**Chapter 41**

# Canadian Planation Surfaces

Chapters 36 to 40 summarized information on planation surfaces in the United States, but also included several planation surfaces on the High Plains of south-central Canada. There are numerous planation surfaces in the rest of Canada that are important for understanding the continent wide nature of Flood runoff. Figure 41.1 is a map of the geomorphological regions of Canada, many of which I will be mentioning in this chapter. Since Alaskan geomorphology is generally an extension of northwest Canadian geomorphology, Alaska will be included in this chapter on Canadian planation surfaces.

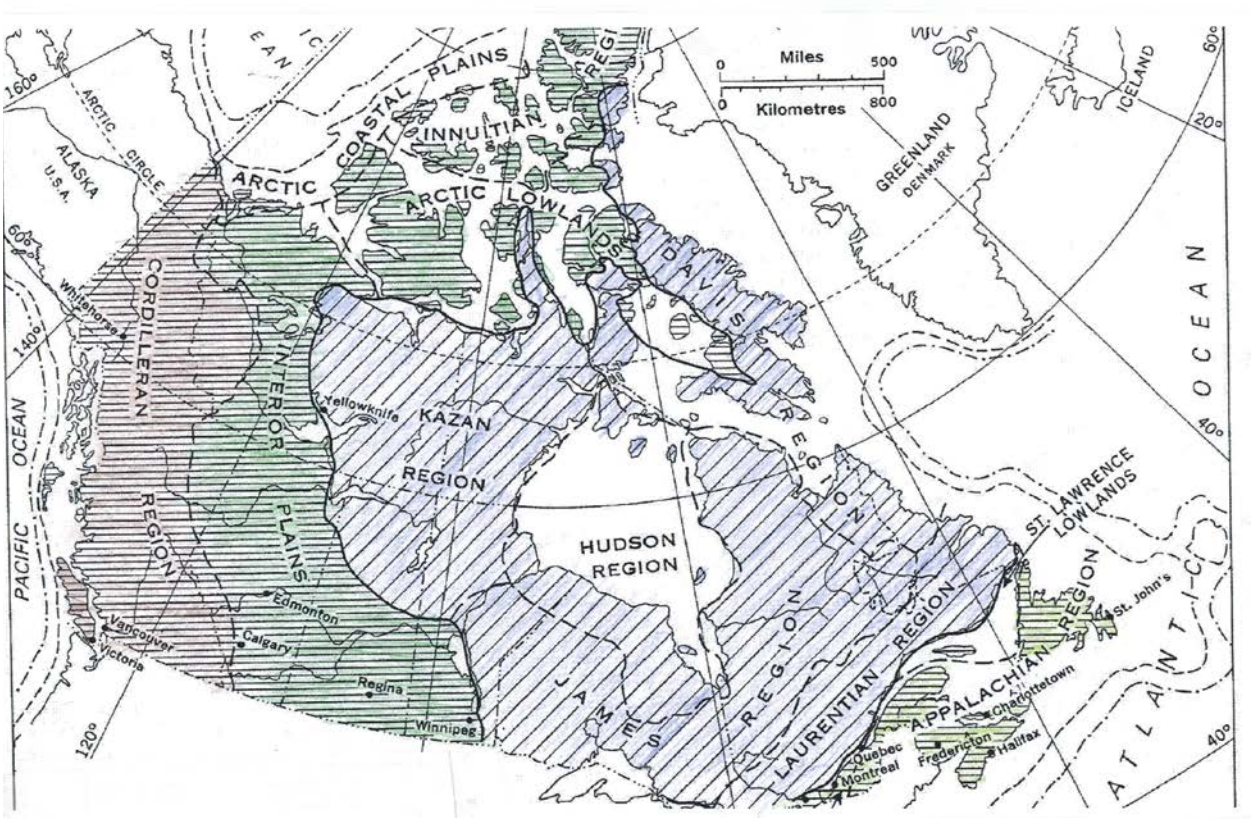


*Figure 41.1. The general geomorphological regions of Canada (from Bostock, 1970, p. 12).*

## The Huge Canadian Shield Exhumed Planation Surface

The Canadian Shield, west, south, and east of Hudson Bay (Figure 41.1) is a huge dissected planation surface.[1,2] However, it is and *exhumed* planation surface (see Appendix 15). The surface was first planed, covered by sediments that hardened into rock, and then re-eroded

[1] Bostock, H.S., 1970. Physiographic subdivisions of Canada. In, Douglas, R.J.W. (editor), *Geology and Economic Minerals of Canada*, Part A, Geological Survey of Canada, Economic Geology Report 1, Ottawa, Canada, pp. 9–30.
[2] Ambrose, J.W., 1964. Exhumed paleoplains of the Precambrian Shield of North America. *American Journal of Science* 262:817–857.

exposing most of the surface. The planation surface on the southeast part of the shield has been documented by Ian Juby,[3] summarized in Appendix 18. The evidence for the Canadian Shield being a planation surface is that the surface continues underneath the sedimentary rocks that still remain on parts of the exhumed surface.[4] It is also interesting that glaciation only superficially modified the planation surface,[4] which is strange if there were 30 or more ice ages during the past 2.5 million years,[5] as purported by uniformitarian scientists.

## Western Canada and Alaska

There were planation surfaces in western Canada, as well as Alaska but they have been significantly eroded, dissected, and destroyed.[6] Bovis summarizes for western North America, but with a focus on Canada:

> Extensive areas of middle to late Tertiary erosion surfaces remain in the Sierra Nevada, the Interior Plateau of central British Columbia, the Stikine and Yukon plateaus, and the uplands of central Alaska. All these surfaces were dissected by a cycle of canyon cutting produced by renewed uplift during the Plio-Pleistocene period[7]

Notice that Bovis concludes that the land was planed down in the mid to late Tertiary (also called the mid to late Cenozoic), and then canyons were cut *afterwards* by renewed uplift and erosion in the very late Cenozoic (Plio-Pleistocene). This is also the theme advocated by Ollier and Pain worldwide in their book *On the Origin of Mountains*.[8] We are quite familiar with this pattern by now and it fits with a runoff of the Floodwaters beginning with sheet flow and followed by channelized flow (see Part XII).

Bovis goes on to point out that some of these remnant planation surfaces are widespread in the uplands of Alaska, in northern British Columbia, and are especially well preserved in the less elevated areas of the Yukon Plateau. Only a few surface remnants exist on the tops of the higher mountains, including the North Cascades of Washington. A well-developed planation surface exists on the Mackenzie Mountains of the western Yukon Territory.[9] The coastal mountains of British Columbia represent a rapid uplift in the late Cenozoic,[10] but a planation surface still remains on some coastal mountaintops.[11] Canadian geomophologist H. S. Bostock summarizes:

> Probably the most notable feature of the physiography [geomorphology] of the Cordillera [British Columbia mountains] is that remnants of an old erosion surface are nearly always evident. This surface may not be the same in all parts, and indeed many features suggest that there are surfaces of different ages. An old surface is most conspicuous in the plateau areas of the Interior System. … Locally, particularly in northern Yukon Territory, upland ridges are flat topped, and their structures beveled to a

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[3] Juby, I., 2013. Massive mountain planation of the eastern Canadian seaboard. *Creation Research Society Quarterly* 49(4):287–295.
[4] Bostock, Ref. 1, p. 12.
[5] Kennett, J., 1982. *Marine Geology*, Prentice-Hall, Englewood Cliffs, NJ, p. 747.
[6] Bovis, M.J., 1987. The interior mountains and plateaus. In, Graf, W.L. (editor), *Geomorphic Systems of North America*, Geological Society of America Centennial Special Volume 2, Boulder, CO, pp. 469–515.
[7] Bovis, Ref. 6, p. 474.
[8] Ollier C. and C. Pain, 2000. *The Origin of Mountains*, Routledge, London, U.K.
[9] Bird, J.B., 1967. *The Physiography of Arctic Canada*, The Johns Hopkins Press, Baltimore, MD, p. 85.
[10] Trenhaile, A.S., 1998. *Geomorphology: A Canadian Perspective*. Oxford University Press, Toronto, Canada, p. 27.
[11] Muhs, D.R., R.M. Thorson, J.J. Clague, W.H. Mathews, P. F. McDowell, and H.M. Kelsey, 1987. Pacific Coast and mountain system. In, Graf, W.L. (editor), *Geomorphic Systems of North America*, Geological Society of America Centennial Special Volume 2, Boulder, CO, pp. 528–532.

> remarkable degree. On the western flank of the Coast Mountains the surface is impressive where it rises from Hecate Strait, truncating the island hills, bridging the fjords, and beveling the mountain summits.[12]

It is noted that the planation surface cuts across and formed a flat surface on various igneous rocks of the coastal mountains and that the underlying bedrock has no expression on the flat surface.[13] A layer of gravel caps some of the planation surfaces in the southern Yukon Territory of Canada.[14]

In a book on the landforms of British Columbia landforms, Stuart Holland points out the many areas where remnants of planation surface still exist but in some areas were heavily eroded.[15] He has remnant planation surfaces on the Queen Charlotte Islands, Vancouver Island, the western coastal plains, western slopes of the coastal mountains, the well-known and easily observed planation surfaces in the northern interior, and the eastern plains.

## Northern Canada

The upland surfaces of Arctic Canada are mostly remnants of a much larger planation surface.[16] There are planation surfaces on the highlands of northeast Canada in the Queen Elizabeth Islands.[17,18] Bostock says of this region: "The general aspect is one of a broad, gently warped, old erosion surface, shallowly etched by erosion along joint systems and zones of weakness."[19] He points out that the highlands of northeast Baffin Island, Bylot Island, eastern Devon Island, and Ellesmere Island, a distance of 1,200 miles (1,920 km) north-south, is mountainous but with remnants of an old planation surface marked by the general accordance of peaks 5,000 feet (1,525 m) or more msl. However, this may very well be the case, but accordance summits in themselves can be equivocal (see Chapter 32). The descriptions of the plateaus on the Queen Elizabeth Islands indicate they are very likely planation surfaces, so it is reasonable to think that the mountains with accordant summits are also the traces of a planation surface.

The Arctic coastal plain of northern Canada is mainly a deposition surface, a landward extension of the continental shelf. But, there appears to be a few erosion surfaces on higher land, as those that are close to the Yukon coastal plain and considerably higher than the Mackenzie River Delta.[20] The Peel Plateau, southwest of the Mackenzie Mountains bevels tilted strata, and is therefore a planation surface.[21]

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[12] Bostock, Ref. 1, pp. 21-22.
[13] Baer, A.J., 1973. Bella Coola-Laredo Sound map-areas, British Columbia, *Geological Survey of Canada Memoir 372*, Ottawa, Canada.
[14] Temelman-Kluit, D., 1980. Evolution of physiography and drainage in southern Yukon. *Canadian Journal of Earth Science* 17:1,189–1,203.
[15] Holland, S.S., 1964. Landforms of British Columbia: A Physiographic Outline. *British Columbia Department of Mines and Petroleum Resources Bulletin No. 48*, Victoria, British Columbia.
[16] Bird, Ref. 9, p. 78.
[17] Fyles, J.G., High terrace sediments, probably of Neogene age, west-central Ellesmere Island, Northwest Territories. In, *Current Research*, part D, Geological Survey of Canada Paper 89-1D, pp. 101–104.
[18] Mercer, J.H., 1956. Geomorphology and glacial history of southernmost Baffin Island, *GSA Bulletin* 67:553–570.
[19] Bostock, Ref. 1, p. 14.
[20] Bostock, Ref 1, p. 18.
[21] Bostock, Ref. 1, p. 20.

The Smoking Hills Upland, along the Arctic coast about 190 miles (300 km) east of the MacKenzie Delta represent a planation surface that truncates soft sediments.[22] This indicate the planing was recent, since soft rocks would quickly erode and destroy the planation surface (see Chapter 32). The surface is capped with moderate- to well-rounded rocks up to 3 feet (1 m) in diameter and composed mostly of dolostone, chert, and quartzite. The gravel cap is up to 65 feet (20 m) thick. Paleocurrent indicators show the gravel was deposited from the south. The chert probably originates from carbonate rocks, which can either be limestone or dolostone, depending upon the number of magnesium atoms in the carbonate. The rocks on top of the Smoking Hills Upland are exotic but the nearest outcrops are only about 30 miles (50 km) to the south and east.

## Southeastern Canada

It appears nearly all of southeast Canada is a planation surface.[3] The southern part is called the Appalachian region and is dominated by a planation surface:

> The physiography [geomorphology of the Appalachian Region of Canada] is dominated by a well-developed peneplain probably of Cretaceous age, which is generally highest in the northwest and slopes gently southeastward to the ocean.[23]

A peneplain is an old name, which would now be called a planation or erosion surface. This planation surface includes the uplands of Newfoundland, Nova Scotia, and New Brunswick.[24] Creationists Ian Juby has traced erosional remnants of a continuous planation surface over 440 miles (700 km) from Nova Scotia to northern Newfoundland.[3] Figure 41.2 shows a sea level view of a remnant of the flat planation surface in Gros Morne National Park, northern Newfoundland More information on this section are provided in Appendix 18.

North of the St Lawrence River are Quebec and Labrador. The southern part is considered the Laurentian Highlands (Figure 41.1). Most of these areas are part of the Canadian Shield and represents an exhumed planation surface (see above). Bostock points out that the Laurentian Highlands probably represent eroded remnants of this planation surface.[25] Labrador is described as an exhumed planation surface and part of the Canadian Shield:

> In common with the rest of that entity [the Canadian Shield], its most outstanding general characteristic is the extreme flatness and monotony of its skyline, evidence of long-continued and almost all-subduing erosion. This flat surface is of complex origin, involving the removal, during the late Paleozoic and Mesozoic, of a cover of Paleozoic strata from a succession of peneplains formed during the Precambrian…[26]

Unpacking this quote, which is expressed in the usual uniformitarian language, shows the area to be an exhumed planation surface or surfaces (peneplains), which uniformitarian scientists believe were formed over vast eons of erosion with no tectonics. The problem with this interpretation is the present process of erosion, the basis of the uniformitarian paradigm, desroys flat surfaces and forms valleys and canyons. It does not create flat surfaces.

The altitude of the Torngat Mountains of northern Labrador and Quebec is up to 5,420 feet (1,652 m). above mean sea level. Many of these mountains are flat topped, demonstrating they

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[22] Mathews, W.H., J.r. Mackay, and G.E. Rouse, 1989. Pleistocene geology and geomorphology of the Smoking Hills Upland and lower Horton River Arctic coast of mainland Canada. *Canadian Journal of Earth Science* 26:1,677–1,687.

[23] Bostock, Ref. 1, p. 28.

[24] Bostock, Ref. 1, pp. 28–29.

[25] Bostock, Ref. 1, p. 17.

[26] Greene, B.A., 1974. *An Outline of the Geology of Labrador.* Department of Mines and Energy, Mineral Development Division Information Circular No. 15, St. John's, Newfoundland, p. 4.

are the erosional remnants of a planation surface.[27,28] This supports the ideas of Ollier and Pain on the origin of mountains.[8] In summary, the entire area of eastern Canada represents a dissected planation surface.[29]

*Figure 41.2 A sea level view of a remnant of a flat planation surface in Gros Morne National Park, northern Newfoundland (photo courtesy of Ian Juby).*

[27] Odell, N.E., 1933. The mountains of northern Labrador. *The Geographical Journal* 82(3):193-210, 315–325.
[28] Bird, Ref. 9, p. 60.
[29] McMillan, N.J., 1973. Shelves of Labrador Sea and Baffin Bay, Canada. In, McCrossan, R.G. (editor), *The Future Petroleum Provinces of Canada—Their Geology and Potential Memoir 1*. Canadian Society of Petroleum Geologists, Calgary, Alberta, Canada, p. 475.