A Plea for the Peace

by Clive L. Justice, FCSLA
& Jill B. Whitelaw, PDC 1999

Canada’s World Refugee Obligations Met by British Columbia’s Peace River Valley’s Site ‘C’, Settlement
All great civilizations have had their beginnings in River Valleys beside great rivers. **Africa’s Rift Valley remains as the origin of the world’s peoples.**

The Peace River is one of Western Canada’s Great River Valleys. Unfortunately its position on globe earth far from Africa’s Rift Valley leaves it out of the loop of history becoming home to one of the world’s civilizations. The Peace River’s less than benign climate has not been conducive to serious year round settlement, although with global warming this may change. We will just have to let nature take its course.

However the Peace like all the world’s River Valley holds the elements for sustainable human settlement, access to continuous running fresh water with an obtainable source of protein in its fish and visiting wild fowl ducks & geese. In addition, the flooding annually of the valley uplands with receding silt & soil deposits provide rich & fertile plains for growing annual pasture gazing grasses and woodland forest trees for fuel and construction.

While not specific to the Peace, the description of North America’s continental evaluation of its climate modifying physical features as described by writers Jones and Cushman in the Peterson Nature Series *The Prairie*. I have copied the part of it that expresses North American evolution much better than this presenter ever could:

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**W**

A New Canadian Settlement

Should Site C not be built as a dam, it’s land would need to be regenerated, an opportunity for refugees who in turn would be helping Canada to see with a wider perspective.

Our proposal:

- Refugees to be housed on arrival in Canada settled & housed in site contractor existing housing
- quarters UN operated and managed.
- Refugees learn to be Tree Keepers along learning English, Canadian History. It is only shown & described herein because the Canadian cultural Heritage Implementation.
- PM Trudeau & his Minister of Indigenous Affairs with Tribal Chiefs of the Peace Region to meet & welcome the new immigrants
Prior to the Northern Rocky Mountain uplift the entire central North American climate had been dominated by warm moist air masses that swept east from the Pacific from the Gulf of Mexico. The rising mountains created a barrier that blocked the Pacific storms squeezing out most of their moisture before it reached the plains. This rain shadow helped to create the more arid conditions that favour growth of grasses over trees.

Fossils of camels, rhinoceroses, horses and other grass eating herbivores unearthed on the plains suggest an erratic progression. Recent analysis of plant micro-fossils indicates that the extensive grasslands covered parts of the great plains even earlier perhaps beginning in the late Eocene Epoch, 35 million years ago.

These early grasslands were dominated by “cool season” grasses, species that thrive under relatively mild growing conditions. The quintessential Tallgrasses, including warm season bluestems and switchgrasses did not begin to appear until about 10 million years ago. Even then, forests continued to cover much of the Great Plains with grasslands spreading during drier climactic periods, and contracting during wetter periods.

The warming and drying trend continued for several Millennia reaching its maximum intensity between 8,000 and 5,000 years ago. During the height of this hot & dry period the prairie pushed eastward replacing forests in parts of present day Indiana Nebraska, Ohio and perhaps Pennsylvania [and also North into the provinces of British Columbia and Alberta. The sands of Western Nebraska[Probably North into B.C. & Alberta also]. All but a few isolated groves of conifers disappeared from the Western Plains. *Bos Bison* a smaller more agile species than the great plains, prairie dogs and ground squirrels proliferated, and Pronghorn populations climbed into the tens of millions.

About 5,000 years ago the Climatic Pendulum began to swing back toward slightly cooler & wetter conditions. By the time the first white explorers stepped out into the grasslands the forests had begun to creep westward filling

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Some Details

Employment

- Team of consultants to select suitable site C land location to establish orchards, prairie water dugouts locations throughout site C area lands suitably contoured to build permanent Refugee Settlements based on the Mongolian model shown in miscellanea materials included. It is one of many Site C settlement schemes possible that can be implemented.

- 1000 refugees Settlement Grounds - see unit Mongolian Model to follow.

- Family to include 1 male or female adult, head of household, 4 or less children - can have 2 babes in arms if the head of house is female.

- Model to have 32 soft fruit & hard fruit (edible nuts) orchards & Willows, Corylus/Filbert, pollarding canes for woven baskets. (elm, hardy elm), willow & garden stakes & woven wooden fences now fences.

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quoted from Peterson Series *The North American Prairie* by Stephen Jones & Ruth Carol Cushman; Houghton & Mifflin Boston 2004

**Note:** The quoted text is from *The North American Prairie* by Stephen Jones & Ruth Carol Cushman, published by Houghton & Mifflin Boston in 2004. The text describes the ecological history of the central North American climate, focusing on the role of grasslands and the impact of natural and human-induced climatic changes. The text also mentions the presence of fossils of camels, rhinoceroses, horses, and other grass-eating herbivores, and discusses the significance of plant micro-fossils in understanding past vegetation patterns. The climatic pendulum concept is introduced, highlighting the oscillation between wet and dry periods and its impact on vegetation and wildlife. The text concludes with a discussion on settlement schemes, emphasizing the historical and ecological significance of the Great Plains.
the pockets of prairie on the Great lakes region & the upper Mississippi River Valley [and Northward to the Peace River Valley]

Nevertheless, all of these early travelers marveled at the expanse of grass that seemed to extend forever beyond the last islands of forest. Nineteenth-century author Washington Irving characterized the landscape as being “inexpressively lonely” and like “a desert world.” Writer Francis Parkman referred to it as “a barren, trackless waste.” In contrast, nineteenth-century artist George Catlin extolled a land of “soul-melting scenery... where I Heaven sheds its purest light and lends its richest tints.”

Whatever their opinions, writers & artists realized that the Canadian Prairie Landscape as opposed to the settled Landscapes of Britian, Europe and Eastern North America - it, the Canadian Prairie remained an evolving landscape. The BC Peace River, Grasslands with those of Alberta that blend into the Alberta is: hidden lakes and wooded rolling prairie lands extend East to meld into a background of the Caribou Mountains, Buffalo Head Hills & Birch Mountains complex. East of the hills & mountains lies the Athabasca River, the tar sands, the tars sands extraction rendering works & the open pit mines-holes around the Fort McMurray Settlement.

The Peace in the North winds & snakes around the south end of these Caribou Mountains and flows into Wood Buffalo, now the home of Canada’s Bos Bison and the endangered Whooping Crane Grus americana. It is the second largest of Canadian National Parks.

It continues to the east where it becomes a series of lakes at east and of Lesser Slave River flowing North to Great Slave Lake. It one of the Canadian Arctic’s Great Lakes that remain from the melting of glaciers that once covered Canada’s part of the North American continent.

The first attempt at human settlement of the BC Peace River open grasslands, Alberta wooded rolling land, hidden lake & small lakes, prairie occurred just after the end of

Mongolian Settlement Model has the components to provide 1000 refugee families with sustainable year round food supply via an adequate and sized family shelter warmed throughout the winter by our endless supply of affordable natural gas, passive solar, and chickens which can be used for food, and also give off heat.

* to sustain 100 refugee families in construction buildings followed by a transition to greenhouse living, and a possible larger Arcology, see Miscellanea

* Each 100 family settlement to have living quarters:

48 4 and 8 blocks Each one of the blocks are either 4 homes or 8 homes, with cross corridor to entrance, connected to 32 year round greenhouses. Each greenhouse operated and managed by 1 refugee family.

* Site:

Site selection: These writers favours Ian McHarg’s book Design with Nature, the key to maximizing the refugee & indigenous settlements, their numbers, & locations on the peace; and Bill Mollison’s Permaculture, A Designers’ Manual

* In addition each 100 family settlement area includes 32 or more separate Prairie water dugouts and strings of combined dugouts.

* as the Settlement ground contour dictates settlement grounds amount 250 hectares more
WW1 in 1918-19, was by the Canadian Federal Government. The Peace and Alberta lands were called the Dominion Soldier Settlement Lands and were also subdivided into 10 and 20 acre plots to be sold to returning veterans and their families at very low prices with long periods & payment at very low interest rates to Veterans and their families. There was a minimum of infrastructure, veterans could earn enough working on roads, gravel roads, settlements sites, school sites and the like. It was only other Valleys in Southern BC that were unsettled Keremeos in the adjoining east side of the Okanagan Valley and the adjoining Similkameen Valley.

The Fraser Valley's Lower Mainland the program continued in 1945 for veterans of WW2 in Richmond, the Cowichan Valley on Vancouver Island, and Vernon in North Okanagan.

The Dominion Soldier Settlement scheme on the Peace River lands was never very successful in attracting settlers; it's harsh Northern winters probably the main dissuading feature. The Alberta Woodland lake land did prove attractive to settlement to veterans & other non veterans previously in settlements such as Beaverlodge where the Dominion Government established a crop and plant experimental station. See Vic Chanasyk, page 1 of Miscellanea.

Other successful prairie land settlements in Alberta produce Grand Prairie, Spirit River & other smaller settlements on the Alberta side, with Dawson Creek and Peace Coup on the BC side.

In this Landscape Architect’s opinion, British Columbians Peace Grasslands are ready and waiting for the settlement not of veterans who are fighters of wars but those children and our families who are victims of wars.

In preparing Site C, that part of the Peace lands for the damming and flooding, BC Hydro, a provincial company, has built accommodations for fort’s employees & prepared the ground for construction and flooding. Site C by fortunate miraculous coincidence is or less (rough guess by water could be larger or smaller well dugout.

* Dugout or string of dugout, string of lakes, drainage ground lake and prairie dugout ground slope.
* have woodland for fibre & tree wood, hardwood trees for lumber, woodlands located as shown in Mongolian model see miscellanea image of site and greenhouse and adaptation for site C.
* Tying together Site with sounding lake & hillside, woodlands, an open prairie, grasslands, strings of lakes, bands of forest woodlands to give each site C settlement a natural landscape, pleasing visually.
* Restored Landscape - using trees, swales (a tree system), ornamentals as well as edibles

Transportation
* Look to town of Churchill, Manitoba & Bombadier Company as examples

Find ways to include Canadian communities & companies to provide a transport system to residents - Bombadier fleet of snowmobiles, maintenance teams, crews & staff to teach operation & maintenance. Churchill, Manitoba to provide knowledge of polar bear proof snow vehicles; where they solved their bear problem by devising safe work and transportation equipment.
also ready to take the first wave of 1000 or so immigrants.

A start to settle, house & feed the current world’s current great human disaster. Those Thousands of children and families who have lost everything. Their homes, family members, and perhaps worst of all, their country. These people have lost their place in the world along with their hope.

My proposition is: Canada through the United Nations for Our Country to redeem its place in the world a place where hope can return and regain for the war ravaged immigrant, a place back in the world in Western Canada’s Peace River Valley.

The process could begin almost immediately. BC Hydro, Peace land owner, a BC Provincial body could cede the land & preliminarily prepare land work and existing worker housing to the Canadian government, who then would give it to the UNHCR, United Nations High Commissioner for Refugees, who would ‘Run the Show’, or most of it, from selecting the immigrants to transporting them to the Peace, building additional housing and infrastructure. It would become the one Grand Canadian Gesture for humanity. Take up where we left off with a new mandate for the Blue Berets Peace Keeping.

Let’s Do It Now!

Respectfully, with due Canadian Caution & Consideration our two most Canadian traits.

General Romeo Dallaire, Canadian Force Commander of UNAMIR, wearing the blue beret of the UN. He later became a Canadian Senator.
A Plea for the Peace by Clive Justice supported by the following documents
Mongolian Model

1 Mongolian Settlement Unit - Hailar, Jan She Village Site as Model
Victor (Vic) Chanasyk was born in Alberta the son of parents & grandparents Ukrainian Peasant farmers who had emigrated from the Russian Steppes, driven out in one of many waves that occurred in the Nineteenth & early 20th century. After graduation from a rural Alberta highschool, Vic Chanasyk enrolled in the University of Alberta, in the Province’s capital city of Edmonton in the faculty of Agriculture and Horticulture program under Dr. Robert J. Hilton, professor of Horticulture, authority on Amelanchier, the Canadian Prairie native Saskatoon berry and other native prairie berries. [Several were the ingredients with plains Bison fat of Pemmican]

On graduation Dr. Robert Hilton saw to it that Vic got employment in Alberta’s Experimental Station in Beaverlodge. It was not long after that Vic made superintendent of the station. In the 50’s Dr. Hilton again stepped in on Vic’s behalf & arranged for his favorite student to take the 4 year course in Landscape Architecture at UC Berkeley. Vic was the first Albertan [second western Canadian to become a Landscape Architect. Again with Dr. Hilton’s influence Guelph school of Agriculture was selected to be the first school of Landscape Architecture in Canada to teach a full 4 year program in landscape Architecture. Victor Chanasyk became it’s first Dean, or Superintendent, again with Dr. Hilton’s help who was tending his Carpathian walnut trees.
A Modest Proposal
To Use the Site C De-Treed Areas of the Peace River Lands
for Silviculture and Permanent Agriculture

by Clive Justice & Jill Whitelaw

Site C is now cleared and graded, lying fallow, and awaiting development proposals from sustainable environmental believers & practitioners with vision and initiative. Greenpeace, Sierra Club BC, the Wilderness Committee & the David Suzuki Foundation are all globally active, locally founded, environmental protection offices in our Province. BC is now working together across political party lines with the Green-NDP Coalition to support appropriate eco-sustainable options for our energy. Let it continue. One suggestion is autumn seeding in Fall 2017, before the first snowfall with Helio-hydro seeding of winter hardy rye grass, *Lolium perenne* var. ‘Olds, alta’, followed in the spring planting Poplars, *Populus trichocarpa* in the forest, in swales, woodlots, clumps and thickets along the valley bottom and hillside stands.

What if the pulp were then sent through a pipeline, perhaps even an existing or approved one, through an extended network of woodchip-slurry pipes? What if it were powered by wind generators or solar all the way along?

These Cottonwood hybrids are selected because the wood fibre makes a long-staple fibre suitable for *newsprint, copy, kraft & fine papers, books, periodicals, cartons, packaging products, paper towels, tissues & toilet paper*. One in particular, the Crown Zee Tacoma Cottonwood Poplar
tree *Populus trichocarpa* Torr. & Gray is one of the best. Another hybrid with very white wood can be manufactured into white paper using little or no bleach.

The BC Society of Landscape Architects / BCSLA’s land management, professional commitment entails a full understanding of each of the provinces tree species palette [species of conifer & deciduous]: specifications for arrangement of stands of trees for forests, copses, 3, 5 or 7 tree clumps, lone tree landscapes, and edges: fall colour, density of colour, size, scale, how it fits into the landscape or into the meadow. Or, for example, initial planting of a temporary landscape of introduced different *Populus* species which will be harvested and made into pulp.

What if a Pipeline linked to the existing operational processing mills, and even closed mills & new paper and pulp mills up and down the BC Coast & Islands: Prince Rupert, the new Kitimat mill, the existing mills in New Westminster, Nanaimo, the Alberni, Crofton, Cambell River; and mills closed, mothballed or contemplated in process of being built or planned, throughout the Pacific Northwest, and our neighbours to the South: the mills in Everett, Tacoma, Idaho, Portland, etc.? A **Pulp and Paper Pipeline** for a myriad of **Paper Products**, serving not only our country, Canada, but also the rest of the world with our forest resources, technology & experience. Canada has more of this resource than any other part of the world.

We were so distracted by gas, drilling, fracking, LNG, bitumen, and extracting oil and gas from our Canadian prairie, Arctic & subarctic surface lands ruining, destroying & laying waste to our Northern Tundra surface landscape. We should have been ashamed but instead we buried them! We Canadians ‘shilly-shally’ on this issue and want to trust our government to make the right choices, to face up to the fact that fossil fuels are carcinogenic and non-renewable. The future of our world ought to remain pristine, natural and beautiful for 7 generations. We have a lot of bio-remediation to get this world back in shape after the promise of the ‘American Dream’.

Each region has its own micro climate, species and visual landscape. What is needed is an Aesthetic, Education and Management Group for deliberating and guiding reforestation and sustainable harvesting. The BCSLA working group with the region’s tree and resource experts, the BC Forestry Service (BCFS), UBC Silviculture, SFU Resource & Environmental Management, local agronomists, Indigenous Land Management and permaculture farmers to set planting standards for spacing and species, for the planting and maintaining
of pulp tree forests, clear-cuts, other forests, copses and woodlots, thickets and hedgerows, lone tree aesthetic landscapes, plantings by the rivers, and pasture feeding lands for wildlife.

A great practice would be to modify the arable Peace River Valley into grass hillsides, and rolling slopes with a series of berms and swales along contours, where trees are planted. Debris such as leaves collect in the swales to support the tree crops, as well as rainfall or water released from small earth dams or bodies of water above and channeled into them. This aids retaining the beauty of our landscape by inter-cropping our fast growing trees with nitrogen fixing trees and plants, cold-hardy and useful vegetation, cash crops, native plants, edge and companion plants for pest management, wildlife foraging, flowers for bees, creating a polyculture rather than a monoculture, all eventually successioned by replanting a natural selection of Canadian trees of that region.

This land has been disrupted, and needs to regain biodiversity and balance. Mature forests have mushrooms and shade loving groundcovers, shrubs and native wildflowers under the tree canopy. The more mature the forest the more there is in it. Paul Stamet’s has a product called the LifeBox, a box filled with Pacific Northwest tree seeds as well as mushroom spores. Stamets, from Oregon, also migrates through this region and may even help us design a very local LifeBox. Trees and mushrooms make up the bottom most and top most elements of a forest. In between are the other layers of the forest, such as shrubs and vines, which if they were native edibles such as small berries, or native potatoes-like plants could be highly productive for edible species and wildcrafting the commons and allowing even more opportunity for a balanced economy for all Canadians.

There is a need for improvement throughout the Peace Valley lands & unflooded bottom lands from just below the Site 2 dam structure to just below the site C area with the reservoir area, and the surrounding areas to the natural boundary at the BC-Alberta boundary. The top water line to the lower water line we can’t landscape, but all of the lands around and above, that will be these gardens. Plant on cleared areas or in valleys on rolling terrain in plantations or in designated large farm areas.

Different ornamental gardens could be added. For celebrating Canada’s Confederation of 150 years, for example, honouring pioneers, explorers, settlers and natives could include landscape heritage gardens from England’s settlers, the Garden in Memory (CWLA, CLJ Chapter 11, 2013.) which they brought to Canada to live in this harsh landscape as pioneers, learning from Canada’s landscape and plants and First Peoples to
survive. To celebrate this vast tract of land in good commemorate & try to reflect the made improvements.

**Capability Brown**, was nicknamed “Capability” because he would tell his clients that their property had “capability” for improvement.” (wiki) He was an English landscape architect. He is remembered as “the last of the great English 18th century artists to be accorded his due”, and “England’s greatest gardener”. He designed over 170 parks, many of which still endure. He Each park farm or garden to contain heritage plants, such as trees, flowers and ornamentals developed by Canadian horticulturists, Frank Skinner of Dropmore, Manitoba for roses and lilacs, and Isabella Preston of Dominion Agriculture for lilacs and lillies, and the ornamental crabapples, *Malus niedzwetzkyana* hybrids.

With the onset of computer technology everybody thought we were going to a paperless society, when in fact we could become the greatest paper, wood, fibre society ever. Look around, there are more newspapers than ever before, we still use and read books, give birthday cards, send and receive mail, ship globally and in cardboard boxes, ad infinitum. Canada, especially BC has experience with paper production technology and could be a market leader throughout the world. Pulp & paper technology puts Canada in a position to be one of the largest pulp & paper producers & exporters in the world, with the possibility to become very rich, a very un-Canadian idea, however, The pulp & paper industry, is a low carbon industry. By sequestering carbon into trees, and keeping that carbon in solid carbon form, that is, not burning it, but by turning it into pulp and paper, as well as furniture, shelter, garden trellises & structures, books, etc., we bring down the global carbon balance closer to 350ppm, a place where our storms subside, and our climate and biosphere may return to normal, pre-industry levels of atmospheric carbon, recreating our natural ozone layer. The **Clayoquot Sound Biosphere Reserve** is a great example of sinking carbon indefinitely.

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*links are found on the pdf/digital version for further info. See [http://bcbigleafmaplebooks.ca](http://bcbigleafmaplebooks.ca)*

Landscape photo can be found on flickr at [https://www.flickr.com/photos/tuchodi/3551991021](https://www.flickr.com/photos/tuchodi/3551991021)
Western Canada
the forests of Western North America
as far East of Hudson’s Bay
The Forest Regions

from Native Trees of Canada R. C. Hosie

The forests of Canada can be divided into nine regions based on marked differences caused by terrain, soil and climate. A composite map of the regions is re-produced (on the next page).

The Boreal Forest Region

This Region comprises the greater part of the forested area of Canada. It forms a continuous belt from Newfoundland and the Labrador coast westward to the Rocky Mountains and northwestern to Alaska. White Spruce and Black Spruce are characteristic species; other prominent conifers are Tamarack which generally ranges throughout, Balsam Fir and Jack Pine in the eastern and central portions, and Alpine Fir and Lodgepole Pine in the western and northwestern parts. Although the Boreal forests are primarily coniferous, there is a general ad-mixture of deciduous trees such as White Birch and poplar; these are important in the central and south-central portions, particularly along the edge of the prairie. In turn, the proportion of spruce and larch increases to the north and, with the more rigorous climate, the close forest gives way to an open lichen-woodland which finally changes into tundra. In the eastern section, along the southern border of the Region, there is a considerable intermixture of species from the Great Lakes-St. Lawrence forest, such as Eastern White Pine, Red Pine, Yellow Birch, Sugar Maple, Black Ash and Eastern White Cedar.
Permaculture in the Peace River Valley

Permaculture is a way of life, it is a cycling of life, collecting energy from the sun and wind and water and using it as many times as possible before releasing it into energy, in water’s case, the ocean. Looking at the Permaculture Flower, we see a full spectrum of life is possible through living in a cyclic harmonic way.

Key boons of Permaculture farming is on swales, along contour, planting tree systems, using keyline dams, and succession. If we could farm Canada, we could mulch-in the hardy edibles, the fuel crops, and the tender food crops. Massive greenhouse domes could allow us to produce tropical fruit and warm our houses as done at the Rocky Mountain Institute in Boulder Colorado. Other tried and true ways which have persisted through the ages and the cultures, such as the Yeomans Plough, and endless variations of small earth systems, are there for the learning and the creating with. It is happening around the world, this funny word Permaculture. I like it more and more. I think it means we like ourselves.

Building soil is an ongoing process, and a wonderful one which yields fruit and nut, seeds and greens, and is served by farm animals’ manure, seaweed, biochar to name a few great things you could add. Could we have a small herd of nomadic goats on Vancouver Rooftops and lawns that replace loud and polluting mowers, when the grazers have always done this job, leaving gifts of natural fertilizer in their wake? In fact I think i
heard there’s actually one now?! Joel Salatin has an amazing book called Folks This Ain’t Normal in which he describes his experiences farming with animals, grazing them in different areas of land and moving them around to get the goodness they want out of the soil and leave what they don’t need behind.

The people are suffering right now. Some people don’t seem to realize that Earth is worth saving, and that all people are redeemable, in a good way, can regenerate, most especially if he or she is willing to go through healing and wellness, with the support of friends, family and community. We are collectively living through truth and reconciliation here on unceded Coast Salish Land and Waters, a process of regenerating culture, and people, to find some resolve and better ways of life. So we have new tools in our toolbelt, tools to use to talk about how we are feeling and what we are needing. The word hangry has just been released for someone who is mad because they are hungry. We now have non-violent communication, or Compassionate Communication, thanks to Marshall Rosenberg, a language of observations, feelings needs and requests, so we can speak for ourselves, for inspiration, and come and work together for a greater good.

Forest Fires in BC and How Swales Harvest and Sequester Water

As our climate warms, we are seeing more smoke in BC. This week we had a good week or two of forest fires affecting the Vancouver environs and weather with the smoke.

One idea is to dig swales every 25-50 yards along contour on crown land, on clearcuts, private land, etc to catch and retain water.

Swaling Site C could restore the land and be a model for a new Experimental Demonstration Farm.
reeds, rushes, and growing other plants, out of those nutrients to provide animal fodder, houseplants-oxygen, using and sustaining 5 kingdoms – crustaceans, fungi included. Todd grows in water but seems to eliminate the substrate as he is working to clean water, however in growing food, as in soil or in chinampas, adding extra nutrients and a base of straw bale or straw piled into mounds upon a lowland.

A note about biofuel. Natural gas may be like

**Biofuel In the Twinned Pipeline and Solutions for Renewable Energy BC Hydro could Adopt**

Methane from Biosolids (animal waste) where the solids are filtered out and mulched & inoculated with oyster mushrooms spores and capped & harvest as methane, processed compost, and liquid fertilizer. Poop powered buses are coming to Vancouver – and many more cars could run on alcohol. Algae has incredible possibilities.

Another highly productive systems if chinampas, growing food or biomass in a wetland, as Bucky Fuller did under a geodesic dome greenhouse with a pond installed in the centre, keeping the microcosm warm and wet. John Todd took these concepts into a ship life mentality of survival with his company Ocean Arks International. He and his team developed eco-machines to clean water, filtering off the sludge then using plants,
biofuel but not fractured natural gas, as the process used to retrieve it is toxic. There is enough natural gas to last us 50 years. (CLJ) See Fractured Land movie with Caleb Behn.

Biofuel can be produced out of nitrogen rich compost, including biosolids, or algae. A pipeline devoted to 100% mixed biofuel suitable to run in cars and engines – would be a better option than that of trying to harvest hard to get carcinogenic petrochemical bitumen or fractured gas. Vancouver’s buses are rumored to be run on Biofuel in the near future, as are Bristols.

There are many options for a non-polluting renewable biofuel. Canada has renewable resources which managed and harvested at sustainable rates can provide much for us and to share with the world.

Thorium is worthy of being mentioned as well, as it could produce electricity through minimal use of water. Thorium is a nuclear power which has the potential of giving much, with many less side effects than traditional nuclear energy, and the material, thorium is abundant and everywhere. Each person’s lifetime use is about the size of 3 smarties.

Pipelines and electrical wires. BC Hydro would be good to bury lines underground as recommended by Dr. Clive L. Justice, as Landscape Architect & urban planner. Immediate jobs for those displaced workers from Site C to put wires underground – England and other countries have done this – good for the visual landscape and good for the people – the earth / ground grounds energy while our bodies are sensitive water –

Vancouver’s district heating - Global News

One legacy of the 2010 Vancouver Winter Olympics is the False Creek Energy Centre, which provided heat to the Olympic Village. It does this by drawing heat from raw sewage.

The raw sewage is warm because of the hot water from people’s showers and kitchens, which they wash down the drain, says Brian Crowe, director of Water, Sewers and District Energy for the City of Vancouver. As it flows through Vancouver’s sewers, it’s usually between 12 and 20 degrees Celsius. When it reaches a sewage pump, some of the warm sewage is diverted, screened, and directed into a heat pump. The heat pump, with a little electricity, heats up some water, which is then pumped into radiators around Southeast False Creek.
When Paolo Soleri started Arcosanti, an Arcology — a term he coined as the marriage between architecture and ecology — and modest and humble “City of the Future” — he chose a spot high upon a mesa, with a plan to cover the south facing slope in greenhouses and direct the heat through a tunnel to heat the apartment complex surrounding the amphitheatre. The Arcology was designed for 6000 people and 40 years later is still in the process of being built, and it is surrounded by wilderness as Arcosanti leases 870 acres of land and leases it out to graze cows. The entire building footprint sits on 15 acres. The principle concepts of arcology are miniturization, complexification, simplification and duration. Paolo was an artist -- Arcosanti’s amphitheatre and great skywatching steps and vaults, rooves on top of the city where you see the stars, Cat casts and siltcasts on nearly every wall invites the guest to want to make this place a home.

Looking at a city like Arcosanti and Arcologies like Jean Jerde is co-creating all around the globe, I wonder if this new development could be an arcology. Planners, designers, Architects & engineers are already using eco-architecture and to bring those ideas to multiuse ecological architecture (hyperbuilding/arcology) as well as allowing farming settlements for treekeeping and regenerating the landscape.

The benefit of living at Arcosanti beside the spectacularly breath-taking skies and architecture, was they made it very affordable to live there, as we were building the city, and working there to build the city, you got paid not too much, and you also didn’t need much - so you had some extra money, or at least a good bit to get through as our rent came off our check before we even got it, and only 200 which was called co-use fee, which meant you were entitled to use tools on site, use the lab in off hours etc. The idea was that the newcomer, after doing a workshop,
could also pay a more normal rent and work in this beautiful city on their own terms, in the dot comm industries lets say.

For local farming and energy production with lots of leftover as an industry/jobs/economy: Swales and Algae. Swales and mulch will help us collect and direct water and we could likely grow algae in a swale. But in case not, David Hazelbeck of Global Algae Industries is learning how to create a significant food source. Run as a co-op it may do quite well.

The Peace River Valley region is extremely rich in lush green plants and is home to many species, and many of those are endangered. In Vancouver’s case, we are situated in the middle of the estuary with our cars and constant waste. The be up a hillside is good as it takes us out of the water way. Fort St. John is right on the other side of the river.

If an arcology were built on site C, it may be a place for many more to settle. Local First Nation refugees from around our country may find a place here, as well as other refugees, citizens or travellers who needed a place. A general population guideline of 6 Canadians per 1-2 refugees to help their transition into Canada, as well as provide a new development in the North which aimed to welcome many different people, offering an affordable lifestyle for people building the city or planting trees. Arcologies are designed cities which can hold 10,000 to 1,000,000 people. Jean Jerde saw Soleri as his mentor and continues to build Arcologies worldwide.

http://jerde.com/places
https://arcosanti.org/
Permaculture News
How to Build a Swale on Contour Successfully

from https://permaculturenews.org/2015/07/24/how-to-build-a-swale-on-contour-successfully/

July 24, 2015 by Jonathon Engels

Swales are amongst my favorite permaculture projects. Though they can be laborious, especially for a shovel and pick fellow like me, they show results quickly and look amazing, texturing the landscape with both purpose and beauty. They are easy to explain: Everyone understands the concept of plants needing water. Swales are also perfect for those of us wanting to build no-dig garden beds, as digging the (swale) paths provides the necessary topsoil.

There are so many more reasons. Modern inclination is to get rid of rainwater as quickly as possible, ushering it into gutters and drainage systems, which often lead to a plethora of contaminants, including sewage getting into fresh water sources. Afterwards, when there's a dry spell for a few days, the sprinklers come out. Instead, swales stop the deluge and allow the water to slowly, passively enter the soil and keep stuff working, preventing overfilling drainage systems and the need for compulsive watering. What a concept!

Learn from leading examples in the field of regeneration...

So, with such an endorsement, surely everyone is salivating at having a swale of their very own, even those who still aren't quite certain what a swale is. Well, if that's the case, hang on for another paragraph or few, and let's get to it.
The Swale on Contour

For the sake of swale newbies, the basic concept of a swale on contour is to catch water as it drains and hold it in place until it absorbs into the ground. It looks a bit like a massive ditch with closed ends, trapping all of the water as opposed to having it flow anywhere. Other swales systems, also known as diversion ditches or soil conservation swales, are meant slow down the movement of water in order to allow it to partially absorb, catch sediment, and/or prevent erosion while slowly ushering it elsewhere, like a reservoir. However, a swale on contour aims to keep all the water in place until it is absorbed. YouTube! Video: Permaculture Water Harvesting through Swales

“On contour” simply refers to the fact that this sort of swale works on the principle that by keeping everything level, such that the path of the swale moves along the contour, or elevation curve, of a slope. Doing this means that the water absorbs evenly into the land below as opposed to flowing to the lower end of the swale. Without following the same elevation level, the water would flow to one side or the other, and preventing this flow is what makes the water become passive rather than destructive, as is the case with water draining en masse and quickly in one direction.

Lastly, another nearly ubiquitous feature of swales is the result of all the soil that is removed to create them: the berm. The berm sits on the downhill side of the swale and is the perfect place to grow trees and deep rooting plants like strawberries, rhubarb, asparagus, comfrey, and dandelions. The deep roots will keep the berm stable, as well as suck up the moisture from below so that the newly hydrated soil doesn’t become overly saturated.

The Right Tools for the Job

In a world with greater money sources than spring from my pockets, as well as more technological knowledge than I currently retain, swales can be fairly hi-tech operations. Laser levels can help find the contour lines of a property, and major league digging equipment can be brought in to quickly, painlessly (at least from the human side of things) excavate. For a massive swale, something more river-like than what most of us will attempt, this makes sense. For me, however, the world of swales is a bit more rudimentary.

To be completely frank, half of the reason I got into gardening and, subsequently, permaculture is that I enjoy being outside and on a project, getting dirty and fixing problems. If there’s a hole (or swale) to be dug, I want a shovel. If there’s something that needs to be level, like the bottom of a contour swale, well then, a water level will suit me just fine. And, when it comes to finding that contour line, I was both happy and enlightened to discover the simple but effective A-frame. YouTube! Video: How to Make a Permaculture A-frame Level

An A-frame is called thusly because basically one must build a capital “A” out of wood to make it. The two legs need to be of equal length, just as our elementary school teachers taught us, and about midway down, they’ll be
connected by a third piece of wood, equidistant from the bottoms of the legs. Aim for the open end of the A to be between three and six feet. Then, there are two options:

1. Mark the exact center of the crosspiece and hang a plumb line from the center point at the top of the A. When the plumb line hits that centerline on the crosspiece, then the two feet of the A are on level playing fields.

2. Or, simply strap a water level to the cross bar so that when it’s level the two pieces of ground upon which the A is resting are the same elevation.

Choosing the Right Place

Before digging anything, it’s important to carefully determine the rough location of where to place a swale. In doing so, it’s imperative to consider the gradient, as a swale should only be installed on something with nothing more than 15% gradient, or a slope that climbs roughly 1 meter for every 7 meters it moves horizontally. Following this rule prevents mudslide problems that steeper gradients would cause, and that could potential be devastating to a property.

Other things to consider are that the longer the swale can stretch the wider reaching the water absorption will be, and the higher it’s placement the more space in which the water will have to expand underground. So, ideally, a swale will be installed at the highest point possible but still low enough, downslope, to catch water run-off. From here, spread the water out on level plain by extending the swale on contour for as long as possible, that way water can absorb evenly into the land downhill. YouTube! Video: Full Swales

Lastly, what I’ve noticed in my successes and failures of playing with swale systems is that, if there isn’t a noticeable flow of water to feed the swale, it may not fill, rendering the effort much less advantageous than once hoped. I’ve built several swales, some of them absolutely required a passive overflow, others never held more than a couple of inches of water in the middle of a rainstorm. I now make sure I know where a significant source of water will be coming from before putting in the effort.

Putting the Right Tools to Use in the Right Place

Once the general area is decided upon, it’s time to get more specific, which means pulling out that A-level we built a couple of sections ago. Use the A-level to stake out the contour line and the exact route the swale will be taking. This will likely not be a straight line, but rather a sexy, curvy number that’ll give the system some personality, like those amazing terrace gardens in Asia. Mark the entire thing out, including a safe area for water to passively overflow should the swale fill up completely.

Using the marked contour line, dig vertically into the hill, piling the dirt on the downhill side of the swale. The depth of the swale should remain the same and can be measured from the established contour line then leveled with a
water level or the A-frame later. The general idea behind digging the swale is that it should be about three-times as wide as it is deep, and the berm—the pile of excavated dirt—should be mounded to create the upper part of the bottom side of the swale. Make sure that the base of the swale is level so that the water disperses evenly.

Other than catching and storing water on your land, the biggest benefit to having a swale is the growing potential of the berm. It will be mostly composed of rich topsoil that’ll be well hydrated. It’s important to plant on the berm immediately to prevent it from eroding. Trees will help to make sure the soil doesn’t get too saturated. Deep rooting plants—the aforementioned strawberries, rhubarb, comfrey and so on—will help to stabilize it. And, as always, a good, nitrogen-fixing ground cover is going to stop the earth from drying out or getting overly weedy while simultaneously enriching the soil. YouTube! Video: Hydrating a Suburban Food Forest With Swales

“I've not had a chance to try it, but an interesting technique I've seen to prevent water from going beneath the berm and washing it away is to have it begin just inside the lip of the swale rather than atop the lip. The water will absorbed into the base first, which is kept in place by the fixed dirt left when digging the swale, and this should insure that water permeates into the berm rather than eroding it.”

The Finishing Touches

Another important aspect of making a swale and, particularly, avoiding possible problems is to plan for passive overflow. The best way to do this is to have a sizeable, say equally as wide as the swale is, spot that is perfectly level and below the top of the berm where water can overflow into a safe place, either a pasture or another swale or a water catchment like a pond or damn. At the overflow point, it’s best to have something like a plastic sheet, stones or—ugh!—concrete to prevent erosion.

Once the base of the swale is satisfactorily level, a nice thick layer of mulch is a good idea. It will add nutrients to the water that is going into the soil below, as well as prevent evaporation. In fact, many people choose to fill up their swales in order to make convenient and logical access paths around the property. It’s just another viable purpose for having a swale.

After that, it’s just the permaculture way: Observe, find solutions within the problems that arise (with the right steps these shouldn’t be too grand), and reap the productive benefits of forethought and working with nature.
Restoring the Landscape:
1. create swales to direct the water into the land and to grow trees to create shade.
2. Use some Nitrogen fixing plants to support the succession.

Nitrogen Fixers:
Cytisus scoparius, or Scotch broom, syn. Sarothamnus scoparius, is a perennial leguminous shrub, Crimson Clover, clover, alfalfa, Lupine, legumes, and the Canada buffaloberry (Shepherdia canadensis), also known as russet buffaloberry,[2] soopolallie, soapberry, or foamberry is one of a small number of shrubs of the genus Shepherdia bearing edible red berries. -wiki.
CLIMBERS FROM THE EXPLORER SERIES:
Details about these roses can be found on pages 9 - 11.

LIMITED AVAILABILITY ROSES:
We have a few plants available of the following rose cultivars. If we sell out in this
spring, let us know if you need to ship in the fall when the new stock is available.
Please indicate product code and variety name on the order form. Prairie
Dawn, “Red Dawn X Suzanne”; Ames Climber, Frithling’s Gold, Franchere,
Morden Baby, Dr. Merley, Angelica, Morden Amorette, Double White
Boreas, Charles Albani, Capt. Samuel Holland, Dwarf Pavement, Purple
Pavement, Belle Potrivire, Rosa biegertiana, R. leuc, R. multiflora.
RO-LM-VAR-C1 1 gal. $16.00

Our collection of roses continues to expand. We have added a
number of varieties to our list and more to our collection. It
was exciting this summer to travel to:
Alberta to visit the rose gardens at
Brooks and to continue on to visit
with Robert
Evans near Rocky Mountain House. As a result of
his trip he has added a number of rare and
worthwhile Canadian cultivars to our collec-
tions. These will be planted in our gardens over
the next few years. The roses are being platted
over the past years provided bloom and
were of interest to visitors this past summer.
Their growth has been good and they should
provide a spectacular display this summer.
We hope that many of you will come to
visit and to study these interesting and
worthy hardy roses.

FLOWERING TREES

ROCKY (GREENES)
MOUNTAIN ASH Heritage Collection
(Sorbus scopulort)
A small tree with dark reddish-brown
dark bark. Large white flower clusters are fol-
lowed by clusters of orange berries in fall.
TF-SCR-SM-CS 120 cm. $30.00

RUDOLPH ROSYBLOOM CRAB
(Sorbus scopulort)
This species variety is introduced in 1954.
It’s bright pink flowers, hardness and disease
resistance have made it a proven winner.
TF-SCR-RO-CS 120 cm. $30.00

THUNDERCHILD ROSYBLOOM CRAB
(Nalus X Thunderchild)
This variety was selected at Sutherland, Sask. It is hardy and the most dis-
case resistance variety. Compact habit.
TF-SCR-TH-CS 120 cm. $30.00

SKEINER’S BRONZE MAYDAY
(Sorbus scopulort)
Fast growing tree to 6 m. Leaves start green and turn dark bronze purple as they mature. A new variety!
TF-SCR-PA-CS 120 cm. $28.00

SHERBET CHERRY
(Prunus virginiana Shrubert)
This shrub tree develops dark purple foliage during the summer.
TF-SCR-VA-CS 120 cm. $24.00

EUROPEAN MOUNTAIN ASH Heritage Collection
(Sorbus aucuparia)
Tree grows to 8 m. Clusters of white flowers in the spring are followed by red
berries in the fall.
TF-SCR-UA-CS 120 cm. $24.00

ARNOLD HAWTHORN
(Arnold-accumbens)
Small tree with white flowers in early June. Edible large red
fruit. See Joe Skinner’s
Hedge Options
TF-CHR-AR-C2 40 cm. $10.00
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<thead>
<tr>
<th>Type of Plant</th>
<th>Hybrid &amp;/or Common Name</th>
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<th>Yr Intro</th>
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<td>Dropmore Basswood</td>
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<td>Malus pumila var neidzwetskyana F2 hybrid</td>
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See previous page, Skinner Garden Classic for more hardy perennials.
Linear City - Across Canada?

Housing concepts
from http://spacebox.nl/

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Top: BC Peace River looking Northeast downriver. Taken from Hudson Hope bridge highway photo CLJ
Bottom: Site C looking West, upriver, taken from the Fort St. John bridge crossing. Photo by CLJ circa 1950s.