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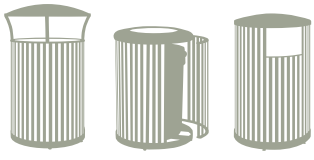

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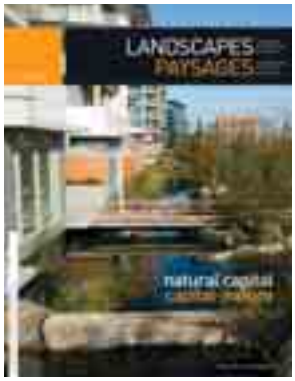

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KEVIN CONNERY, GUEST EDITOR | RÉDACTEUR INVITÉ

I recognize that, at times, I can be impatient. Occasionally I take off my shoes without untying the laces and sometimes I eat dessert first. I have also been in landscape architecture for more than 20 years and, like many of us, I often struggle with the tentative pace of change. And then I remind myself of the virtue of patience.

Don't get me wrong: since completing my graduate degree in Sustainable Design many years ago I have witnessed several profound ideas emerge (*Ecological Footprint, Ecological Economics, Biomimicry, Natural Step, Urban Metabolism, Climate Change*) and have worked on some equally intriguing projects (*Restoration of Olmsted's Emerald Necklace, City of Santa Monica Green Building Guidelines, Dockside Green).*

Yet there is a palpable urgency to make better choices in how we practice landscape architecture. Sustainable design, as John Tillman Lyle (1994) writes in his brilliant treatise, *Regenerative Design for Sustainable Development,* is simply not good enough. Too much of the planet's natural capital has been, and continues to be lost. As Lyle writes, "In order to be sustainable the supply system for energy and materials must be continually self-renewing… That is, sustainability requires ongoing regeneration."

This notion of regenerative design frames this edition of LP. Our contributions advance the discourse, inviting us to become agent provocateurs for a new approach to design that is consistently 'good' for the planet. It is a discourse that I wish happened more fluidly, more frequently, more fundamentally within our profession, and more importantly within us. And then I remember to swim in the ocean.

Je reconnais que je peux être impatient. J'enlève mes chaussures sans les délacer et je mange d'abord mon dessert. Architecte paysager depuis plus de 20 ans, je souffre du rythme hésitant du changement, comme beaucoup de mes pairs. La patience est une vertu, faut-il se le rappeler?

Ne vous méprenez pas : depuis la fin de mes études en design durable, j'ai été témoin de l'émergence de plusieurs concepts importants (*empreinte écologique, éco-économie, biomimétisme, Natural Step, métabolisme urbain, changement climatique*) et j'ai travaillé sur des projets tout aussi captivants (*restauration du parc d'Emerald Necklace à Boston, principes directeurs pour les bâtiments écologiques de la ville de Santa Monica, Dockside Green*).

Néamoins, il y a urgence à pratiquer l'architecture paysagère de façon plus judicieuse. Comme l'écrit John Tillman Lyle (1994) dans son brillant traité *Regenerative Design for Sustainable Development,* le design durable n'est tout simplement pas suffisant. Nous perdons chaque jour une trop grande part du capital naturel de notre planète. Lyle note encore : « Afin de correspondre aux critères de développement durable, les réserves d'énergie et de matières premières devraient continuellement se régénérer d'elles-mêmes… La durabilité dépend de cette régénération. »

La notion de design de régénération encadre cette édition de LP. En devenant agents provocateurs vers une approche du design conforme au bien de la planète, nous contribuons à faire avancer le débat. Ce dialogue fondamental, je le souhaite dynamique et fréquent parmi les membres de notre profession. Et maintenant, je dois aller nager dans l'océan.

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why botanic gardens matter

Botanic gardens and arboreta play a vital role as collective guardians of biodiversity. Botanic gardens are an invaluable information resource and repository for the world's biodiversity, as so much of the world confronts habitat loss and fragmentation, alien invasive plant species and climate change. The drivers of biodiversity loss are intimidating. As Colin Chubbe of the Royal Botanic Gardens at Kew prophetically stated at the 2010 Global Botanic Gardens Congress, "... if we don't address habitat loss and invasive plant species, there won't be any biodiversity left to be affected by climate change anyway."

Landscape architects can have a direct impact by championing biodiversity conservation as a fundamental pillar of our profession. Environmental restoration and regeneration must tenaciously permeate all design work, and we must give greater consideration to plant selection and the avoidance of alien invasive species while basing plant selection on climate predictions, adaptability and ecozone provenance.

Since humans make real that which they envision most readily, landscape architects can contribute to a collective vision for a biologically diverse future. For the 2001 voluntary plant conservation code of conduct for landscape architects, see www.centerforplantconservation.org. Useful sites include:

www.botanicgardens.ie/4gbgc/; www.bgci.org; www.plantsfortheplanet.com; www.cbd.int/gspc/; www.plants2010.org.

▶ BY / PAR ANDREW B. ANDERSON, OALA

Andrew Anderson, a new "international" member of LP's Editorial Board, is pursuing a Master of Science in World Heritage Management at University College Dublin in Ireland. He is an Ottawa native and past instructor of landscape architecture at the University of Guelph. andrewburtonanderson@gmail.com

mission design
design mission

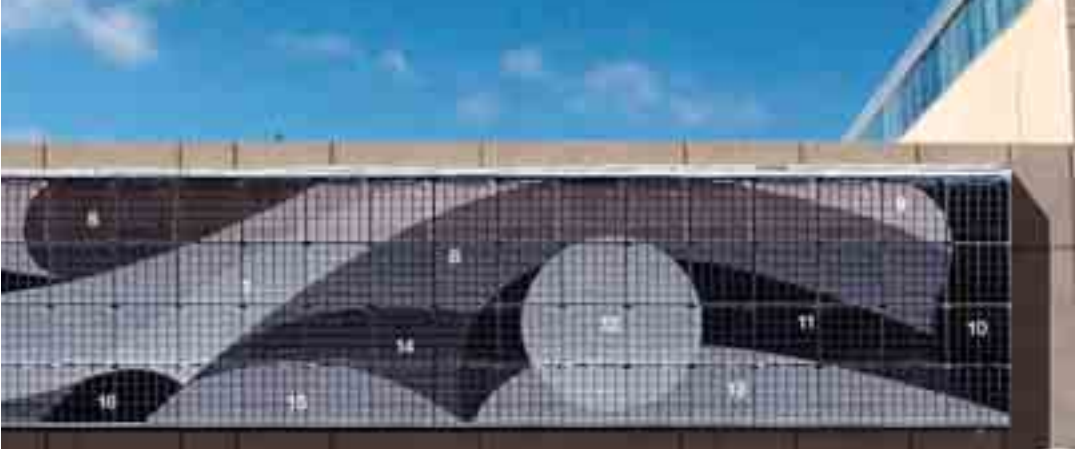
Le lancement officiel de Mission Design, le 10 mai dernier à Montréal, et le choix de l'IFLA la Fédération internationale des architectes paysagistes, de tenir son 54e congrès mondial à Montréal dans le cadre de Montréal 2017, un événement interdisciplinaire international majeur célébrant le 50e d'Expo 67, le 150e du Canada et le 375e de Montréal, occupent les premières loges de la « scène design » québécoise, canadienne et internationale.

C'est après deux ans de consultation dans le milieu, que le travail engagé des membres de la CIDQ, la Conférence Interprofessionnelle du design du Québec et de ses partenaires, a donné naissance à Mission Design. Cet organisme unira design et développement économique au Québec à travers trois axes de développement stratégique afin de positionner l'architecture, l'architecture de paysage, le design et l'urbanisme à l'échelle nationale et internationale.

Le prestigieux Conseil d'administration de Mission Design, présidé par M. Jean-Paul L'Allier, a constitué une table de concertation de plus de 40 membres provenant de divers milieux. Membre fondateur de Mission Design, l'Association des architectes paysagistes du Québec (AAPQ) a élaboré, de concert avec l'Association des architectes paysagistes du Canada (AAPC) et Mission Design, la candidature du Congrès IFLA 2017, qui a donné l'élan au projet Montréal 2017 et à la préparation des candidatures internationales auprès des autres associations membres. La convergence d'idées et de buts communs à travers une démarche d'interdisciplinarité sont au coeur de Mission Design. www.missiondesign.org

▶ PAR / BY RAQUEL PEÑALOSA, VICE PRÉSIDENTE AAPQ

Raquel Peñalosa est coprésidente du comité « Congrès IFLA 2017 ». Les membres de l'équipe Mission design sont Jean-Jacques Binoux, Yvan Lambert, Wendy Graham, Nathalie Prud'homme, Isabelle Giasson et Lucie St-Pierre. Ils vous sont présentés au www.aapc.ca.



wall flowers

In May of 2010, a 93 square metre (1000 ft^2) living wall was installed on the front façade of the new Centre for the Built Environment (CBE) at the Nova Scotia Community College (NSCC) in Halifax. The installation is the first permanent, exterior living wall in Eastern Canada and is the result of a creative collaboration between Sue Sirrs, of Outside! Planning & Design Studio and Tim Amos, Landscape Technician in the Horticulture program at the college.

A 2007 feasibility study showed that available products would not meet NSCC's unique site conditions. The college is located on Halifax harbour where it is subject to multiple freeze thaw cycles, hurricane force winds, 65^0 temperature shifts, salt spray and frozen fog. (Early settlers in this location moved to the other side of the harbour to get out of the wind!) During a unique two-year research project, the team constructed two 8' x 8' trial cubes to create and test five different structural systems, 85 plants and multiple irrigation systems. Several components were developed along the way, including the steel structural system, a specially developed growing medium and a planting tool specific to the vertical orientation. "We ended up with a completely made-in-Nova Scotia solution and will continue to learn from it as it grows," Sue Sirrs told the Chronicle Herald. Sirrs is interested in the potential of living walls to enhance our built environment and bring life, and potentially food, into urban environments.

The final version of the wall includes 23 different plants (including several native species). Students in the college's horticultural program propagated and grew all 15,000 plants, and planted the wall. CBE is a new teaching facility dedicated to Trades & Technology, and the building itself is a learning tool. Living architecture, including the exterior living wall, interior biowalls and green roof, are key components of the overall building concept. A detailed maintenance manual has been produced.

▶ BY / PAR SUE SIRRS, APALA

Sue Sirrs is a principle with Outside! Planning and Design Studio in Halifax, a small firm dedicated to leading-edge work in environmental planning and landscape architecture. She has worked on several projects at the NSCC Waterfront Campus over the last six years. Sue@outsideplanning.com

See The Wall on YouTube | Voyez le mur dans YouTube: www.youtube.com/watch?v=PEMLV76OqCI

ARRANGING MULTI-COLOURED PLANTS ON THE 24.5 X 3.6 M | WALL AGENCEMENT DE PLANTES MULTICOLORES SUR UN MUR DE 24,5 X 3,6 M **PHOTOS** SUE SIRRS

congress 2010 edmonton / congrès

CSLA COLLEGE OF FELLOWS ANNOUNCES SEVEN NEW FELLOWS | L'ORDRE DES ASSOCIÉS DE L'AAPC ANNONCE SEPT NOUVEAUX ASSOCIÉS

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Daniel Chartier, AAPQ, FCSLA

Victor Kallos, AALA, FCSLA

Cathy J. Sears, AALA, FCSLA

George Stockton, OALA, FCSLA

THE CSLA COLLEGE of fellows hosted a gala investiture ceremony to admit seven new Fellows-Elect on August 20, in conjunction with the 2010 Congress. Professor Alan Tate of the University of Manitoba, together with Executive Director Paulette Vinette, called up each new Fellow in the elegant surroundings of the newly completed Art Gallery of Edmonton. The Fellows-Elect were named in recognition of exemplary contributions to the profession in six areas: executed works, work in public agencies, university instruction, writing, service to the community or direct service to the CSLA.

L'ORDRE DES ASSOCIÉS DE L'AAPC a organisé un gala d'investiture pour accueillir sept nouveaux associés le 20 août, en marge du congrès de 2010. Le professeur Alan Tate, de l'Université du Manitoba, ainsi que la directrice générale Paulette Vinette, ont appelé un à un les nouveaux associés dans le cadre élégant du tout nouveau Musée des beaux-arts d'Edmonton. Les nouveaux associés ont été nommés en reconnaissance de leur apport exemplaire à la profession dans six domaines : travaux exécutés, travail dans les organismes publics, enseignement universitaire, rédaction, service à la collectivité ou service direct à l'AAPC.

Biographies of each Fellow are on the CSLA|AAPC Web site: www.csla.ca | www.aapc.ca →

urbanisme à la danoises

À l'heure où plus de la moitié de la population mondiale vit en milieu urbain, de grandes villes s'accordent les moyens pour améliorer la qualité de vie des citadins. Telle est la mission que s'est donnée la firme du Danemark *Gehl Architects*. Les experts Kristian S. Villadsen et Louise Kielgast ont été invités par le Centre d'écologie urbaine de Montréal (CEUM) afin de donner un atelier sur l'art de concevoir les rues comme des espaces publics. La ville de Montréal a profité de leur passage pour organiser une séance de travail sur le développement de projets urbains, portant essentiellement sur l'importance de la place du piéton dans la ville.

Gehl Architects est reconnue pour ses aménagements urbains et la revitalisation de secteurs de villes telles que Londres, New York, São Paulo, Sydney et Copenhague. La firme danoise base son travail sur l'interaction entre les individus et leur milieu bâti, tel qu'étudié par son fondateur Jan Gehl depuis plus de 40 ans. La méthodologie comprend notamment une grille de critères assurant la qualité de l'environnement des piétons. Cet outil d'analyse permet d'évaluer le niveau de protection, de confort et de plaisir qu'offre le domaine public.

Les participants aux ateliers ont expérimenté la grille dans un secteur du centre-ville, chacun y découvrant un outil d'évaluation plus pragmatique qu'intuitive. Certains y ont trouvé un aide-mémoire indispensable alors que d'autres, initiés à la dimension humaine d'un espace, ont lancé un nouveau regard sur la ville. Pour en connaître davantage, consultez le site web http://www.gehlarchitects.com.

▶ BY / PAR MARIE-CLAUDE SÉGUIN, AAPQ
Marie-Claude Séguin est architecte paysagiste à la Direction des grands parcs et du verdissement de la Ville de Montréal (Québec).
marie-claude.seguin@ville.montreal.qc.ca

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PRESIDENT'S AWARDS | PRIX DU PRESIDENT
PRESENTED POSTHUMOUSLY BY LINDA IRVINE
JERRY BELAN, OALA
MARGERY WINKLER, OALA

PATRICK BUTLER was a founding member of the AALA, and its president from 1976-78. He served as Accreditation Council Chair, represented AALA on the Edmonton Design Committee, and was instrumental in establishing the Landscape Architecture Technician program at NAIT in 1975. He is a Rotarian and active member of the Edmonton Executive Association.

FRIEDRICH OEHMICHEN initially worked as a LA journalist, travelling from his native East Germany, through Asia and the U.S. to Quebec City. As a professor, researcher and writer over 60 years, he is a man of letters who understood sustainability before it became hip. He was a pioneer in adapting vegetation to brownfield sites, roof gardens and dry gardens, and a continued inspiration to his students.

SOL ROLINGHER is only the second recipient of the CSLA Community Service Award, which recognizes public agencies and community groups who share the CSLA's goals. His nomination by the AALA recognizes his dedication to creating Captial Region River Valley Park. As Chair of the River Valley Alliance, he engaged Capital Health to enhance the area's accessibility and he worked tirelessly to rekindle community pride in the river valley.

JIM MELVIN, honoured for remarkable service to the CSLA, has served on CSLA boards and committees too numerous to name, including a term as President in 1993. He has chaired the College of Fellows, organized various congresses, and served on the LACF and honours committees of the OALA and CSLA. To win the award named for the exemplary Andre Schwabenbauer, said President Neil Dawe, is an accomplishment "of the highest order… a very special award for a very special man."

ED FIFE is a renowned educator who believes that in a powerful society, ideas reign: an educated populace is our greatest resource. Almost half of all Canadian-grown LAs have been touched by him – and he has fostered a unique made-in-Canada approach to thinking about landscape. He is an advocate who defends the importance of teaching at the University level... and famous for his high-paced, urban ecological boot camps for U of T students.

JERRY BELAN, who was a City of Toronto park planner, had an innate sense of adventure: he was the major force behind the successful "Discovery Walks Program" in Toronto. He often spoke at international conferences on trails planning and on Toronto's acclaimed series of self-guided interpretive walks.

MARGERY WINKLER, who taught at Ryerson University since the late 1970s, was committed to her students, to improving landscape architectural education and to reaching out to the larger community to improve school yards, streetscapes and public spaces. She was an advocate for community engagement and outreach, ecological responsibility and the creation of sustainable open spaces.

VERSION FRANÇAISE PAGE 34

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LEWIS MUMFORD
THOSE 42-YEAR-OLD QUESTIONS

ANDREW WILSON

« Why should we offer homage to machines, as if they are superior kinds of organisms, and think so humbly and distrustfully about the human mind, with its incalculable reserves of potential creativity, provided it keeps hold of our historic nature and in touch with all its co-operating resources in the living environment ? »

LEWIS MUMFORD, 1979

PHOTO *TIME* COVER, 1938

42 ANS DE QUESTIONNEMENT

Que dirait le théoricien de l'urbanisme et auteur Lewis Mumford (1895-1990) à propos du développement durable en architecture de paysage? En 1938, il tenait un rôle clé dans l'interprétation et la communication des idées d'urbanisme, correspondant régulièrement avec Frederic J. Osborn, Frank Lloyd Wright, Patrick Geddes, Clarence Stein et de nombreux autres penseurs qui les ont suivis. Pour Mumford, un aménagement urbain et régional complet, que représente en partie le mouvement des villes jardins, constituait une réponse à la tendance vers la déshumanisation des villes. Avec McHarg et une pléthore d'auteurs venus après lui, il a examiné ce que signifie être humain avec la nature. Ses pairs et lui n'ont jamais parlé de développement durable, mais cette expression leur convient. L'auteur présente plusieurs liens et idées emballants, pour conclure sur une proposition, celle que les architectes-paysagistes réinterprètent l'idée de Mumford, à savoir : « la ville jardin […] n'est pas une banlieue, c'est l'antithèse d'une banlieue : non pas une retraite plus rurale, mais une fondation mieux intégrée pour une vie urbaine efficace. »

A MENTION OF the urban theorist and writer, Lewis Mumford (1895-1990), in relation to this issue of LP, led me to wonder what he would have to say about sustainability and landscape architecture. Back in February 1990, I cut out the notice of his death from *Time* magazine and stuck it in my sketch book. On the right side of the notice text is the small image of the April 18, 1938, *Time* cover of Mumford shown above.

As you can see he's up a tree, assuming a pose against the trunk, head turned to look at the photographer. He's relaxed and confident. Behind him a house is visible, probably his farmhouse in Leedsville, New York. The portrait is interesting since the *Time* cover follows the publication of Mumford's influential book, *The Culture of Cities* (1938), which is volume two of *The Renewal of Life*, volume one being *Technics and Civilization* (1934). Given those books, a city view or some machinery might seem a more fitting backdrop. Mumford instead offers a portrait that could well be that of a landscape architect – one willing to credit nature or ecology as inspiration perhaps.

In 1938, Mumford began what was to become a regular correspondence with the Garden City advocate, Frederic J. Osborn (1885-1978). He'd already been corresponding with Frank Lloyd Wright (1867-1959) since 1926 and prior to that with the father of regional planning, Patrick Geddes (1854-1932). In the writings of the architect and planner, Clarence Stein (1882-1975), are also letters from Mumford, as should be expected given their 1923 founding of the Regional Planning Association of America (RPAA). This is not idle name-dropping but evidence of Mumford's central role in interpreting and communicating planning and design ideas of his time, ideas that continue to influence theory and practice. →

References are cited on the CSLA | AAPQ Web site version française www.aapc.ca

« Why should we accept the notion of an expanding economy as a method of salvation, when actually what we need is a balanced economy, which will put the needs of life before the claims of profit, prestige, or power ? »

THE TENDENCY TO DEHUMANIZE

→ Mumford thought of himself first and foremost as a writer. He was an independent scholar who focused on cities and their regions, arguing that both should be planned and designed in concert to provide healthy, integrated environments for humane living that respected regional, national and even global ecologies. He identified a tendency in cities toward dehumanization and environmental degradation related to mechanization, automation, corporatization, associated economics and the nihilistic will to power. For Mumford an answer to that was comprehensive urban and regional planning as advocated by the RPAA and represented, in part, by the Garden City movement. He and his peers never used the term sustainability to describe their thinking but the idea fits.

For example, as with some contemporary planners and designers, Mumford regarded the private car as a symbol of dysfunctional urban and regional planning more supportive of corporate interests than environmental and human well-being which we know to be essential to sustainability. With that in mind consider the image above: SUVs awaiting shuttle duties during the 2010 Winter Olympics, corralled within Vancouver's Southeast False Creek (SEFC) neighbourhood – "a leading model of sustainable development".

True, the image represents a temporary situation; nevertheless, the actual and underlying message conveyed is contradictory. The SUVs are from General Motors North America, a corporation that received billions of tax-payer dollars to help it restructure and is now recovering due to burgeoning private demand for some of its vehicles. SEFC is indeed a "leading model" of sustainable neighbourhood design. The juxtaposition of the two in the photo is a stark reminder of the entrenched public and private interests that may well hinder sustainability goals.

Fortunately, the sustainable features promised for SEFC suggest a world beyond the SUV, or at least some more sustainable marriage of development economics and ecology. SEFC will provide electric vehicle charging and car share vehicles for residents, as well as easy access to transit, walking paths and cycling routes. Plans include a new island built to provide wildlife habitat, areas for urban agriculture and green roofs. Rainwater will be re-used for toilet flushing and landscape irrigation; heat and hot water will be provided by renewable energy from sewer heat and solar thermal units. Not only does SEFC promise trademarked LEED Gold and Platinum buildings and neighbourhoods; it also will include Canada's first net-zero apartment building which will produce as much energy as it uses.

This list is similar to those associated with the twenty models of sustainable urbanism, Victoria's Dockside Green included, described by architect and urban designer, Douglas Farr, in his 2008 book, *Sustainable Urbanism: Urban Design with Nature*. Farr (2008) writes that the subtitle of his book credits landscape architect and ecological planner, Ian McHarg's (1920-2001) *Design with Nature* (1969) but seeks to counter what he calls McHarg's bias against cities. Mumford, who wrote the introduction to *Design with Nature*, was during his life also accused of being anti-city by urban observer, Jane Jacobs (1916-2006), as was Ebenezer Howard (1850-1928), author of *Garden Cities of To-Morrow*(1898). In a September 24, 1968 letter to Frederick Osborn, Mumford observed that: "To hold that those who pointed out the ills of the city were against the city, is as much as to say that a physician who diagnoses the ills of the human body is against the body or opposed to its normal growth." (Hughes, 1971: 447)

A BIOLOGICAL PARTNERSHIP

Howard, Mumford and McHarg were not anti-city. They were justifiably critical of the overcrowding, congestion, poverty and pollution defining late 19th century London and early 20th century New York and Glasgow, respectively. Mumford's introduction to *Design with Nature* could just as legitimately serve to introduce sustainable urbanism discourse now: "In establishing the necessity for conscious intention, for ethical evaluation, for orderly organization, for deliberate esthetic expression in handling every part of the environment, McHarg's [and

« Why should we waste our surplus on mechanical gadgets and inane superfluities, when we might be cultivating our gardens and bringing forth new plants – some if possible with a higher protein content! – that we never cultivated before ? »

« Why should we invest public funds in sterile highrise tenements, in all their dreary uniformity, when the environment of life demands homes, gardens, communities that express individuality and identity, as every natural species does, as a condition for normal development ? »

Farr's] emphasis is not on either design or nature by itself, but upon the preposition *with*, which implies human cooperation and biological partnership." (McHarg, 1969: viii)

Mumford is not reading something into McHarg's work that is not there. Farr (2008:28), however, accuses McHarg of antisocial environmentalism – an "obliviousness to human systems", as opposed to human-focused urbanism, based apparently on a dismissal by McHarg of the social sciences because he could not reconcile them with ecology. This is not antisocial environmentalism. McHarg's (1969:197) ecology offers: "the science of the relations of organism and environment, integrative of the sciences, humanities and the arts – a context for studies of man and the environment."

AN IDEALIZED END

If ecology is the context for our studies of human-environment interaction then sustainability is the desired outcome of our ecological planning and design, or sustainable urbanism, landscape urbanism or landscape architecture for that matter. Sustainability is an idealized end that landscape architects have a critical role in achieving. The landscape architect, Frederick Law Olmsted (1822-1903), is to be acknowledged for that. In *The Brown Decades*, his book about the late 19th century United States, Mumford (1971) presents Olmsted as a critical figure of that time because he actively demonstrated both naturalist, Henry David Thoreau's (1816-1862) landscape ethic and the geographer, George Perkins Marsh's (1801-1882) insistence on the ecological role of humans as partners with nature, rather than its destroyers.

Landscape architects are demonstrators. As McHarg (1969:188) wrote, "our competence lies in manipulating the physical environment, but we are responsive to the idea that social processes are important to the design and planning professions…. Social processes provide the instruments for analysis and transformation. Yet we need criteria."

In other words and more generally, landscape architects have to know what is important for community, for social interaction, for the well-being of human and environment if they are to plan and design accordingly – meaning responsibly, respectfully and ultimately for sustainability. This means attending to the socio-cultural as well as the physical – an approach the landscape architect, Randolph Hester (2006), advocates and reinforces through a principles-based, landscape planning and design philosophy and methodology he calls "ecological democracy". Its premise is that landscape architects actively engage in an exploration of the natural and cultural dimensions of a place, with its citizens, in order to create a plan or process for achieving sustainability. As with Hester, any landscape architect that seeks to create places that demonstrate what it is to be human with nature would meet with Mumford's approval.

Assuming sustainability is an equilibrium between humans and nature, means it is a goal that is essentially unattainable – but worthy of pursuit nevertheless. Mumford's forty-two year old questions which run through this article are still relevant and inspire us to do what we can in that regard knowing full well, in all humility, that our planning and design activity will not create sustainability. It will only ever increase the possibility of sustainability being achieved. In support of such a possibility, Mumford (1979: 496) reiterates Romantic essayist, John Ruskin's (1819-1900) words: "There is no wealth but life." Here landscape architects are offered the measure of success in realizing sustainability: it is quality of life, best interpreted as the health of people and their place, from home to planet and all that infers ecologically. We have only to ask ourselves: Does my landscape architecture contribute to quality of life or detract from it? Have I heightened the possibility of a healthy life or have I diminished that possibility? Am I working toward sustainability or working against it?

The tree in Mumford's 1938 portrait is not a backdrop or a prop. It is an extension of his being, critical to his health and well-being. The portrait is not symbolic of an anti-city bias: it is an acknowledgement of our inseparability from nature. Mumford would caution us not to turn the quest for sustainability into an engineering exercise dependent on complex human-made systems. He would advocate instead for the diversity, complexity and creativity of gardens, and indeed did so for garden cities. Perhaps here is an idea for landscape architects to revive, to reinterpret for the 21st century: as Mumford (1945:35) said: "The Garden City… is not a suburb but the antithesis of a suburb: not a more rural retreat, but a more integrated foundation for an effective urban life." An effective urban life is a sustainable urban life.

« Why, to put it briefly, should we value parking lots above parks, and content ourselves with plastic flowers, mockeries of both nature and art... ? »

4 SCHOLARS, 4 LANDSCAPES
OILSANDS, OUTPORTS + BEYOND

ALISSA NORTH

1, 2

QUATRE ÉTUDIANTS QUATRE PAYSAGES

Grâce à d'intenses recherches, quatre étudiants préparant des thèses ont élargi la conversation sur la durabilité, ce qui démontre que l'architecture du paysage est le terrain d'essai idéal pour étayer les approches.

ALBERTA: Reconnaissant que les sables bitumineux de l'Alberta vont être exploités de toute façon, la thèse de Kyle Xuekun Yang orchestre un ralentissement des opérations, en utilisant progressivement des stratégies d'écologie du paysage pour réorganiser et concevoir les méthodes d'exploitation à ciel ouvert des sables bitumineux.

TERRE-NEUVE: La thèse de Matthew Brown formule un ensemble de trajectoires possibles pour les plans directeurs des petits villages de pêcheurs de Terre-Neuve, permettant aux gens d'explorer les ressources inexploitées, telles que l'énergie marémotrice, pour remodeler l'avenir de ces villages.

ONTARIO: Pour tirer parti de l'évolution constante de la diversité culturelle de Thorncliffe Park, à Toronto, Max Kerrigan a élaboré une stratégie incorporant la réorganisation spatiale à petite échelle des activités économiques, pour générer d'autres activités piétonnières et encourager l'interaction sociale quotidienne.

BORDS DE MER: Lara Semeniuk propose des stratégies pour restaurer les friches industrielles omniprésentes sur les bords de mer – pas avec un programme simple, mais en utilisant une matrice de plans directeurs qui considèrent le changement à long terme.

SICK OF SUSTAINABILITY?

Used loosely everywhere, sustainability is a term loaded with intention but often lacking in validated substance. It is standard practice for landscape architects, along with our collaborative designers, advertisers, politicians, big business, the media, and other publicly scrutinized figures, to pledge allegiance to the environmental cause. Promoting our ideas and products as "green", "environmentally friendly", "zero footprint", "preserving or conserving", "using renewable energy", "mitigating global climate change", "cradle to cradle", "natural", "native", "regional", and, of course, "sustainable", we purport to be solving the earth's environmental problems. But is sustainability simply trendy, or are we truly committed to understanding and achieving it?

It's easy to become tired of the hollow overuse of the term, yet precise scholarship can help guide us to a balanced coexistence on this planet. Landscape is the perfect testing ground, and landscape architecture the ideal profession to substantiate approaches of sustainability.

CAN LANDSCAPE ARCHITECTURE SAVE THE WORLD?

Through intense investigation, the four landscape architecture thesis students I advised this year expanded the conversation on sustainability. Their projects varied from being political and poetic, to ecological and community oriented. They were even a little satirical, but their common, underlying agenda was to push and validate boundaries of sustainability.

THE OIL SANDS: ECOLOGICAL STRATEGIES

Recognizing that Alberta's Oil Sands will be extracted, Kyle Xuekun Yang's thesis orchestrates a slowing down of the operations, one that uses phased landscape

...sustainability is a term loaded with intention but often lacking in validated substance.
... la durabilité est un terme chargé d'intentions mais souvent vide de substance validée.

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ecology strategies to reorganize and design the oil sands' surface mining site, its operations and reclamation processes. By extending the timeline of extraction, the mining of the site is achieved much more efficiently, with smaller land masses disturbed and larger tracts of continuous undisturbed corridors retained between major mining site operations. Operating during specific seasons minimizes disturbance to wildlife migration and breeding patterns, and saves substantially on water use. Precise piling of mined earth directs wildlife along secure corridors, eventually leaving a legacy of landforms to remind us of our fossil fuel era. Yang's project moves beyond the standard practices of post-mine reclamation toward to a sustainable and poetic model that inserts landscape architecture within this contemporary industrial process.

TIDAL ENERGY MADE VISIBLE

Matthew Brown's thesis proposes strategies that allow the outport people of Newfoundland to stay close to their coast and their culture by developing local resources. Through an analysis of the entire island, and close investigation of Fogo Island, Brown formulates a set of possible masterplan trajectories. His renewable energy trajectory, for example, utilizes tidal energy, a resource that is as yet untapped. Since tidal energy is an underwater phenomenon and therefore unobservable, Brown makes the forces visible with an installation of giant red buoys at the water's surface. His design includes a simple walkway and pier for viewing the red buoys, and not incidentally, preserving the shoreline ecology. Such a spectacle would provide commissions for artists and draw tourists to the outport, and the buoys themselves would prove useful to recreational boaters. But the most potent message of the installation lies in its graphic display of the potential of tidal energy as a renewable energy source. The project opens the conversation for change. Brown has balanced economic, human and environmental factors, basing his proposal on what a landscape and its people can realistically sustain.

SHIFTING DIVERSITY – SHIFTING SPACES

To capitalize on the unique character and constantly changing cultural diversity of Thorncliffe Park in Toronto, Max Kerrigan first documents the ebbs and flows of all user groups. Recognizing that the stark landscape of the towers does not engage the residents or provide opportunities for interaction, Kerrigan developed a spatial reorganization strategy, incorporating locations for permanent, small-scale shops, restaurants, gathering spaces and weekly markets. These small scale economic activities generate additional pedestrian activity, encouraging daily social interaction. The strategy also recognizes that as ethnic groups change in the area, the shops and public spaces will change as well, to accommodate the city's prized but ever-shifting cultural diversity. Resources will be effectively recycled, creating a sustainable neighbourhood and simultaneously saving and revitalizing the city's iconic towers.

AN ADAPTABLE MATRIX FOR AN UNCERTAIN FUTURE

Like the Thorncliffe Park neighbourhood, the shrinking cities of the Great Lakes region are poised to be reinvented, with a particular focus on sustainable →

1 LARA SEMENIUK – WETLAND PARK PERSPECTIVE **2** KYLE XUEKUN YANG – REGIONAL STRATEGY – WIDE CORRIDORS BETWEEN MINE SITES PERSPECTIVE **3** MATTHEW BROWN – TIDAL STRATEGY PERSPECTIVE **4** MAX KERRIGAN – THORNCLIFFE PARK PROPOSED MASTER PLAN | **1** LARA SEMENIUK – PARC DE TERRE HUMIDE **2** KYLE XUEKUN YANG – STRATÉGIE RÉGIONALE – CORRIDORS ENTRE LES SITES MINIERS **3** MATTHEW BROWN – CENTRALE MARÉMOTRICE **4** MAX KERRIGAN – PLAN DIRECTEUR POUR LE PARC THORNCLIFFE

→ urban living. With today's heightened interest in water quality and conservation, Lara Semeniuk proposes strategies to remediate the ubiquitous abandoned industrial sites along waterfronts and riverbanks, with landscape serving as the primary tool for the organization of contemporary, sustainable urban form. Instead of creating a single masterplan, Semeniuk instead creates a matrix of possible masterplans for Detroit that considers the long term. Her approach is a bit like those "choose your own adventure" books of the 80s. The matrix considers not only the possible growth of a city, but also its potential to shrink. Whatever the future, the framework structures how the city and its people share space with natural systems. For example, a wetland park may perform remediative ecological tasks, but its form is highly adaptable, capable of accepting indeterminate future possibilities, such as housing blocks. The wetland and the city develop a symbiotic relationship, where the city gives the water's edge room to expand and breathe, and the wetland remediates a tainted urban landscape. Over time, the cities can shrink or grow, forming a constantly morphing spatial configuration of buildings and adaptable open spaces to suit current needs. But the landscape is the medium that directs this change, as industrial sites are rehabilitated.

While the idea of sustainability has clearly become subsumed into our collective psyche, students are striving to answer the difficult questions about how specifically to build the substance. They are looking well beyond solar panels and wind turbines, moving beyond the single direction trajectory of our current conservation approaches. Their projects recognize the dynamic nature of our existence: when positive interactions are established, people, landscapes, communities, rivers, oceans, can be supported indefinitely. This is a version of sustainability that can be substantiated.

MATTHEW BROWN – EMPOWERING OUTPORTS – A FRAMEWORK STRATEGY FOR NEWFOUNDLAND | MATTHEW BROWN – EMPOWERING OUTPORTS – UN PLAN CADRE POUR TERRE-NEUVE

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UN LIEU TÉMOIN…

MYLÈNE CARREAU + CHARLOTTE SIMARD

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A CANADIAN RENAISSANCE

For over 40 years, the Lairet River disappeared from the National Historic Site of Cartier-Brébeuf Park, a place that saw the beginnings of the European presence in America. Jacques Cartier wintered at this site in 1535-1536, near the Iroquois village of Stadacona.

The rehabilitation of the park was triggered by the collapse of a segment of the pipe channeling the Lairet River. The landscape architects of Groupe IBI/DAA, together with Parks Canada, seized the opportunity to conduct a thorough review, including rigorous historical research to validate the original morphology of the Lairet River. The resulting work met three exacting priorities: to develop a true meandering river ecosystem to replace the existing artificial lake and storm drainage pipe; to design site traffic to encourage exploration of the historical interpretation site; and to meet the $4 million budget initially granted for the replacement of the collapsed pipe. The project was awarded the 2009 National Operations Greening Award from the Government of Canada for its achievements in sustainable development.

For the story in English, see www.csla.ca

DEPUIS PLUS DE 40 ans, la rivière Lairet avait disparu du lieu historique national du parc Cartier-Brébeuf situé en bordure de la rivière Saint-Charles, dans le quartier Limoilou à Québec. Son réaménagement récent a permis de réhabiliter le paysage original de l'embouchure de la rivière, un lieu témoin des débuts de la présence européenne en Amérique. En effet, c'est à cet endroit situé tout près du village iroquoien de Stadaconé que lors d'un deuxième voyage, Jacques-Cartier et ses compagnons ont hiverné au cours de l'hiver 1535-1536. C'est aussi là que fut érigée la première résidence des missionnaires Jésuites à Québec.

Réalisé au début des années soixante-dix, le parc mettait en valeur la réplique de la Grande Hermine disposée dans un large bassin artificiel. Trente ans de fréquentation avaient fortement détérioré le site, la réplique du bateau avait dû être démolie et les aménagements communiquaient mal l'histoire du lieu. Plus encore, la rivière Lairet, principal point de repère, coulait dans une canalisation depuis la fin des années soixante. En somme, le visiteur reve-nait du parc Cartier-Brébeuf pour le moins perplexe quant au lien entre le lieu et son histoire.

Les travaux de 2008 furent l'occasion d'actualiser l'approche à l'interprétation de ce « *lieu de rencontre entre le passé et le présent… où tout Canadien pourrait dire avec sincérité: voici, en vérité, le berceau de mon pays* » comme disait le premier ministre John Diefenbaker en 1957. Les architectes paysagistes de Travaux publics et services gouvernementaux Canada ont opté pour une réhabilitation complète du paysage original de l'embouchure de la rivière. Aujourd'hui, le parc Cartier-Brébeuf évoque clairement les faits historiques, procurant ainsi une expérience nouvelle aux visiteurs et un espace détente de qualité aux résidents du quartier Limoilou.

LE DÉCLENCHEUR DU PROJET

C'est l'affaissement d'un segment de la conduite canalisant la rivière Lairet qui fut le véritable déclencheur du projet. Des travaux importants s'imposaient afin d'assurer la sécurité des usagers. L'occasion était belle pour relancer l'intérêt pour ce site historique alors que le réaménagement des promenades riveraines de la rivière Saint-Charles était lancé.

Les architectes paysagistes du donneur d'ouvrage, de concert avec Parcs Canada, saisirent l'occasion afin de revoir les nombreux enjeux techniques et fonctionnels du site, mais également pour mener une



« Voici, en vérité, le berceau de mon pays... »

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«Here, indeed, is the cradle of my country...»

... JOHN DIEFENBAKER, 1957

réflexion de fond sur la façon de communiquer sa valeur culturelle et environnementale et d'en assurer la pérennité. Cette réflexion a permis d'orienter les travaux de réhabilitation à la faveur d'une vision accentuant le rôle du site lui-même dans l'évocation de l'histoire du lieu.

Des études techniques furent menées sur les enjeux de sécurité publique, de même que sur la qualité des eaux de la rivière Lairet, sa capacité hydrologique, sa vélocité en période de crues et la sédimentation potentielle de contaminants dans son embouchure. En parallèle, des recherches historiques rigoureuses étaient réalisées de manière à valider la morphologie originale de la rivière Lairet, de même que la localisation du point d'accostage des navires de Cartier.

UNE RIVIÈRE À MÉANDRES

La vision du maître d'œuvre posait trois défis aux architectes paysagistes du Groupe IBI/DAA retenus pour élaborer et mettre en forme le projet. Ils devaient aménager un véritable écosystème de rivière à méandres en lieu et place d'un lac artificiel et d'une conduite de drainage pluvial. Ils devaient aussi concevoir la circulation sur le site de sorte à inciter les usagers de la promenade riveraine à explorer le site d'interprétation historique. Ils devaient enfin respecter l'enveloppe budgétaire de quatre millions de dollars accordée initialement pour le remplacement de la conduite affaissée.

L'équipe de conception a rétabli le tracé sinueux et la topographie originale de la rivière à méandres, de même que le paysage originel et les habitats riverains. La rive est escarpée du côté extérieur de la courbe, où le courant érosif sculpte la berge. L'intérieur des méandres est en pente douce. Sable grossier, galets de rivière, grosses pierres renforcent les caractéristiques géomorphologiques du site. Les berges sont naturalisées avec des espèces indigènes terrestres et aquatiques afin de créer un véritable écosystème. Sentiers, pistes cyclables et placettes s'insèrent dans la topographie mettant en valeur le centre d'interprétation existant, mais surtout la rivière à méandres comme l'attrait dominant du parc.

ÉVOCATION DE LA GRANDE HERMINE

Les architectes paysagistes d'IBI/DAA ont conçu une œuvre sculpturale évoquant la Grande Hermine, l'élément emblématique du lieu. L'œuvre contemporaine, déstructurée, légère et aérienne, est implantée côté plage, à l'intérieur d'une courbe de méandre. Elle est intégrée à une placette d'interprétation rappelant les occupations passées du site, notamment l'hivernage de Jacques Cartier. Plusieurs végétaux utilisés sur les berges de la rivière, tels l'hêtre, le cèdre, le sureau, le cornouiller et la myrique, contribuent à l'interprétation historique puisque ces espèces sont décrites dans les *Récits de Cartier*.

L'œuvre reproduit les proportions de la Grande Hermine. Telle une carcasse échouée, elle rappelle que Cartier l'avait laissé sur place, incapable de le faire naviguer suite au scorbut qui avait décimé une grande partie de son équipage. Un texte tiré des *Récits de Cartier* est intégré à un long banc de granite épousant la forme de la proue du navire. L'échelle de l'œuvre sculpturale fait prendre conscience de la dérision d'une traversée atlantique dans une embarcation aussi frêle.

1 ÉVOCATION DE LA NEF DE LA GRANDE HERMINE **2** SABLE GROSSIER, GALETS DE RIVIÈRE, GROSSES PIERRES RENFORCENT LES CARACTÉRISTIQUES DU SITE **3** ILLUSTRATION DU SITE **4** ÉVOLUTION DU SITE : RESTAURATION DU TRACÉ SINUEUX DE LA RIVIÈRE | **1** REPRODUCING THE PROPORTIONS OF THE GRAND HERMINE **2** COARSE SAND, RIVER PEBBLES + BOULDERS REINFORCE THE SITE'S GEOMORPHOLOGIC FEATURES **3** SITE RENDERING **4** EVOLUTION OF THE SITE: RESTORING THE SINUOUS LINE OF THE RIVER

PHOTOS IBI/DAA

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→ DES PISTES INTÉGRÉES

Le lieu historique national Cartier-Brébeuf s'insère dans le corridor récréotouristique de la rivière Saint-Charles. Une promenade piétonne longe les berges et offre des points de contact multiples avec l'eau tandis que la piste cyclable serpente à travers le parc.

Une passerelle permet aux piétons et aux cyclistes de traverser la rivière Lairet. Le mobilier urbain, les matériaux, ainsi que les médaillons au profil de Jacques Cartier apposés aux balustrades de la passerelle s'harmonisent à l'œuvre sculpturale.

DES RETOMBÉES NOMBREUSES

Depuis son inauguration à l'automne 2009, la réhabilitation du parc Cartier-Brébeuf a été un succès à plusieurs égards. En effet, le projet a contribué à la réappropriation des berges de la rivière Saint-Charles par les visiteurs tout autant que par les citoyens des secteurs limitrophes. Cette appropriation se manifeste par un achalandage accru et un taux de satisfaction élevé chez les usagers. La satisfaction est aussi grande chez les espèces fauniques qui ont réinvesti le milieu, comme en témoigne le recensement des espèces fauniques réalisé en 2010 par Parcs Canada qui a répertorié 12 espèces de poissons, dont l'omble de fontaine et le doré.

La relecture intégrée du paysage culturel et de l'occupation des lieux assure une interprétation exemplaire de ce site historique d'une grande importance nationale. Les visiteurs apprécient aussi les points de vue saisissants où se découpe la Grande Hermine avec le panorama de la ville de Québec en toile de fond. D'ailleurs, le site a été confirmé comme lieu de rassemblement pour tous les événements concernant Jacques Cartier, tel le 475e anniversaire de son hivernage en ces lieux fêté en 2010.

L'équipe de projet s'est vu décerner en 2009 le Prix national d'écologisation des opérations du gouvernement canadien pour ses résultats en matière de développement durable découlant des améliorations apportées aux conditions sociales, environnementales et économiques par le projet. Enfin, le prix de l'AAPC décerné au parc Cartier-Brébeuf a rassuré les gestionnaires du projet que les concepts éclairés peuvent redonner un second souffle à des sites historiques aménagés de longue date et ainsi rehausser grandement l'expérience des visiteurs.

1,2,3, SENTIERS, PISTES CYCLABLES, PLACETTES ET L'HORIZON DE QUÉBEC |
1,2,3, TRAILS, BIKE PATHS, PIAZETTAS + THE QUEBEC CITY SKYLINE
PHOTOS IBI/DAA

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LOFTY GAINS: A REGIONAL HABITAT-BASED APPROACH TO LIVING ROOF DESIGN

BRUCE HEMSTOCK

DES GAINS AMBITIEUX : UN TOIT VÉGÉTALISÉ INSPIRÉ DE L'HABITAT RÉGIONAL

Pour le toit végétalisé de 2,6 hectares (6,4 acres) du Centre des congrès de Vancouver, l'équipe de projet a utilisé l'analogie d'une « prairie côtière » de la région pour résoudre les problèmes de construction et de conception environnementale. Le concept ne cherche pas à reproduire l'écologie des prairies, mais emprunte plutôt des idées sur la façon dont les prairies contribuent à la création et à la connexion des habitats, ce qui apporte un soulagement visuel, atténue le ruissellement, et purifie l'air tout en le refroidissant. Le résultat est une conception de toit qui correspond à la forme du bâtiment avec ses plans particulièrement pentus et longs, tout en intégrant un système d'irrigation conforme à la norme LEED, un milieu de culture spécialement conçu pour le projet et un réseau de rigoles d'eau pluviale permettant au toit végétalisé de répondre aux variations extrêmes du climat avec ses longues périodes de fortes pluies d'hiver suivies par la sécheresse estivale.

1-3 THE 2.6-HECTARE LIVING ROOF IS PLANTED WITH 25 NATIVE SPECIES **4** PLANTING SLOPES VARY FROM 8% - 53% **5** CONVEYING 5000 CUBIC METRES OF GROWING MEDIUM **6** PLANTING SLOPES VARY FROM 8% -43 | **1 -3** VINGT-CINQ ESPÈCES LOCALES POUSSENT SUR LE TOIT VÉGÉTALISÉ DE 2.6-HECTARES **4** LES INCLINAISONS VÉGÉTALISÉES VARIENT DE 8 À 53 % **5** TRANSPORT DE 5000 MÈTRES CUBES DE TERREAU **6** LES INCLINAISONS VARIENT DE 8 À 43 %
PHOTOS PWL PARTNERSHIP LANDSCAPE ARCHITECTS INC.

FLYING LOW OVER most Canadian cities, one would see a patchwork quilt dominated by the grayness of impervious roads and roofs, broken occasionally by green threads of trees lining streets and green patches of parks. Within the inner city, where parks are relatively scarce and street trees struggle, the grayness might account for 100 percent of the area. These biological deserts, particularly roofs, have constituted some of our great missed opportunities.

NEW AERIAL VISTAS

With the emergence of green roof technology and recently, the more purposeful 'living roof' approach, cities across the country are reintroducing and regenerating local ecology long since displaced by urban development. The roof on top of the new Vancouver Convention Centre (VCC) is an example of how a large abiotic area can be transformed from a biological liability into an ecosystem that supports avian and insect use, while also addressing such other concerns as urban heat islands, heat gain and stormwater runoff. For the 2.6 hectare (6.4 acre) living roof, the project team utilized an integrated design process and the analogy of a regional 'coastal grassland' to resolve key building and environmental design issues. The result is a roof design that responds to the unique building shape. It includes unusually steep, large, long-span roof planes; a recycled black water irrigation system; a project-specific growing medium design, and a storm water runnel system that allows the living roof to respond to regional climate extremes of long periods of heavy rainfall in the winter followed by periods of drought in the summer.

BORROWING FROM THE GRASSLAND BIOTOPE

While the Vancouver Convention Centre roof references a regional coastal grassland it does not attempt to replicate its ecology. It borrows ideas about how the coastal grassland ecology contributes to the region by creating and connecting habitats, providing visual relief, mitigating runoff, and cooling and cleaning the air.

3

Roof runnels zigzag down the sloping roof planes much like a grassland stream moves through the landscape... | Les rigoles serpentent le long des pentes du toit imitant les méandres d'un ruisseau...

The coastal grassland biotope includes dozens of species of grasses and herbaceous perennial plants. The plants exist in an interesting equilibrium seeking out the areas of the grassland that satisfy their particular growth requirements, forming colonies and spreading by seed or rhizome. Two key plant ecological factors, drought tolerance and resistance to wind, eliminated a large number of candidate species from the selection process for the VCC roof. The plant list was then reviewed for its attractiveness to insects and songbirds, and the ability of the plants to co-exist. Aesthetic quality, though not an ecological criteria, was important given the VCC's urban location and oversight by adjacent hotels, office towers and condominiums.

The final list of 25 native plants included varieties of fescue, calamagrostis, koelerea, carex, frageria, allium and aster. Seeds collected in the wild were conditioned at a nursery and test propagated to determine if specific plants could be mass-produced. No peat moss was used in the propagation to avoid further depletion of ecologically sensitive peat bogs.

THREE YEARS OF TEST PLOTS

A three-year test plot trial process commenced to assess plants and growing medium, and better understand the dynamics of what would become the largest living roof in North America. The test plots – a series of 3.6m square boxes →

4-6

The design team monitors the living roof's progress with bi-monthly walks... | L'équipe de conception observe les progrès du toit végétalisé par des inspections bimensuelles.








1-8

pitched at different slopes and different aspects and with some shading – were situated along the waterfront near the VCC and were designed to mimic the conditions the roof would experience. Moisture sensor drip irrigation systems and drainage runnels were also included as these would ultimately be part of the final roof. The test plots proved invaluable. Not only did they confirm the coastal grassland plants selected would flourish; they also became an aesthetic sounding board where concerned public officials, developers and property owners were able to understand and embrace the living roof's visual characteristics.

DEVELOPING THE GROWING MEDIUM

To create the necessary 5,000 cubic metres (6,500 cubic yards) of growing medium, the team utilized components that were recycled or derived from waste byproducts. The medium needed to replicate the well-drained characteristics of coastal grassland soils and meet the roof's stringent weight limits. The final mix utilized river pump sand dredged from the nearby Fraser River to keep the shipping channels open, and organic compost from garden, kitchen and forest industry waste. The only virgin material was lava rock that came from Quesnel, BC, 660 km (410 miles) from Vancouver. Importantly the lava rock reduced the overall weight and structure of the growing medium. The resultant mix had a saturated weight of approximately 1.27 tonnes per cubic metre (79.2 lbs per cubic foot).

LEED-COMPLIANT IRRIGATION

The LEED Platinum aspirations of the project put particular pressure on the design of the irrigation system. Rainfall statistics for Vancouver show that June, July and August are drought periods. Over thirty-nine years, average rainfall accumulations barely exceeded 6 cm per month. The rainfall quantities were not the only consideration. The team's research showed that irrigated plants which actively transpire water deliver other benefits; they cool the air, remove carbon dioxide and produce oxygen at a higher level.

A site-specific moisture sensor system allows water to be added via the drip emitters only when growing medium moisture levels drop below 15 percent, the typical wilt point for these plants. No potable water is used: water comes from the building's black water treatment facility. Drip line spacing was adjusted to respond to slopes that varied from 8 to 53 percent. Near the top of slopes, drip lines were closer together than those towards the bottom of the slope.

1 A SECTION OF NEWLY COMPLETED ROOF **2** MONITORING THE ROOF THROUGH BI-MONTHLY WALKS **3-6** FROM SUMMER DROUGHTS TO WET WINTERS: SYSTEMS INCLUDE MOISTURE SENSOR DRIP IRRIGATION + DRAINAGE RUNNELS WHICH ZIGZAG DOWN SLOPING ROOF PLANES **7** EAST VIEW: RANDOMELY PLACED PLANTS ARE BEGINNING TO GROUP INTO COLONIES IN RESPONSE TO MICROCLIMATE VARIATIONS **8** THE LIVING ROOF ECOSYSTEM | **1** UNE SECTION DE TOIT FRAÎCHEMENT ACHEVÉE **2** INSPECTION BIMENSUELLE **3 À 6** DES SÉCHERESSES ESTIVALES AUX HIVERS PLUVIEUX **7** VUE DE L'EST : LES PLANTES DISSÉMINÉES AU HASARD FORMENT DES COLONIES ADAPTÉES AUX MICROCLIMATS **8** L'ÉCOSYSTÈME DU TOIT VÉGÉTALISÉ

PHOTOS 1,3,4,5+6 FLYNN CANADA LTD. **2+8** PWL PARTNERSHIP LANDSCAPE ARCHITECTS INC.

COST-EFFECTIVE STORMWATER CONTROL

The typical wet west coast winter, however, posed a different set of problems. Designers grappled with excess stormwater. With such a large roof, the volume of water would overwhelm the roof's retention capacity. Rather than going to the expense of custom designing 'super' drains the design team developed a two-staged strategy: keep the water on the roof as long as possible and release it slowly, allowing it to move to conventional drains equally spaced over the roof surface. The growing medium helped to delay the flow of water and the dense leaf mass trapped significant amounts of water, contributing to the delay of the peak runoff.

A series of roof runnels consisting of 30cm (12") wide aluminum-edged, rock-filled channels, perforated on the uphill side and solid on the downhill side, zigzag down the sloping roof planes much like a grassland stream moves through the landscape. The runnels collect runoff and direct it to drains at the edge of the roof where clean storm water is discharged directly into the adjacent Coal Harbour, not into Vancouver's stormwater infrastructure. The metal runnels are not fixed to the roof but held in place by the weight of the stone and growing medium, thus avoiding thousands of perforations in the waterproof membrane. For a roof this large, this seemingly minor detail is important to ensuring the integrity of the building envelope.

THE LOGISTICS OF LONG-TERM MAINTENANCE

The design team talked about natural process throughout the project, rationalizing that if coastal grasslands are a self-sustaining, self-maintaining ecosystem then the living roof urban ecosystem would function in much the same way. Coastal grasslands produce large amounts of organic matter. In essence the plants feed themselves by enriching the growing medium with decomposing plant matter. An annual fall cutting of the roof reduces the plant mass and encourages decomposition of the plant matter. In fall, the plant mass can be easily cut, the demands of pollinating insects are at their lowest and the seasonal rains hold the plant debris on the roof. The only other regularly scheduled task is the removal of invasive plants with aggressive root systems that could compromise the roof membrane.

The living roof is now in its second summer and has been embraced by the public, in part for its aesthetic contributions to the city. Monitoring of the roof's water usage and the temperature of its growing medium is ongoing. As predicted, there has been minimal impact to the region's potable water supply. And although it is too early to be definitive, the data suggest lower roof temperatures and localized cooling.

The design team monitors the living roof's progress with bi-monthly walks and have observed pollinating insects including honeybees inhabiting the roof, as well as a myriad of spiders, ants, damselflies and other insects, and hundreds of field mice. Although songbirds have been limited to flocks of sparrows, the ecology of the roof continues to change and so may the inhabitants. As anticipated the randomly placed plants are beginning to group into colonies in response to microclimate variations.

It is not yet clear whether the living roof has made an impact on the movement of songbirds and insects. What is clear is that the living roof ecosystem is becoming a steward of the natural environment in our ever-growing urban landscape.

The author acknowledges the important work of Flynn Canada - Roof Contractor; Holland Landscapers - Livingroof Installation; NATS Nursery - Living Roof Plant Propagation

THE ULTIMATE GREEN TOOL

CATHY SEARS

A solid knowledge of sustainable funding should be in every landscape architect's toolkit. | Tout architecte-paysagiste devrait avoir, dans sa trousse à outils, une bonne connaissance du financement durable.

BILLETS **VERTS**

Tout architecte-paysagiste devrait avoir, dans sa trousse à outils, une bonne connaissance du financement durable. En Alberta, les taxes de revitalisation urbaine permettent aux municipalités d'emprunter sur la valeur d'une revitalisation future. Ceci financera les améliorations importantes aux infrastructures qui permettront aux développeurs privés de progresser. Cette approche permet le réaménagement du district Rivers de Calgary. Les planificateurs de parcs ont introduit leurs propres outils originaux pour générer des revenus constants par l'exploitation et la gestion des parcs : baux, concessions et autres permis commerciaux dans les parcs ou près d'eux. À l'historique Reader Rock Garden, on a transformé une résidence d'époque en café et lieu de rencontre qui génère maintenant plus de 20 % du budget d'exploitation et d'entretien du jardin. Autre mécanisme présentement à l'étude à Toronto, la zone d'amélioration des parcs permet aux personnes vivant près d'un parc de se taxer elles-mêmes pour améliorer ou entretenir ce lieu, la municipalité égalant leur contribution.

LANDSCAPE ARCHITECTURE PROFESSIONALS are at the front end of community revitalization initiatives. We are at out best creating refreshing visions: re-imagining deteriorating infrastructure and restoring vitality to slumping neighborhoods and bedraggled open space. But all too often these visions remain just that, a furtive glance at what could be. Demands are pressing on the public dollar and ambitious makeovers must compete for limited community capital.

1 READER ROCK GARDEN HISTORIC PARK, A PROVINCIAL HISTORIC SITE, RECEIVED A CALGARY HERITAGE AUTHORITY LION AWARD IN LANDSCAPE PRESERVATION | **1** LIEU HISTORIQUE PROVINCIAL, READER ROCK GARDEN A REÇU UN PRIX LION DE L'OFFICE DU PATRIMOINE DE CALGARY POUR LA PRÉSERVATION DU PAYSAGE.
PHOTO CITY OF CALGARY

THE FUNDING TOOLKIT

At Stantec, we see the obstacles that communities, developers and owners confront when they address what is arguably the most essential component of any project: funding. In the process, we've utilized a variety of financing vehicles which have moved great ideas forward into concrete projects. Our conclusion? A solid knowledge of sustainable funding should be in every landscape architect's toolkit.

COMMUNITY REVITALIZATION LEVIES

Long employed in the United States under the name of Tax Increment Financing (TIF), the Community Revitalization Levy (CRL) funding mechanism has recently become available to communities in Alberta. Other provinces are no doubt taking note. Enabled by provincial legislation, CRLs allow Alberta municipalities to borrow against the value of future revitalization in order to fund improvements necessary to jumpstart change.

In a nutshell, here's how it works. A redevelopment district is established and the tax baseline within the district is determined. Then, a revitalized level of tax revenue, based on expected improved use of the land, is projected over a period of 25 years. If approved by the province, the municipality is then authorized to borrow against the increased revenue stream and apply the proceeds to major infrastructure improvements, thus enabling private development to go forward.

Using the CRL approach, Alberta now has several ambitious projects underway. One of these, the redevelopment of Calgary's Rivers District at the intersection of the Bow and Elbow Rivers, recently won a Canadian Urban Institute Brownie Award for leading-edge brownfield development. RiverWalk, a four-kilometer waterfront promenade, is part of this initiative. The project is expected to be a significant catalyst, according to Chris Ollenberger, President and CEO of the Calgary Municipal Land Corporation, the entity charged with urban redevelopment in the area. "The landscape architecture generates a critical key piece of infrastructure for us, and sets the tone and the stage for the development to come by showing people exactly what East Village is capable of being," he observes.

In Edmonton, another CRL is nearing completion for application to the Province. It could help generate more than $1 billion in redevelopment funding for the newly created Edmonton Downtown Arena and Entertainment District, which includes a proposed $400 million arena for the Edmonton Oilers.

READING THE FUTURE

Since a successful CRL must realistically assess what the future holds, landscape architects can play a visionary and cautionary role. Assessing the current tax base is fairly straight forward. Assessing the future tax base of Edmonton's new arena and entertainment district is "part art and part science," according to Stantec's Simon O'Byrne, a principal and urban planner involved with the project. "Land economics can help you model the future case scenario, but we also need to apply our professional judgment and experience to envision what constitutes the best use of the land."

UNIQUE TOOLS FOR PARKLANDS

To create an ongoing revenue stream for parks operations and management, park planners are responding with their own unique tools, including leases, concessions and other business licensing in, or adjacent to, parks. Toronto-based architect and urban designer Ken Greenberg, principal of Greenberg Consultants Inc., says that this practice was pioneered in the US but it's catching on in Canada. He notes that one of the most successful restaurants in North America is the Tavern on the Green in New York City's Central Park. He's currently involved with a similar program being employed in the city's newly opened Brooklyn Bridge Park.

Doug Marter, manager of Planning and Development Services for the City of Calgary, is overseeing more than $150 million of parks and open space projects. At the city's historic Reader Rock Garden an original residence has been transformed into a café and meeting center, which now provides more than 20 percent of the garden's operations and maintenance funding. Similar licensing agreements are in place at four parks; several others are under development. Marter is also considering licensing bike rental operations at Prince's Island Park, a popular downtown destination. He explains, "We have a great opportunity to take advantage of the Calgary's 700 kilometers of pathways."

Unique among major Canadian cities, Calgary's park investments are also propelled by a stable contribution from a city-owned utility. Via a dedicated portion of annual dividends, the ENMAX Legacy Parks Fund has contributed more than $60.5 million to park development since 2003, with another $75 million pledged over the next several years.

PARKS IMPROVEMENT AREAS

Another potential funding mechanism modeled on Business Improvement Areas is the Parks Improvement Area, which allows residents surrounding a park or open space to tax themselves, with a match from the municipality for enhancement or maintenance. Toronto is discussing this type of funding.

Other federal funding opportunities are available through such programs as the *Federation of Canadian Municipalities (FCM) Green Municipal Fund (GMF), the GMF Brownfield Programs and the Gas Tax Fund,* a key component of the Building Canada infrastructure plan.

What's on the horizon?

Do you know of other funding sources and opportunities? We'll share ideas in a future issue of LP!

Please contact Cathy Sears: cathy.sears@stantec.com

CONGRÈS 2010 EDMONTON prix de reconnaissance

L'AAPC REND HOMMAGE À DES PERSONNES EXCEPTIONNELLES QUI FONT AVANCER NOTRE PROFESSION.

PRIX D'EXCELLENCE POUR L'ENSEMBLE DES RÉALISATIONS

PATRICK BUTLER, AALA, a été un membre fondateur de l'AALA, et son président de 1976 à 1978. Il a aussi présidé le Conseil d'accréditation, représenté l'AALA au Comité de design d'Edmonton et a contribué à établir le programme de techniques d'architecture de paysage au NAIT en 1975. Il est Rotarien et membre actif de l'Edmonton Executive Association.

FRIEDRICH OEHMICHEN, AAPQ, a d'abord travaillé comme journaliste à Los Angeles, voyageant à partir de son Allemagne de l'Est natale jusqu'en Asie, aux États-Unis et à Québec. En tant que professeur, chercheur et écrivain depuis plus de 60 ans, il est un homme de lettres qui a compris l'importance de la durabilité avant qu'elle ne devienne à la mode. Il a été un pionnier dans l'adaptation de la végétation aux friches industrielles, toitures jardins et jardins secs. Il ne cesse d'inspirer ses élèves.

PRIX POUR SERVICE COMMUNAUTAIRE

SOL ROLINGHER, AALA, n'est que le deuxième récipiendaire du Prix pour service communautaire de l'AAPC, qui honore les organismes publics et les groupes communautaires qui partagent des objectifs de l'Association. Sa nomination par l'AALA souligne son dévouement à la création du Capital Region River Valley Park. En tant que président de la River Valley Alliance, il a engagé Capital Health à améliorer l'accessibilité de la région et il a travaillé sans relâche pour raviver la fierté collective à l'égard de la vallée.

PRIX SCHWABENBAUER

JIM MELVIN, OALA, honoré pour service remarquable à l'AAPC, a siégé à divers conseils et comités de l'AAPC, trop nombreux pour les citer, y compris un mandat à la présidence en 1993. Il a présidé l'Ordre des associés, organisé divers congrès et siégé à des comités de la FAPC et à des jurys de l'OALA et de l'AAPC. « Remporter le prix baptisé du nom de l'exemplaire André Schwabenbauer, a déclaré le président Neil Dawe, est une réussite de premier ordre... un prix très spécial pour un homme très spécial. »

MÉDAILLE D'EXCELLENCE EN ENSEIGNEMENT

FIFE ED, OALA, AAAPC, est un éducateur de renom qui croit que dans une société puissante, les idées règnent :. une population éduquée est notre plus grande ressource. Près de la moitié des AP formés au Canada ont été touchés par lui – et il a favorisé une pensée typiquement canadienne sur le paysage. Il est un ardent défenseur de l'enseignement universitaire, célèbre pour ses camps d'entraînement en écologie urbaine pour les étudiants de l'Université de Toronto.

PRIX DE LA PRÉSIDENTE

PRÉSENTÉS À TITRE POSTHUME PAR LINDA IRVINE

JERRY BELAN, OALA, qui était un planificateur du parc de la ville de Toronto, avait un sens inné de l'aventure :. il a été la principale force derrière le succès du Programme de randonnées de découverte de Toronto. Il a souvent pris la parole dans des congrès internationaux pour traiter de la planification des sentiers et de la célèbre série de promenades autoguidées de la ville de Toronto.

MARGERY WINKLER, OALA, qui enseignait à l'Université Ryerson depuis la fin des années 1970, était dévouée à ses élèves, à l'amélioration de l'enseignement de l'architecture paysagère et à l'action communautaire pour améliorer les cours d'école, les rues et les espaces publics. Elle prenait fait et cause pour l'engagement communautaire, la sensibilisation, la responsabilité écologique et la création d'espaces ouverts durables.

1 2

THE METROPOLITAN CHALLENGE: BRINGING FORMAN'S FINDINGS TO WINNIPEG

DAVID VAN VLIET

LE DÉFI D'UNE MÉTROPOLE : APPLIQUER LES SOLUTIONS DE FORMAN À WINNIPEG

Dans la plupart des régions urbaines, les systèmes naturels dont dépend notre avenir ont été ravagés. Richard Forman, professeur à Harvard et écologiste du paysage de renommée internationale, a depuis longtemps reconnu que la planification est bien plus efficace à l'échelle du paysage que les innovations incrémentales introduites site par site. Dans ses livres, Forman a fourni des outils d'analyse, distillant ses conclusions en 22 « solutions » pour les régions urbaines. Bien que les 22 solutions doivent être investiguées dans chaque région urbaine, cette analyse porte sur la façon dont seulement quatre des solutions de Forman s'appliquent aux structures vertes de la région de la ville de Winnipeg : un Réseau émeraude relié régionalement à travers cinq types de connexions, un réseau d'eaux pluviales et d'égout distinct et la fourniture d'un filet vert.

1 WINNIPEG'S WATERWAYS FORM THE BACKBONE OF NATURAL SYSTEM CONSERVATION **2** RED RIVER **3** WINNIPEG FLOODWAY OUTLET STRUCTURE **4** BISHOP GRANDIN GREENWAY INC: **1** LES VOIES D'EAU DE WINNIPEG FOURNISSENT LA STRUCTURE POUR LA CONSERVATION DES SYSTÈMES NATURELS **2** LA RIVIÈRE ROUGE **3** LA STRUCTURE DES CANAUX ÉVACUATEURS DE WINNIPEG **4** BISHOP GRANDIN GREENWAY INC. .

IN MOST URBAN regions, the natural systems upon which our future depends have been ravaged. Without healthy, functioning natural systems the landscape, and any built projects within it, cannot be regenerative. As most urban regions are developed, natural systems are addressed tangentially, if at all. Rarely is ecology a major priority.

REGENERATION, CONSIDERED BROADLY

This became eminently clear to Richard Forman, a Harvard University Professor and internationally acclaimed landscape ecologist, who for more than thirty years has been investigating the relationship between ecosystem health and physical changes in the landscape. (LP's winter 2010 interview with Richard Forman can be accessed online.) Not only has Forman been instrumental in advancing key landscape ecology principles; he also quickly recognized that planning is far more effective at the landscape scale than site-by-site, incremental innovations. In his book, *Urban Regions: Ecology and Planning Beyond the City (2008)*, Forman expressed his message succinctly. "First plan the region for big areas, then mold small places to fit the big vision," he writes. The book describes his initial work in Barcelona, which focused on preserving the critical natural assets of the Barcelona region and directing its future development. Later working with his students, Forman analyzed 38 urban regions in 32 countries.

While this seminal book may be found on the shelves of some landscape architects and planners, its many lessons are not actively discussed nor are they informing spatial planning in Canadian cities. Yet Forman has provided us with analytical tools. He has consolidated his observations into a set of principles that, at their core, seek to restructure urban areas to protect and enhance ecological function. The principles are organised into five overarching categories.

Patch sizes, edges and habitats focuses on the "spatial pattern" or structure of the land. *Natural processes, corridors and networks* engages the "flows and movements across space" of energy, water, species and genetic material. *Transportation modes* includes principles dealing with the movement of people, goods and services throughout the region. *Communities and development* addresses the form and character of neighbourhoods, towns and cities as they relate to natural processes. *Land mosaics and landscape change* addresses the relationship between the landscape's spatial structure and change.

On their own the principles represent best practices for regenerative urban design. However, Forman further distils his findings into 22 prescriptive "solutions" for urban regions, somewhat reminiscent of Christopher Alexander's *Pattern Language*. Some

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solutions apply to urban regions worldwide; others apply only to certain regions. (See sidebar this page.) Yet in Winnipeg, we found that all solutions warranted investigation. In the analysis that follows, we show how just four of Forman's solutions apply to the green structures of Winnipeg city region.

1 THE EMERALD NETWORK provides the structure for natural system conservation in urban regions. Where large areas of *natural* vegetation are conserved, they form a spatial framework worthy of protection. If the environment has *cultivated* vegetation, the spatial framework indicates priority areas for restoration of natural systems.

▶ In Winnipeg the Red River corridor is the obvious backbone of the city's and region's Emerald Network. The river gives Winnipeg its characteristic structure: it brings wildlife to the region and offers recreation. However, the region's Emerald Network is fragmented and in desperate need of improvements in many areas.

2 FIVE TYPES OF CONNECTIONS are essential. These links to the Emerald Network provide flexibility, particularly in urban regions with numerous built areas. With ongoing urbanization, diverse connections are necessary for both wildlife and recreationists.

▶ In Winnipeg, the Assiniboine and Seine rivers form two major connections to the Red. Although both corridors offer recreational opportunities and provide critical habitat for aquatic and terrestrial wildlife as they meander through the city and the prairie landscape outside of the city, both suffer from extensive habitat loss and pollution and require restoration. The Winnipeg Floodway, located in the outskirts of Winnipeg, forms a third connection and could act as a corridor. Other connections are formed by two large regional parks: Assiniboine Park and Forest Park connect with the Assiniboine River and Birds Hill Provincial Park northeast of Winnipeg. Overall the functional characteristics of these corridors could be greatly enhanced and extended as key parts of a green network structure.

3 SEPARATE STORMWATER AND SEWAGE SYSTEMS are essential in areas that have a single pipe system.

▶ In Winnipeg, about 35 percent of the city utilizes a combined system (CSO) for stormwater runoff and wastewater. During heavy rain events and spring melt, the combined sewage and stormwater exceeds the capacity of the CSO. Untreated wastewater is directed into the Assiniboine and Red Rivers, eventually ending up in Lake Winnipeg. This occurs on average 22 times each year, channelling one percent of the city's wastewater – some 1.14 million cubic meters of raw sewage – to the city's rivers. Over the next three decades Winnipeg expects to invest up to $3 billion on improvements, such as expanding the system, building underground storage tanks or tunnels or replacing the existing combined sewers.

4 A GREEN-NET of green space between populated areas can provide a multitude of local and regional benefits, particularly in areas where towns and small cities are threatening to grow together.

▶ In Winnipeg, the metro area consists of many different municipalities that once were discrete →

SOME URBAN PLANNING SOLUTIONS

APPLICABLE WORLDWIDE

Emerald network
Five types of connections
Agriculture-nature parks
Water-supply protection by vegetation cover
Protected highest-quality stream valleys
Restoration of small wetlands
A set of strategic places for growth
A set of strategic places for limited growth
Flexibility and stability of the region's future
Solutions for widely repeated small locations
Edge parks for towns and small cities
An impressive park to protect an underappreciated area

APPLICABLE TO SPECIFIC REGIONS

A set of diverse, large agricultural areas
A river-watershed magnet
River restoration
Floodplain riparian vegetation
A package of flood-hazard-reduction techniques
Separate stormwater and sewage systems
Relocating heavy industry to efficient centres
A truck-transport centre
Large underpasses/overpasses for walkers and wildlife
A green-net solution

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THE EMERALD NETWORK

→ ...continued from page 37

entities. The village of St. Norbert, for example, is now part of the city. If the region were to retain large natural areas between such villages and the city, the green-net would provide ecological corridors for both people and wildlife, and help maintain the identity of the villages.

If ecology is given priority, Winnipeg has many opportunities to enhance its green-net. To the north, there is a narrow urban gap between West St. Paul and East St. Paul up to St. Andrews and Lockport. To the west, agricultural lands stretch outside of Westwood and Westdale. To the east is the floodway and the town of Springfield. With inter-municipal planning, the green-net can be realized across the region.

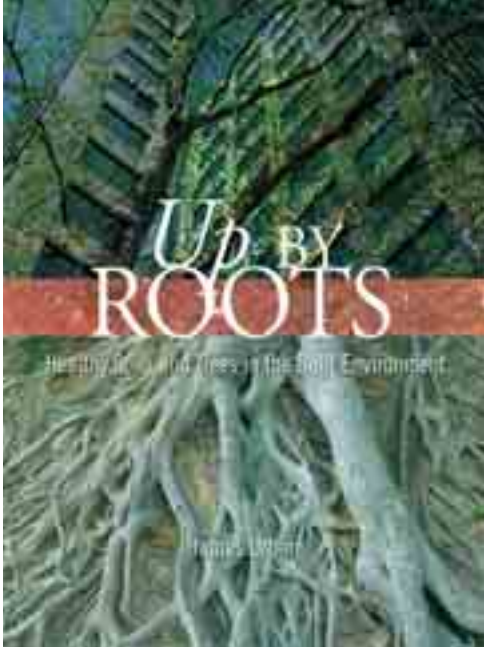
There are also tremendous green-net opportunities along Winnipeg's utility corridors, rights-of-way and left-over spaces. These typically linear, static landscapes may be publicly or privately owned, but they are generally interconnected and substantially underutilized. It is estimated that this potential "connective tissue" represents at least five percent of the urban area. Grafted to the key green infrastructure of water and wastewater systems, these areas could become an integral part of productive and livable communities. For example, Bishop Grandin Greenway Inc. is a non-profit organization working to create, enhance and conserve an accessible network of natural areas and public pathways that tie together and support both human and wildlife communities along Bishop Grandin Boulevard in southeast Winnipeg.

ASSESSING THE POTENTIAL

Ultimately there is no single best solution to shape a city or urban region. Rather a comprehensive suite of spatial features based on ecological principles can enable urban regions to regenerate the natural processes they have typically destroyed.

In the Winnipeg region to date, policy responses by governments and planners have been slow and weak: inter-municipal co-ordination is lacking, and no common vision exists. Nevertheless, Winnipeg has considerable potential to develop a functional green structure throughout the urban region.

For a more comprehensive analysis of Winnipeg, please contact the author. David van Vliet acknowledges the initial analysis done by Eva-Marie Larsson, a graduate LA student from the Swedish University of Agricultural Sciences in Alnarp, Sweden.



"We might say that the earth has the spirit of growth; that its flesh is the soil."
... LEONARDO DA VINCI

Up By Roots: Healthy Soils And Trees In The Built Environment
by | par James Urban
International Society of Arboriculture
Champaign, Illinois, 2008
www.isa-arbor.com

UP BY ROOTS

READ BY | LU PAR KEVIN CONNERY

BULK SOIL DENSITY, cation exchange, carbon/nitrogen ratios and endomycorrhizae are topics that rarely surface around office water coolers even within landscape architecture offices: this despite the dependency of all plants on biologically productive soils. Around James Urban's water cooler, however, this isn't the case. For him, landscape architecture is as much about fully understanding soils and their contribution to healthy trees, as it is about spatial design, paving patterns and light fixtures.

Urban has been one of landscape architecture's foremost authorities on best practices associated with soils and tree growth in the city. His new book, *Up By Roots: Healthy Trees and Soil in the Urban Environment,* is his most comprehensive treatise to date, and one all landscape architects, urban planners and urban foresters should read. Recently honoured by the ASLA, the book is rich with technical and graphic information that clearly provides a basic primer on soils and illustrates best practices for enhancing the urban forest.

UNDERSTANDING ODOR AND HEART ROOTS

Many landscape architects, for whom the language of soil science may as well have been written in Esperanto, will find that the book's first section, The Science of Trees and Soils, offers an eminently accessible discussion of the fundamentals of soils and tree biology, and techniques for assessing urban soils. From understanding the "odor" to the role of "micropores", from "micronutrients" to "heart roots", Part One reminds us that the science is critical, and cannot simply be abrogated to a generic soil specification.

Part Two, Applying the Science of Trees and Soils, is a best management practices guide organized around 10 principles. Principles 1 through 4 focus on non-structural, soil-based practices ranging from "Plant the Easy Places First" to "Preserve and Reuse Existing Soil Resources Whenever Possible". Principles 5 through 7 include designing paved areas and curbs in anticipation of the "Future Root Crown", selecting "The Right Tree", and techniques that "Make Space for Roots". The latter discusses in detail such salient topics as soil volumes, engineered soils, soil trenches and vaults, and Urban's current advocacy – structural soil cells.

The final three principles address soil and tree management practices, an all-too-frequently overlooked aspect of nurturing a healthy urban landscape. From using full cost accounting and establishing reasonable tree and soil budgets, to designing for maintenance that considers the inevitability of change, Urban reminds us to think strategically and long term. He offers landscape architects the opportunity to become better, more rigorous advocates, able to show authorities and developers the wisdom of investing in sometimes capital intensive practices. *Up By Roots* is arguably the most comprehensive, yet accessible, book to date focusing on urban soils and trees.

Reshaping the Contemporary Urban Landscape: Emerging Practices, Paradigms and Technologies
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LANDSCAPE INFRASTRUCTURES: SYMPOSIUM PROCEEDINGS
INFRASTRUCTURES PAYSAGÈRES : COMPTE RENDU DU COLLOQUE

VIEWED BY | VISIONNÉ PAR ROBERT GIBBS

Ecology and infrastructure are "two sides of the same coin."

AS A PRACTITIONER who is deeply concerned about the impact and significance of climate change on our communities and landscapes, I welcome the challenge of considering different approaches to the science and art of landscape architecture. In October of 2008, Pierre Bélanger and the Centre for Landscape Research of the University of Toronto held an all-day international symposium on Landscape Infrastructures. Top calibre speakers recounted experiences from Europe, US and Canada. The Centre captured the session in a four-DVD set targeted at researchers, students and practitioners.

This intersection of landscape and infrastructure has clearly opened some worthwhile avenues of inquiry and practice for academics and practitioners alike. Infrastructure has traditionally been narrowly defined as a set of hard assets to support critical functions and processes of civilized society. These assets become increasingly frayed by unsustainable demands and decay. In addition, other critical support systems, such as landscapes, are suppressed and ignored – when in fact the landscape's ecological goods and services undergird our way of life.

To set the stage for the seminar, Pierre Bélanger, in his opening presentation, posed the question: "Can we redefine the conventional meaning of modern infrastructure by foregrounding and amplifying the biophysical landscape that was historically suppressed, to reformulate it as a collective system of essential services, resources and agents that generates and supports urban economies?"

YES WE CAN!

Throughout the symposium, answers were forthcoming. As presenter Jane Wolff (Associate Professor, U of T, Urban Ecology and Design) quipped in her presentation, ecology and infrastructure are, in fact, "two sides of the same coin."

The varied perspectives were as interesting as they were compelling. Kate Orff (Principal of SCAPE, NY and Assistant Professor, Colombia Graduate School of Design) described the mind set of two concepts: *landscape urbanism* is about the exploded axio and the succession diagram, she said, whereas *landscape infrastructure* is about the cut away section and the Excel spreadsheet. Herbert Dreiseitl (Atelier Dreiseitl, Germany) provided a fascinating presentation of his projects where water management is at the same time a landscape utility, social infrastructure and art form. Nina-Marie Lister (Ryerson University) spoke of addressing the planning and design of landscapes in functional terms not just as a metaphor.

From my perspective, generations of landscape architects have known the value of designing in harmony with ecological processes. Yet if we are to mitigate climate change, we landscape architects must consider much more than the arrangement of 2D surfaces. The profession needs to better understand landscape interventions in terms of the underlying processes of energy, water and nutrient flow and those other critical support functions that sustain modern life.

For those who are seeking an opportunity to explore new ideas, the Symposium-in-a-CD-case is a rewarding experience. The variety of speakers of international calibre, the case studies, the different perspectives, the imagery and the summary sessions all leave a lasting impression which can be conveniently stored and recalled. Congratulations to Pierre Bélanger and the University of Toronto Centre for Landscape Research.

The American Society of Landscape Architects Jury selected this DVD for a 2010 Honour award in Communications, commending it as "an important resource and example of how to capture and distribute information from industry events."

WHAT'S YOUR BAF?

QUEL EST VOTRE FEV ?

Depuis 15 ans, la ville de Berlin mène un programme de facteur d'espace vital (FEV). Celui-ci oblige les promoteurs de projets à consacrer une part minimale de chaque site à la végétation et aux fonctions écologiques. Le programme de FEV demande aux concepteurs d'envisager toutes les surfaces potentielles, tant les espaces horizontaux comme les patios, les trottoirs et les toits, que les surfaces verticales telles les murs ou les clôtures. En effet, toutes ces surfaces peuvent accroître la performance écologique du site. L'auteur décrit brièvement ce système et le premier programme du même genre en Amérique du Nord, le Green Factor de Seattle.

BIOTOPES IN THE URBAN LANDSCAPE

Few people look at driveways, parking areas, patios, walkways and building facades as holding opportunities for enhancing ecology in the city. Yet for more than 15 years Berlin, Germany has been applying a program that looks at these and other surfaces as available spaces that can help ameliorate the deficits in open space in highly concentrated city districts – and also reduce our impact on the environment. Referred to as the Biotope Area Factor (BAF), the program requires each development or redevelopment in certain city precincts to dedicate a minimum amount of the site for plants or other ecosystem functions.

ON THE SURFACE

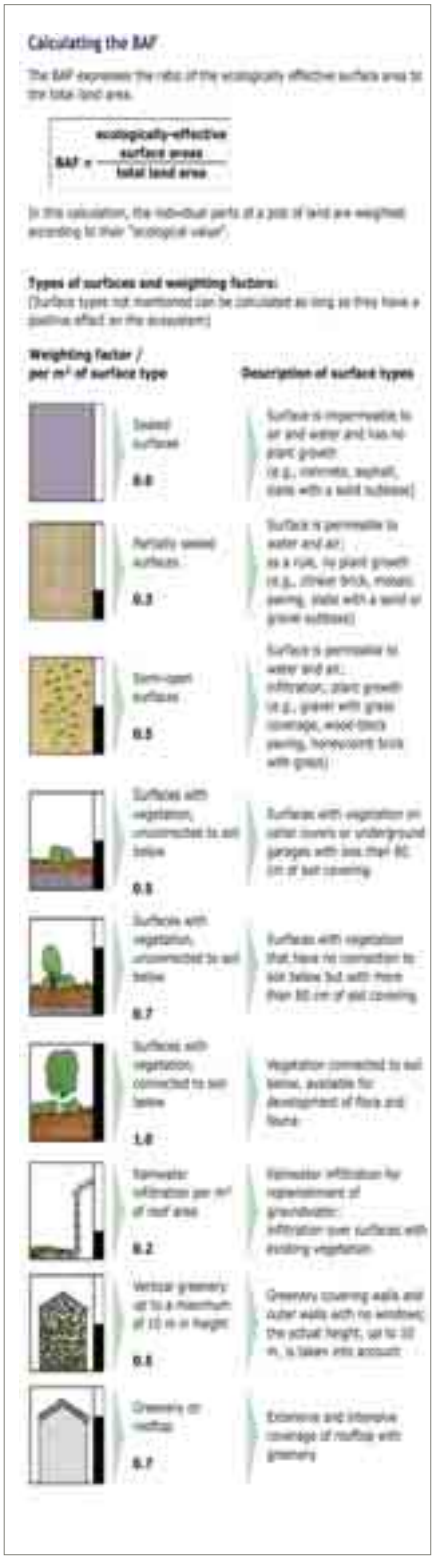
The BAF establishes a minimum ratio of ecologically functioning surface area to the development's total land area. The predetermined factors range from 0.3 to 0.6 depending on the land use type (residential, commercial or infrastructure), the property's size, and whether the development is new or a redevelopment. The BAF program asks designers to consider all *potential* surfaces, both horizontal spaces such as patios, walkways, balconies, roofs, on-slab or off-slab soft landscape areas, and vertical surfaces like walls or fences. All are candidates for boosting the site's ecological performance.

The BAF program is performance-based rather than prescriptive, allowing designers flexibility in determining how best a given design will meet the BAF. In some cases a combination of green roof, vertical greenery, rain gardens and permeable paving may be sufficient. In other cases, designers may require additional elements – maximizing off-slab planting areas, for example, or eliminating all impervious surfaces.

Berlin's approach provides a method of assessing the ecological performance of design elements on individual sites in conjunction with other conventional bylaws, zoning restrictions and floor area ratios. Similar BAF programs have been developed in Malmo, Sweden (Green Area Factor), and in Korea where the national government has decreed that BAFs will be required within all new town development as a means of improving environmental health and helping moderate the urban heat island effect.

Seattle is the first North America planning jurisdiction to establish a similar program. Their Green Factor (GF) is a landscape requirement designed to increase the quantity and quality of planted areas in Seattle. Developers must submit a Green Factor score sheet that illustrates how proposed design strategies meet the targets. These quantifiable strategies might include planting beds, green roofs, bio-retention areas, urban agriculture, permeable paving and structural soils.

Both the Biotope Area Factor and the Green Factor hold the possibility of not only enhancing urban biodiversity, but also of fundamentally changing the way we imagine the ecological functioning of city landscapes. They could be used to establish biological planning requirements, in tandem with density and zoning requirements. For example, adjacent to core ecological patches, a BAF coefficient could emphasize highly productive biotopes including indigenous vegetation, bio-retention areas and green roofs. Depending on resident wildlife species, it could even be further refined to provide supplementary sources of food and refuge.



Berlin Biotope Area Factor www.stadtentwicklung.berlin.de/umwelt/landschaftsplanung/bff/index_en.shtml
City Seattle Green Factor www.seattle.gov/dpd/Permits/GreenFactor/Overview/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THE LONG VIEW | HAUTEUR DE VUES

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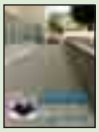
Pathway

Pole-mounted

Building-mounted



BE GOOD!

KEVIN CONNERY, GUEST EDITOR

The Sustainable Sites Initiative represents an intriguing new pathway...

LANDSCAPE ARCHITECTS ARE at the proverbial coal face of sustainable design. One need look no further than past issues of LP to see the fruits of our labour. For example, a firm I used to work with, the PWL Partnership, has played a pivotal role in two of the highest scoring LEED Platinum projects on record – Southeast False Creek (Vancouver) and Dockside Green (Victoria) – both recipients of CSLA awards (2009, 2010) for outstanding landscape architecture. Each includes several innovative elements (ecosystem restoration, water conservation and stormwater management, brownfield redevelopment) and each manifests, in part, the essence of sustainable development as envisioned by the Bruntland Commission in *Our Common Future* 23 years ago.

Since then notions of what constitutes sustainable development have ranged from the profound (Ecological Footprint, United Nation's Millennium Development Goals, Local Agenda 21) to the profane (Husky Energy's "Mother Nature's Fuel", Fiji Water, McDonald's 'Green' Arches.) Similarly, the design community's exploration of sustainability has included both the laudable (Living Building Challenge, Cradle to Cradle) and the absurd (the UAE's 'Green Dubai' campaign, 'Green' Walmarts).

Southeast False Creek and Dockside Green represent important milestones on the path towards a truly sustainable approach to design. Yet both reflect the limitations of a LEED-dominated design lens: a lens where we garner accolades simply for doing things "less badly". (That accurate observation originated with Jason McLennan, CEO-Cascadia Green Building Council.) Should we not, instead, aspire to be good: good, as defined in Natural Step's Four Principles of Sustainability?

The Natural Step is an international non-profit founded in Sweden over two decades ago, which directs us to eliminate our contributions to the progressive buildup of both substances extracted from the Earth's crust, and chemicals and compounds produced by society. Further, we must eliminate our contribution to the progressive physical degradation of nature, and to any conditions that undermine people's capacity to meet their basic needs.

WHAT IT MEANS TO BE GOOD

In John T. Lyle's regenerative design process, good design is fundamentally based on respecting ecological systems and their input-output flows. Its core programmatic objective is to restore, renew or revitalize, rather than extract and consume. *Good* also means having clear metrics to measure how our work addresses global issues related to climate change, biodiversity loss and habitat conservation as well as local concerns such as soil and water conservation, invasive species, carbon footprints, and human health and well being.

In this regard the Sustainable Sites Initiative (SSI) represents an intriguing new pathway for landscape architecture to become good. It is an ecosystem services-based ranking system developed in partnership between the ASLA, the Lady Bird Johnson Wildflower Center and the United States Botanic Garden. The SSI believes sustainable site design should strive to "protect or regenerate" air, water, habitat functions, climate regulation, waste decomposition, food production and cultural benefits. Further, the SSI is guided by lofty principles that rarely surface in consultant meetings: Do no harm....Use a decision-making hierarchy of preservation, conservation and regeneration....Use a systems thinking approach.

The appeal of the SSI rests in prerequisites and credits that begin with landscape as the fundamental proposition, rather than LEED's building-centric approach. The Initiative is in the pilot phase and likely years away from being fully operational. Nevertheless it signals a sea change is surfacing, one unlike any we have seen to date. This is a change that both Gro Bruntland and John Lyle fostered but materially could not have foreseen...a change that hopefully landscape architects are preparing for.

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