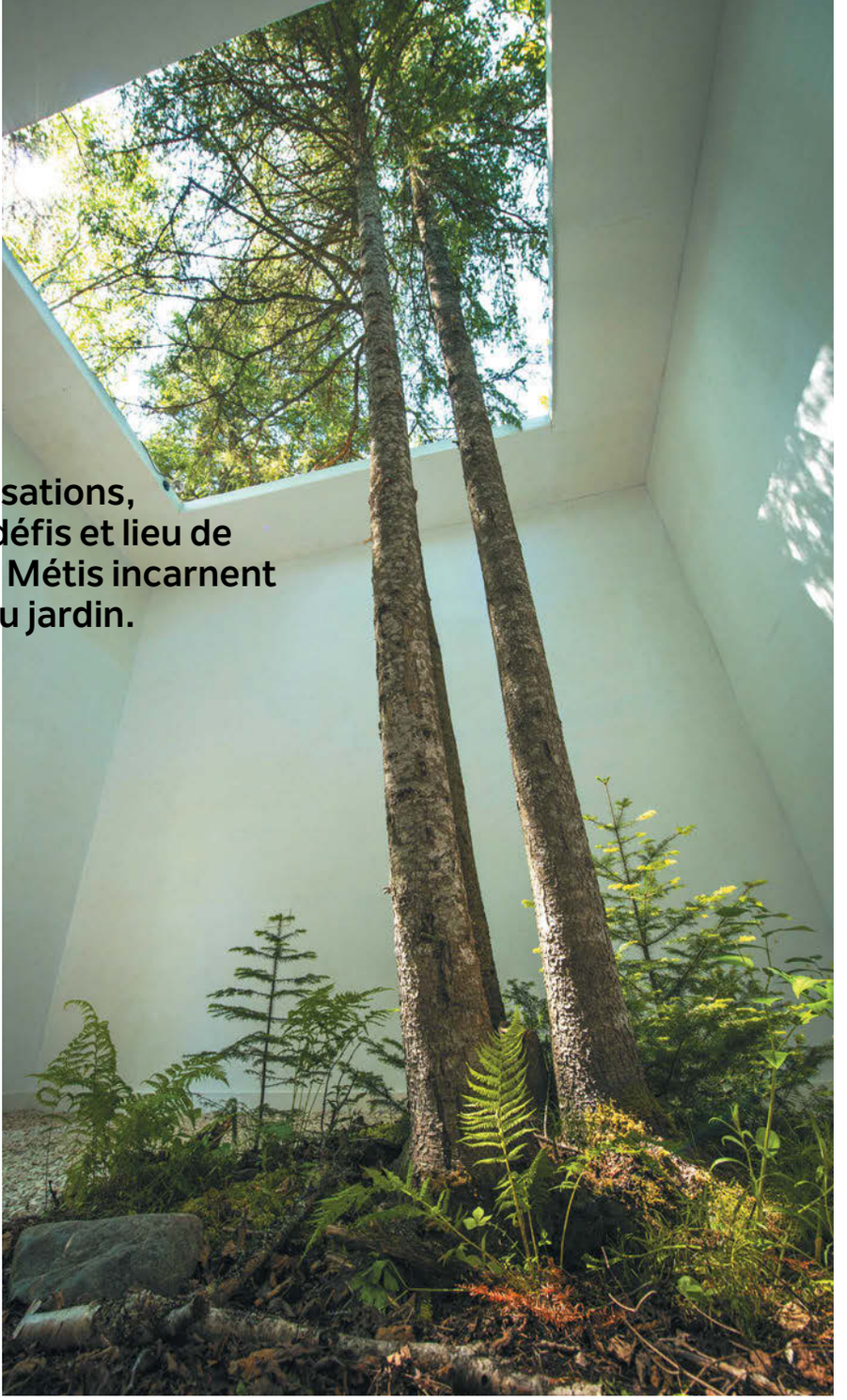
FR_
LIEU DE PLAISIR, lieu de sensations, lieu de créativité, lieu de défis et lieu de souvenirs, Les Jardins de Métis incarnent l'essence même de l'art du jardin. Ils offrent à quiconque souhaite s'y rendre ou y participer une opportunité singulière de communion avec des jardins classiques et inattendus. Ancrés au cœur de natures sauvages et paysages humanisés du Bas-Saint-Laurent, Les Jardins de Métis et plus particulièrement le Festival international de Jardins prennent tout leur sens comme exercices de conception et de matérialisation de l'art du jardin.

Experimenting Landscape : Testing the limits of the Garden (Paysages expérimentaux : Tester les limites du jardin) propose un voyage à la fois libre et guidé du Festival international de Jardins de Métis au travers une compilation détaillée et de vingt-cinq jardins et installations. Organisée autour de cinq thèmes judicieusement définis, la description est réalisée selon un canevas appliqué sur chacun des jardins. Brèves, précises et accessibles, ces descriptions sont admirablement illustrées et accompagnées de photos et dessins. Cette stratégie facilite une lecture non séquentielle et permet de butiner librement au travers la publication... comme une visite au festival!

Trois courts essais intercalés parmi les descriptions des jardins offrent au lecteur une réflexion sur l'art du jardin conceptuel et sur l'installation paysagère. Le premier, *Grounds for experimentation*, propose plusieurs petits textes de différents auteurs plaçant Métis au centre de l'idée du jardin laboratoire. Livrées avec simplicité, on y retient le dévouement et le rôle qu'Elsie Reford a joué à l'égard de l'art du jardin et celui qu'Alexander Reford continue à y jouer par l'encouragement de la créativité, de l'effort et de l'expérimentation...*just keep trying!* Le second texte de Tim Richardson s'attarde sur la question du contexte et la pertinence de ce dernier dans la démarche de conception du jardin. Une analyse qui tient non seulement aux sites de festivals de jardins et installations éphémères, mais aussi à l'ensemble des interventions paysagères, quelles qu'elles soient. Il évoque ainsi dans son propos l'importance de l'écho au sens du lieu dans le processus créatif. Dans le troisième essai, Marc Hallé soutient la prémisse d'un rapport direct entre les envolées créatives des œuvres des artisans de Métis et les méthodologies, idéologies et techniques transmis aux projets réalisés en pratique professionnelle. Il cite à cet égard quelques projets illustrant ce postulat. De toute évidence, un laboratoire de créativité comme Métis, où se réalisent les phantasmes de concepteurs, engendre des postures innovatrices en rapport à l'aménagement. Et certes, ces expériences enrichissent la base idéologique et pratique de tous les concepteurs sans exception. J'ajouterais à cet argument, l'inverse est


SACRE POTAGER : ATELIER BARDA

Lieu de plaisir, lieu de sensations, lieu de créativité, lieu de défis et lieu de souvenirs, Les Jardins de Métis incarnent l'essence même de l'art du jardin.



COURTESY OF NATURE : MARTIN BOND

aussi vrai. Le festival constitue une vitrine exceptionnelle de partage de façons de faire qui soutient déjà les démarches des concepteurs. Aussi, comme chaque projet est unique et comporte son propre contexte, soyons prudents de ne pas confondre la conjoncture avec la mise en pratique de façons de faire préétablies.

Experimenting landscapes marque l'importante contribution du Festival international de Jardins de Métis à la pratique de l'architecture de paysage et l'évolution de la profession. Il réussit à nous convaincre qu'il est essentiel de puiser et mettre à profit notre impressionnante capacité créative, que l'expérimentation constitue une avenue nécessaire à l'avancement de l'art des jardins et qu'il est, en plus, possible d'inviter le public au laboratoire.

Ce document, à la portée de tous, aura une place de choix que ce soit sur la table du salon ou dans la bibliothèque du professionnel. Il fascinera quiconque en ouvrira les pages!

BAL A LA VILLA : ROBERT DESJARDINS

ROBERT DESJARDINS est architecte paysagiste et il enseigne à l'Université de Montréal où il a lui-même étudié. Exposant au Jardin de Métis avec Annie Ypperciel en 2014 et 2015 « Bal à la Villa » **(voir photo 4)**, il a entre autres marqué le paysage de l'arrondissement historique du Vieux-Montréal par l'aménagement la place d'Armes.

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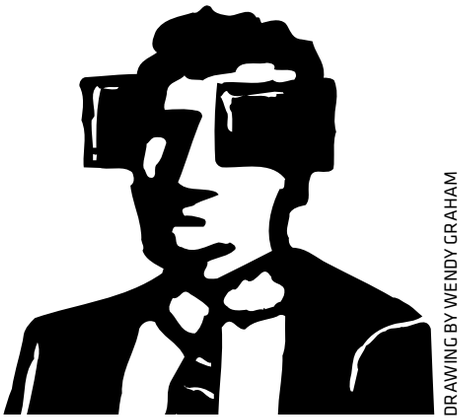
UNE ÉCHELLE LIMITÉE



DRAWING BY WENDY GRAHAM

« Ah! mais le champ d'action de l'architecture de paysage doit aller au-delà de sa pratique actuelle! »

FR_

J'AI EU LE SOUVENIR de cette citation, attribuée, si ma mémoire est bonne, au poète Robert Browning, alors que je lisais la dernière édition « Big | Large » de LANDSCAPES | PAYSAGES et que je réfléchissais à l'exposé liminaire dans lequel Doug Olson affirmait que : « l'échelle de conception la plus importante de notre époque est celle de la ville-région, une échelle à laquelle trop peu d'entre nous pratiquent. » Le sous-entendu est évident : alors que les préoccupations pressantes de notre ère – changement climatique, urbanisation débridée ou réconciliation avec les Autochtones – se traitent mieux à l'échelle régionale, notre profession n'envisage que l'échelle locale.

Comme le souligne Jim Thomas dans le même numéro « [la] profession de l'architecture du paysage se plaît à réclamer le travail à grande échelle comme étant de son ressort, mais l'AAPC, l'ASLA et leurs sociétés affiliées ont en fait mis en place des obstacles et des mesures de dissuasion. Les processus d'agrément professionnel sont axés sur la conception et la construction à l'échelle d'un site et reconnaissent à peine une pratique à plus vaste échelle. » En effet, on se demande si, dans le cadre de l'examen d'agrément actuel (LARE), Olson ou Thomas – tous deux associés de l'AAPC – seraient admis dans la profession.

UNE PORTE TOUJOURS PLUS ÉTROITE

Les jeunes praticiens sont également conscients de la porte étroite de la profession. Katie Black observe à juste titre que « les organes directeurs de l'AAPC et de l'ASLA font obstacle à l'agrément et à la reconnaissance des professionnels émergents qui pratiquent des formes alternatives d'architecture paysagère. » Cela me tient à coeur en tant qu'enseignant. Je vois l'exode des jeunes intéressés par la restauration de l'environnement, l'analyse du paysage visuel, les SIG et l'aménagement du territoire – tous des domaines de pratique dans lesquels les architectes paysagistes ont jadis fait figure de pionniers, mais dans lesquels notre présence est maintenant, au mieux, marginale.

Alors que faire? Tout d'abord, nous devons perdre cette croyance complaisante selon laquelle les architectes paysagistes sont intrinsèquement qualifiés pour pratiquer à toutes les échelles. La vérité est que l'aménagement du territoire exige des compétences, des méthodes et des concepts qui ne sont enseignés que superficiellement dans les programmes d'architecture du paysage canadien et que l'examen d'agrément LARE teste mal. Je n'ai pas encore rencontré un concepteur de site qui peut effectuer une analyse multivariée de SIG compétente. Alors, pourquoi s'attendre à ce qu'un planificateur régional produise un plan de nivellement crédible? En faisant de l'examen d'agrément la condition *sine qua non* pour la reconnaissance professionnelle, nous signifions en fait aux planificateurs régionaux qu'ils ne seront admis que s'ils peuvent porter deux chapeaux.

Si nous voulons jouer dans le grand bac à sable, nous devrons diversifier les titres professionnels au sein de l'AAPC. Appelons ces membres non agréés des planificateurs de paysages si cela apaise les âmes sensibles. Laissons tomber les technologues du paysage et les paysagistes pendant que nous y sommes. Et peut-être, juste peut-être, rebaptisons l'AAPC en Société canadienne des praticiens du paysage.

De mon bureau universitaire, je constate que l'urbanisme attire les étudiants en géographie, en sciences de l'environnement et en arts. Je vois des forestiers, des hydrologues et des géoscientifiques adhérer à l'Institut des ingénieurs du Canada. L'urbanisme et le génie embrassent de vastes champs de pratique et sont à l'aise avec un groupe diversifié de membres, contrairement à l'architecture du paysage, comme à l'architecture tout court qu'elle cherche à imiter. Je sais sur quelle profession je parierais pour ce qui est de rester pertinente au 21e siècle.

Avec cette première salve LANDSCAPES | PAYSAGES *amorce une série de réactions opiniâtres et sans retenue au contenu de la revue. Nous acceptons les contributions volontaires, mais nous conservons le droit de modifier les articles pour répondre à nos exigences.*

JEAN TROTTIER siège au Conseil d'agrément en architecture de paysage de l'AAPC et préside le comité de rédaction de *LP*.
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LIMITED SCOPE

DRAWING BY WENDY GRAHAM

"Ah, but landscape architecture's reach should exceed its grasp!"

> FR_UNE ÉCHELLE LIMITÉE, P 77

EN_

I WAS REMINDED OF THIS LINE, attributed, if memory serves, to poet Robert Browning, as I read the recent "Big | Large" issue of LANDSCAPES | PAYSAGES and pondered guest editor Doug Olson's opening statement that "the most important design scale of our time is the city region, an area where few landscape architects practice." The subtext is clear: while the pressing concerns of our era – climate change, unfettered urbanization, or indigenous reconciliation – are best addressed at the regional scale, the profession appears fixated on the local.

As Jim Thomas states in the same issue "[the] profession of landscape architecture likes to claim large-scale work as part of its bailiwick, yet the CSLA, the ASLA and their affiliates, have put barriers and disincentives in place. The processes of professional registration and licensing are focused on site-scale design and construction and barely acknowledge larger scale practice." Indeed one wonders if, under the current Landscape Architect Registration Examination (LARE), either Olson or Thomas – both Fellows of the CSLA – would be allowed into the profession.

A NARROWING GATEWAY

Young practitioners are also keenly aware of the profession's narrowing gateway. Katie Black rightly observes that "governing chapters of CSLA and ASLA are making it very hard for emerging professionals who practice alternative forms of landscape architecture to become professionally recognized and accredited." As an educator, I take this to heart. I see the exodus of youth interested in environmental restoration, visual landscape analysis, GIS, and regional planning – all areas of practice once pioneered by landscape architects but in which our presence is now, at best, marginal.

So, what to do? First, we must shed the complacent belief that landscape architects are intrinsically qualified to practice at all scales. The truth of the matter is that regional planning demands skills, methods and concepts that are only superficially taught in Canadian landscape architecture programs and poorly tested by LARE. I have yet to meet a site designer who can conduct a competent multivariate GIS analysis. So why expect a regional planner to produce a credible site-grading plan? By making LARE the sine qua non condition for professional membership we are, in effect, telling regional planners that they only belong if they can wear two hats.

If we are to play in the big sandbox, we'll need to diversify membership designations within the CSLA. Let's call these non-LAREfied members landscape planners if that appeases the sensitive souls. Let's throw in landscape technologists and landscape scientists while we're at it. And maybe, just maybe, let's rename the CSLA the Canadian Society of Landscape Practitioners.

From my university office I observe city planning becoming the desirable career path for students in geography, environmental sciences, and related undergraduate Arts degrees. I see foresters, hydrologists, and geoscientists joining the Engineering Institute of Canada. Both planning and engineering have large professional umbrellas and are comfortable with a diverse body of members. Landscape architecture, like the architecture profession it seeks to emulate, not so much. I know which horses I would bet on to remain relevant in the 21st century.

TAKE UP OUR CHALLENGE!

With this first salvo LANDSCAPES | PAYSAGES *initiates a series of opinionated, no-holds-barred follow-ups to magazine content. We welcome voluntary contributions but retain the right to edit the submissions to meet our requirements.*

JEAN TROTTIER chairs *LP*'s Editorial Board.
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