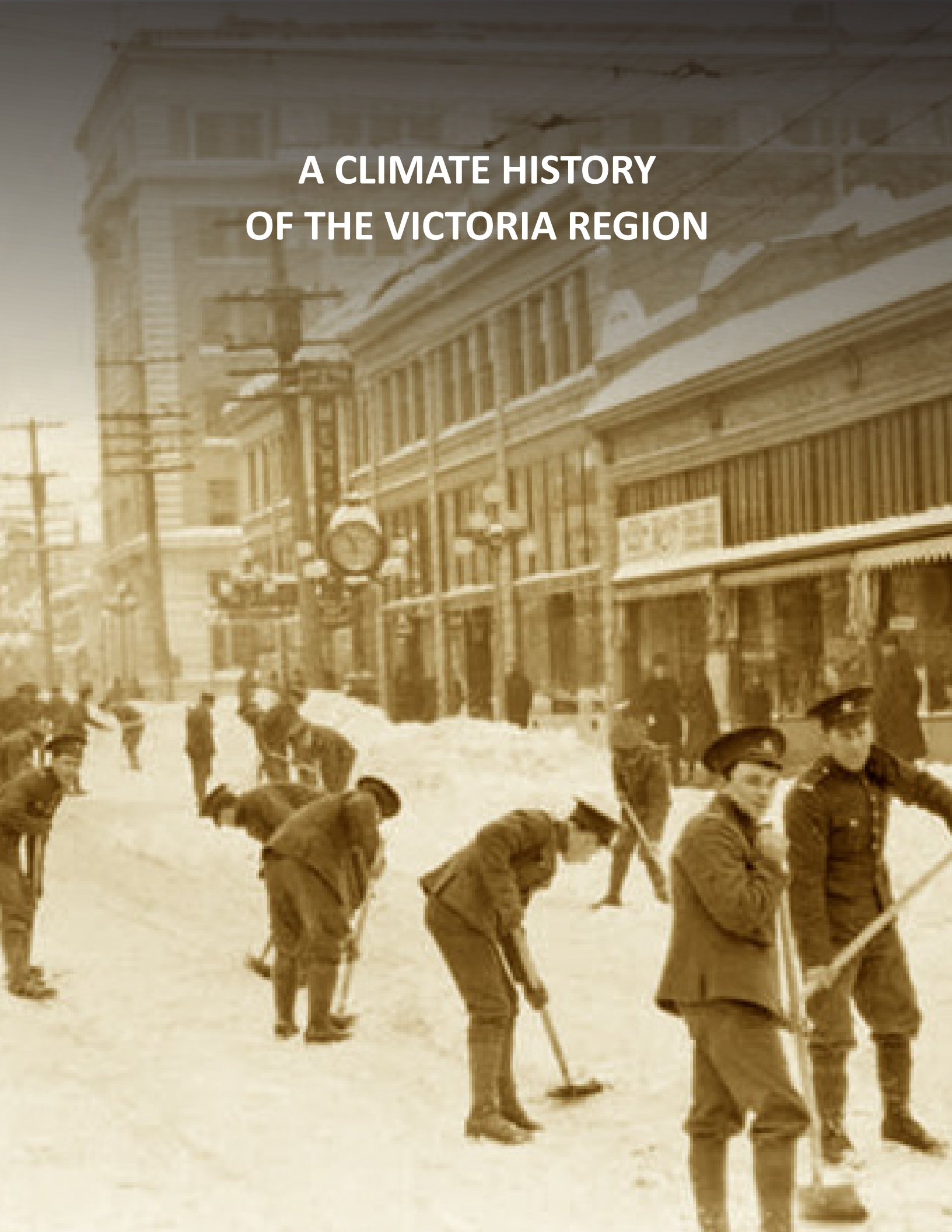
A CLIMATE HISTORY OF THE VICTORIA REGION



A CLIMATE HISTORY OF THE VICTORIA REGION

SITUATION BRIEF # 28

Contributors: M. Segger, K. Johnson, G. Keddie

James Douglas, who was later to become Governor of the Colony of British Columbia drew on theological imagery to describe the location of what was to become the capital city of a new Colony. “The place itself appears a perfect ‘Eden’ in the midst of the dreary wilderness of the North west coast, and so different is its general aspect from the wooded, rugged regions around that one might be pardoned for supposing it had dropped from the clouds into its present position” he wrote. (Sir James Douglas, letters, 1842)

Over the millenia people have been attracted to southern peninsular of Vancouver Island for various welcoming aspects: safe shelter, abundant food

resources, arable land, and scenic beauty. Climate and topography have colluded to provide these attractions and comprise our own unique "spirit of place". But such harmony of nature has not always been the case.

'Climate Change' has brought about catastrophic changes to the landscape of Victoria over the last 25,000 years, mainly related to the events of two glacial episodes. As glaciers built up on the mountains of the central mainland they moved south toward Victoria pushing millions of tons of sands and gravels ahead of them to be dumped on the landscape of Victoria. The first Saanich glacier moved up into Saanich Inlet and then moved around, rather than across, Victoria into the Strait of Juan de Fuca.

At this time, 22,000 years ago, there were still mammoths, bison, muskox and giant short faced bears roaming around the Victoria peninsular. A short period of warming climate caused the ice to melt and retreat from the local scene. The large lake that formed in Saanich Inlet melted and burst through to the west of Victoria creating the massive Colwood delta. The sands and gravels of this delta were later used as the building materials for the foundations of buildings and the sidewalks in Victoria.

The climate became colder again as a second major glacier came down the Fraser River valley and ground its way across Victoria 16,000 years ago. It extended as far south as Seattle. The landscape was pressed down by the glacial ice-flows covering Victoria with water.

The ice then retreated taking the weight off the land allowing it to rebounded upward and the landscape of Victoria began to emerge. By around 14,000 years ago beaches formed for a short period at 14 meters above the current sea level. The land continued to rise up creating a much larger Victoria landscape until the sea level was at least 45 meters below the present level. The land then slowly sank in relation to the sea until the shore was near the present

sea level around 4,200 years ago.

On the landscape of Victoria between 11,700 and 10,800 years ago there were herds of elk and bison present on open grasslands and scattered pine forests. Douglas fir forests developed later over several thousand years. The bison ultdimately disappeared but the elk remained.

It is likely that the first Indigenous people appeared at this time. The oldest dated remains of remnant village sites are only 4200 years old, but there are stone tools found at inland locations that are almost certainly many thousands of years earlier. It is known that Indigenous peoples were hunting mastodon a short distance to the south on the Olympic Peninsula of Washington State as early as 13,500 years ago.

Salmon were abundant in the rivers of the region shortly after the retreat

of the glaciers. The Indigenous peoples of the area adjusted to the shifting shorelines and became proficient as fishers, gathers of plants for food and manufactures, of shoreline mallocs and hunters of both land and marine animals.

Today massive rock outcrops along the City's shoreline retain the scratch marks and gouges, evidence of the rocks and debris embedded in moving glacial ice. A historic marker plaque near the Centennial Fountain adjacent to the Parliament Buildings makes note of this.

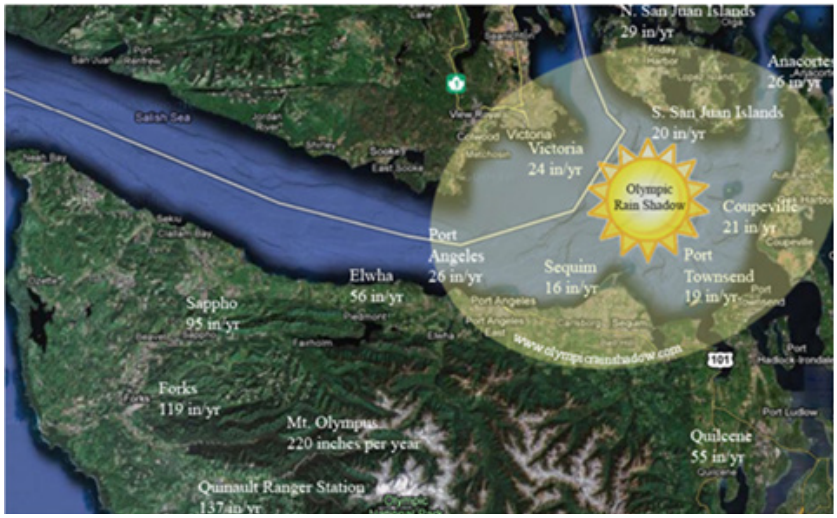
In this region Indigenous peoples belonging to the Coast Salish family

of languages grew in numbers, established larger more permanent settlements of large plank houses with both inshore and larger deep-water canoes. These allowed them to transport their goods to and from a diversity of summer camps and also to travel longer distances to obtain raw materials. Social life involved ceremonial practices such as the potlatch thus extending their social networks with others through trade and marriage.

This pattern defined the land use practices, and culture, of the Lekwungen speaking people of the lower Vancouver Island. Their technologies and culture survived during the early contact period as the Spanish, British and American's fleets vied for trading rights in the Pacific North West during the late 18th Century.

From the 16th to 19th centuries the Coast experienced its "Little Ice Age", a climate cooling that enveloped the northern hemisphere. It may have been the onset of a severe early winter that forced by Sir Francis Drake to abandon his mission on the West Coast to circumnavigate America in the Fall of 1579.

The current warming trend started around 1850 as Europe and America ramped up fossil fuel consumption accelerating the Industrial Revolution. Oceans became more navigable and landmasses more accessible. Empires expanded as human migrations colonized distant lands.



Victoria's unique combination of geography (a southern exposed Island peninsular fringed to the south east by mainland mountain ranges) featured a climate moderated by exposure to the Japanese Current. This created a climatic oddity, the Olympic Rain Shadow. It was this sunny warm climate that resulted in James Douglas selecting a Lower Vancouver site for the Fort. These conditions had produced the open Garry Oak meadows, what appeared to him to be good agricultural lands, a lack of mosquitoes, and an open woodland landscape that appealed to the Romantic aesthetic tastes of the British landed aristocracy and taste-makers at this time.

Indigenous life-ways adapted to the seasonal weather shifts from dry summers to wet winters. Settler domestic building forms exploited these seasonal weather shifts - sun, shade, high precipitation - by adapting both the Victorian picturesque, and Arts-and-Crafts colonial bungalow, house-types: capacious roofs sheltering a rich variety of verandahs, porches and sleeping balconies

While supporting the cultivation and foraging practices of the local Lekwungen peoples of the region for millennia, the mild climate also provided a landscape legacy that first accommodated the Hudson's Bay Company farming estates and early attempts at formal colonization. It also prompted Victoria settlers to adopted English Picturesque urban design and planning practices resulting in Beacon Hill Park, the country estates of Rockland, the boulevard streets such as the Arts-and-Crafts Fairfield neighbourhood and the Olmsted designed Uplands Oak parkland subdivision in Oak Bay.

The regional peninsula landform, a complex topography supporting a wide range of habitats, and a benign and stable climate particular favoured the English Settler to indulge their love of landscape garden architecture. Thus gifting us today with a vast array of garden attractions, cultivated public parks

and arboreal streetscapes.

This “garden city” tradition informs land use planning throughout Greater Victoria to this day.

Observations

- Given current general awareness of contemporary climate-change issues, here is an opportunity for *plein-air* lessons in climate/habitat literacy. Various interpretive programs from natural history signage to educational field schools could introduce the impacts on wild-life habitats and human culture to the dynamics of climate change over time.
- This history provides a backdrop and support for current initiatives such the achieving Federal Migratory Bird Sanctuary designation for Swan Lake Christmas Hill and the efforts seek UNESCO Urban Biosphere Designation for the region.
- Climate related adaptions of First Nations to Victoria’s landscape could be better recognized and research is needed to understand their documentation of climate change impact in their stories, legends and other cultural practices.
- Appreciating the millenia-old tradition of Victoria as a nexus of transportation

and trading links both on the West Coast of North America and the Indo-Pacific, more could be made of the importance of climate related phenomena such as ocean currents, trade-winds and seasonal weather patterns.

- Influences of climate and geography on Settler urban planning and building technologies could be referenced in Statements of Significance prepared for the designation of heritage buildings.

References

Stanton Tuller, "Climate" and Colin J. Wood "Introduction" in *British Columbia the Pacific Province: Geographical Essays*. Canadian Western Geographical Series 36. University of Victoria, 2001.

Clague, John J., Duane Froesea, Ian Hutchinson, Thomas S. James and Karen M, Simone. 2005. Early growth of the last Cordilleran ice sheet deduced from glacio-isostatic depression in southwest British Columbia, Canada. Quaternary Research 63 (2005) 53 – 59.

Clague, J.J. 1977. Quadra Sand: A study of the late Pleistocene geology and geomorphic history of coastal southwest British Columbia: Geological Survey of Canada, Paper 77-17.

Clague, J.J., and James, T.S. 2002. History and isostatic effects of the last ice sheet in southern British Columbia: Quaternary Science Reviews 21(1-3):71–87.

James, Thomas S., John J. Clague, Kelin Wang, Ian Hutchinson. 2000. Postglacial rebound at the Northern Cascadia subduction zone. Quaternary Science Reviews 19:1527-1541.

Keddie, Grant. 2019. Victoria Underwater. The Haultain Valley 14 meter Ocean Standstill. Royal B.C. Museum Web site publication. https://staff.royalbcmuseum.bc.ca/2019/01/17/victoria-underwater/

Miskelly, Kristen Rhea. 2012. Vegetation and climate history of the Fraser Glaciation on southeastern Vancouver Island, British Columbia, Canada. Master of Science Thesis, Department of Biology. University of Victoria.

Mosher, D.C., and Hewitt, A.T. 2004. Late Quaternary deglaciation and sea-level history of eastern Juan de Fuca Strait: Cascadia: Quaternary International 121(1)23–39.