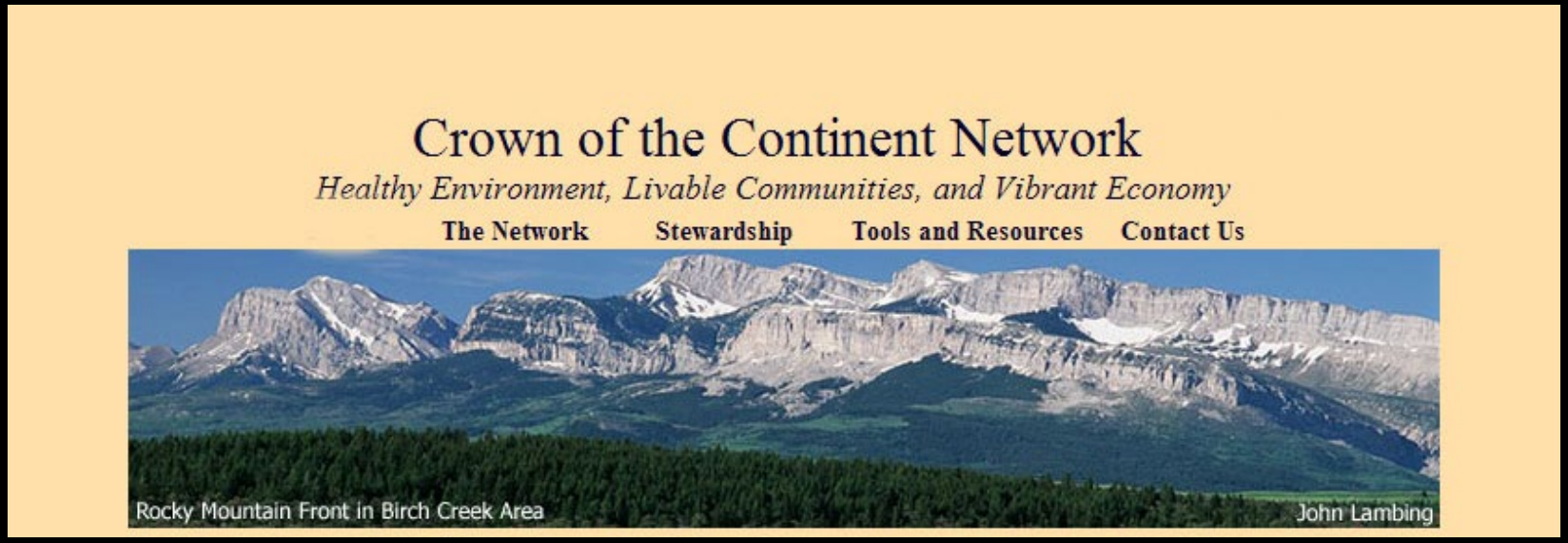
Crown of the Continent Geography Lesson
2009
By Bed Gadd



In February of 2009 I was invited to speak to a roomful of protected-area managers at a hotel in Pincher Creek, Alberta. Their turf was the Crown of the Continent region, meaning Waterton Lakes National Park and adjoining Glacier National Park, Montana, plus the surrounding provincial parks, state parks, wilderness areas, recreation areas and so on. The Crown of the Continent Network represents them all. I was very happy to accept this invitation, and I was willing to drive through a blizzard to get there, because there was something I had been wanting to tell these folks. *Especially* these folks, because many of them were Americans. It had little to do with the topic they had hired me to hold forth about, which was biodiversity in the region. But I just had to get this other thing off my chest. And here was the issue. Is the Crown of the Continent really the crown of the continent? And if it is, which country should wear it, Canada or the United States? To answer these questions, we first need to know that the name “Crown of the Continent” comes to us from one George Bird Grinnell.

Here he is, late in life. Born in 1849 in Brooklyn, Grinnell is often described as an American hunter and magazine editor. He excelled at both, and a lot more besides.
Grinnell's middle name really was "Bird." It came from a relative with that last name, of whom there were many in New England. The name fitted him quite well, for as a youth he was taken under the wing of the elderly widow of John James Audubon, who, as most of us know, was the most famous bird guy of all time.
Grinnell's father had bought land from the Audubons along the Hudson River near New York City. Madam Audubon liked young George and taught him enough about birds to turn him into a naturalist. Grinnell graduated from Yale, where he went on to earn a doctorate in zoology. In the summer of 1874, while he was in graduate school, he went west as the naturalist on a military expedition to the Black Hills of what is now South Dakota. The trip was led by George Armstrong Custer.

Yes, *that* Custer. The idea of the 1874 trip was to check out reports of gold in the area and to suggest strongly to the Sioux living there that they had better not interfere with any gold rush that might ensue.

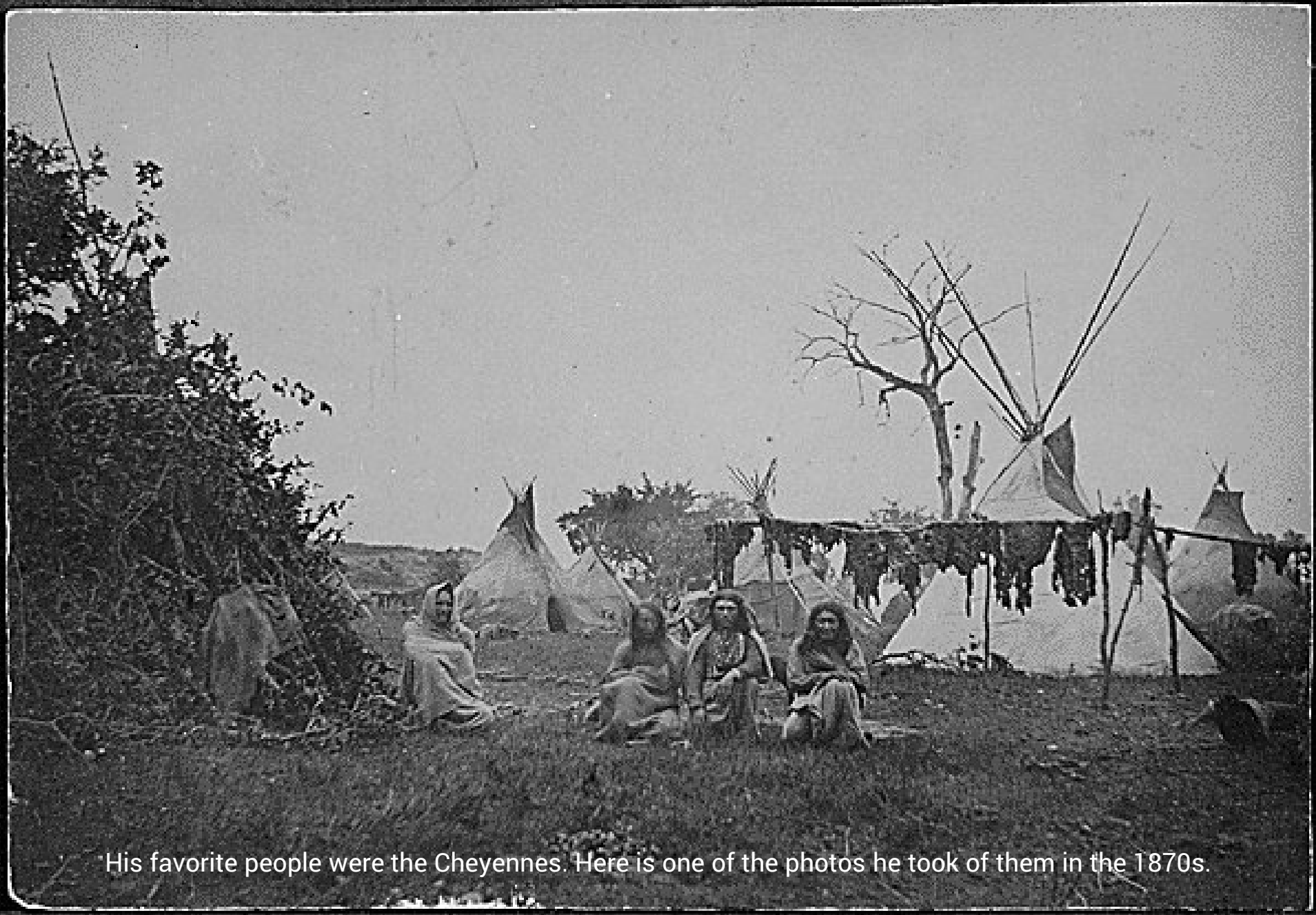
Why was young George Grinnell riding along with the U.S. cavalry? He was not a soldier. But in those days the government would routinely appoint naturalists to go on such expeditions. Grinnell was expected to make scientific observations and to collect plants and animals. Rocks and minerals, too. He knew some geology, so he might have been useful in an area that had been rumored to be gold-rich.

Grinnell seems to have deported himself admirably, because in 1875 he was invited on another military expedition, this time to what is now Glacier National Park, Montana.

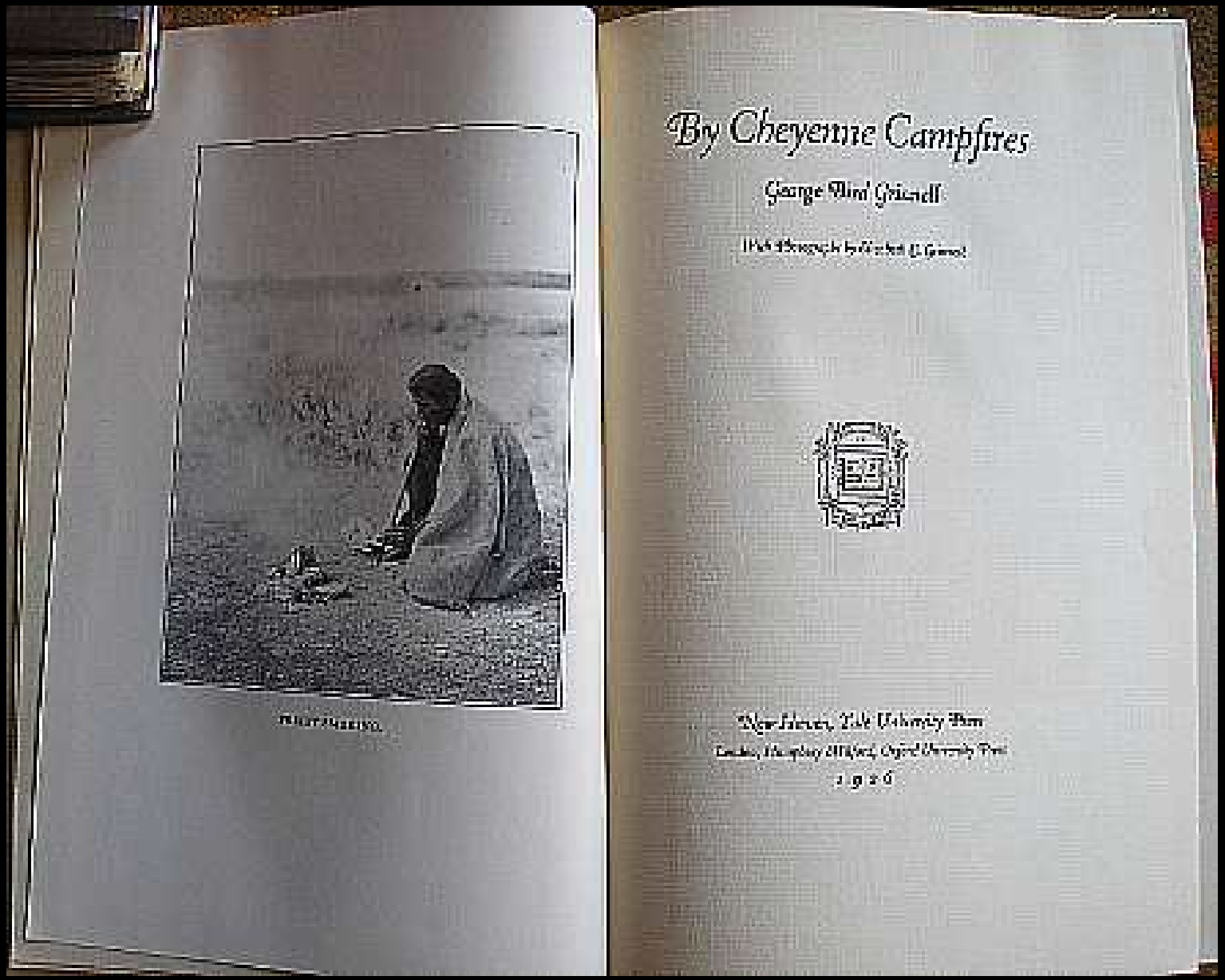
Here's a photo of a classic Glacier-park scene. The Garden Wall is on the right and its high point, Mount Gould, is on the left. Below lies Grinnell Lake.

This 1875 trip was not led by Lieutenant Colonel Custer, and it seems to have been pretty benign. However, in the following year Grinnell was invited to accompany Custer again, this time on a no-nonsense expedition to Montana to subdue the Dakota Sioux once and for all. Grinnell declined, which is fortunate for him, because, as we all know, that trip ended this way.

Historians call it the Battle of the Little Bighorn. The victors, whose art we see here, referred to it as the Battle of the Greasy Grass. The only survivors in Custer's Seventh Cavalry were a few of the horses. Despite the outcome, Grinnell's sympathies came to lie more and more with the First Nations of the Great Plains.



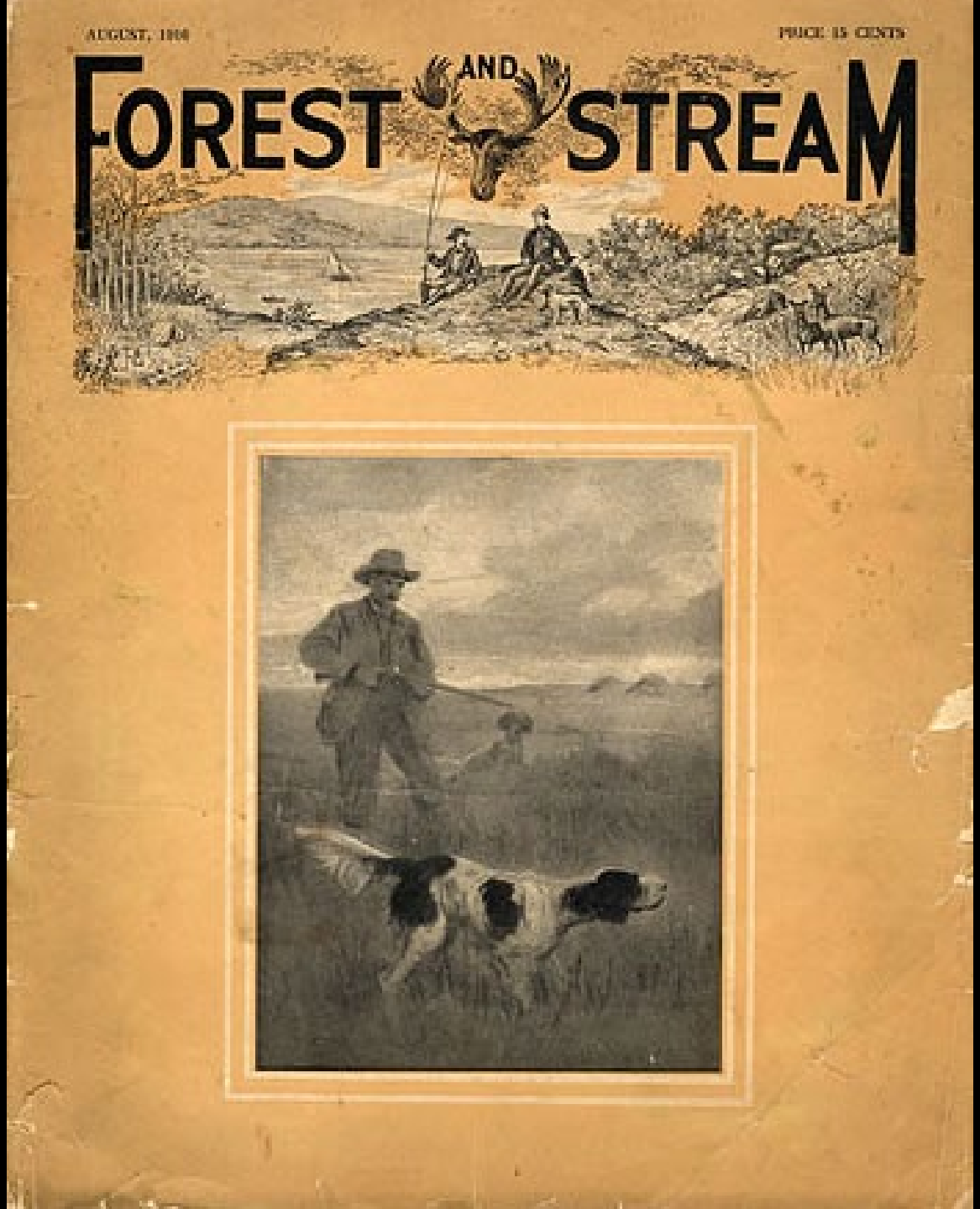
His favorite people were the Cheyennes. Here is one of the photos he took of them in the 1870s.



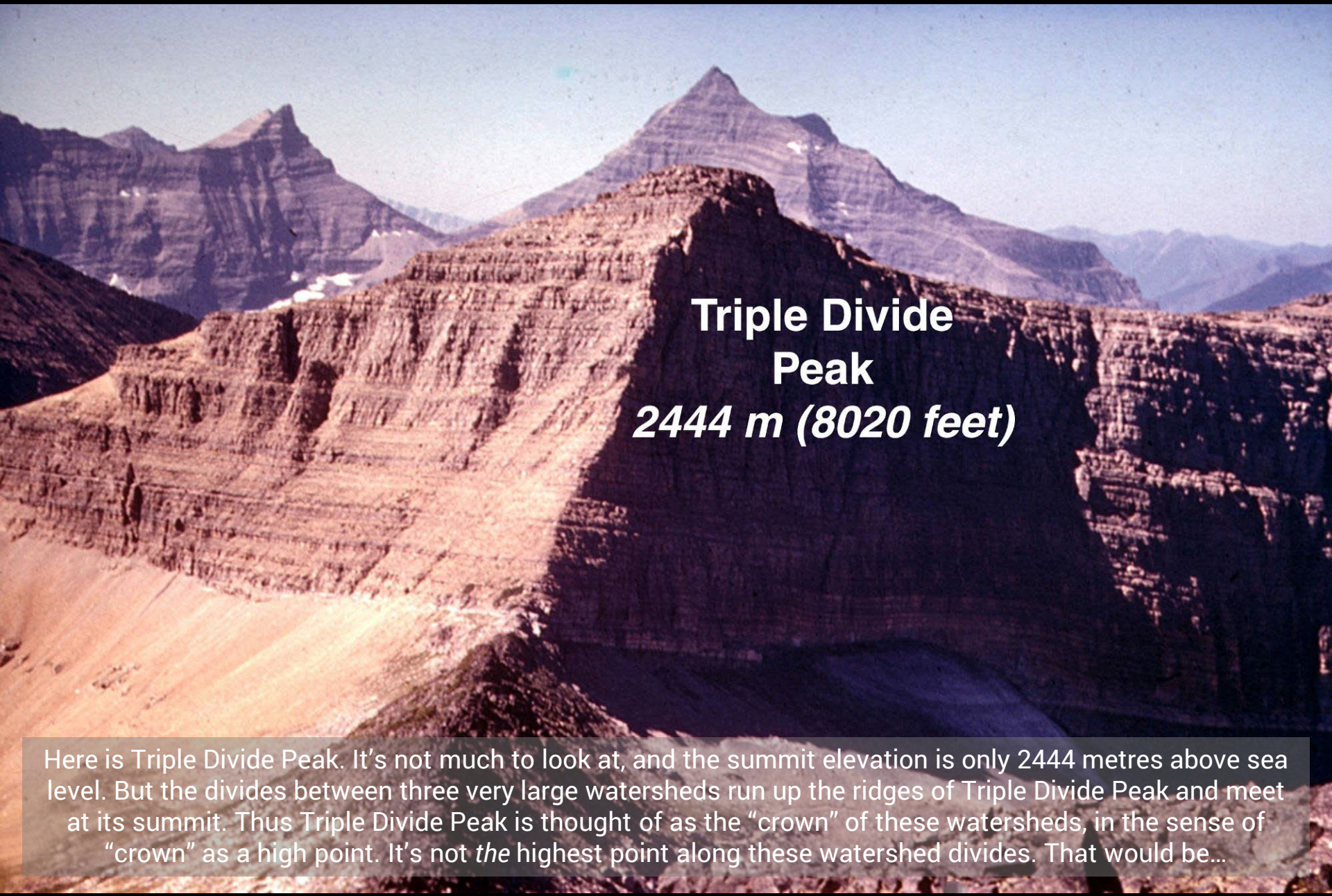
Grinnell wrote a book about living with the Cheyennes, which gained him a reputation as an anthropologist. He was very concerned about the impending extinction of the American bison, as well as the extinction of the American plains tribes who were dependent on them. He did his best to prevent these disasters, and to some extent he succeeded.

But Grinnell always loved the Rockies best. Here he is on the Grinnell Glacier.
This feature is appropriately named, along with Grinnell Point, Grinnell Peak, Grinnell Creek and the aforementioned Grinnell Lake, because George Grinnell was truly the father of Glacier National Park, Montana.

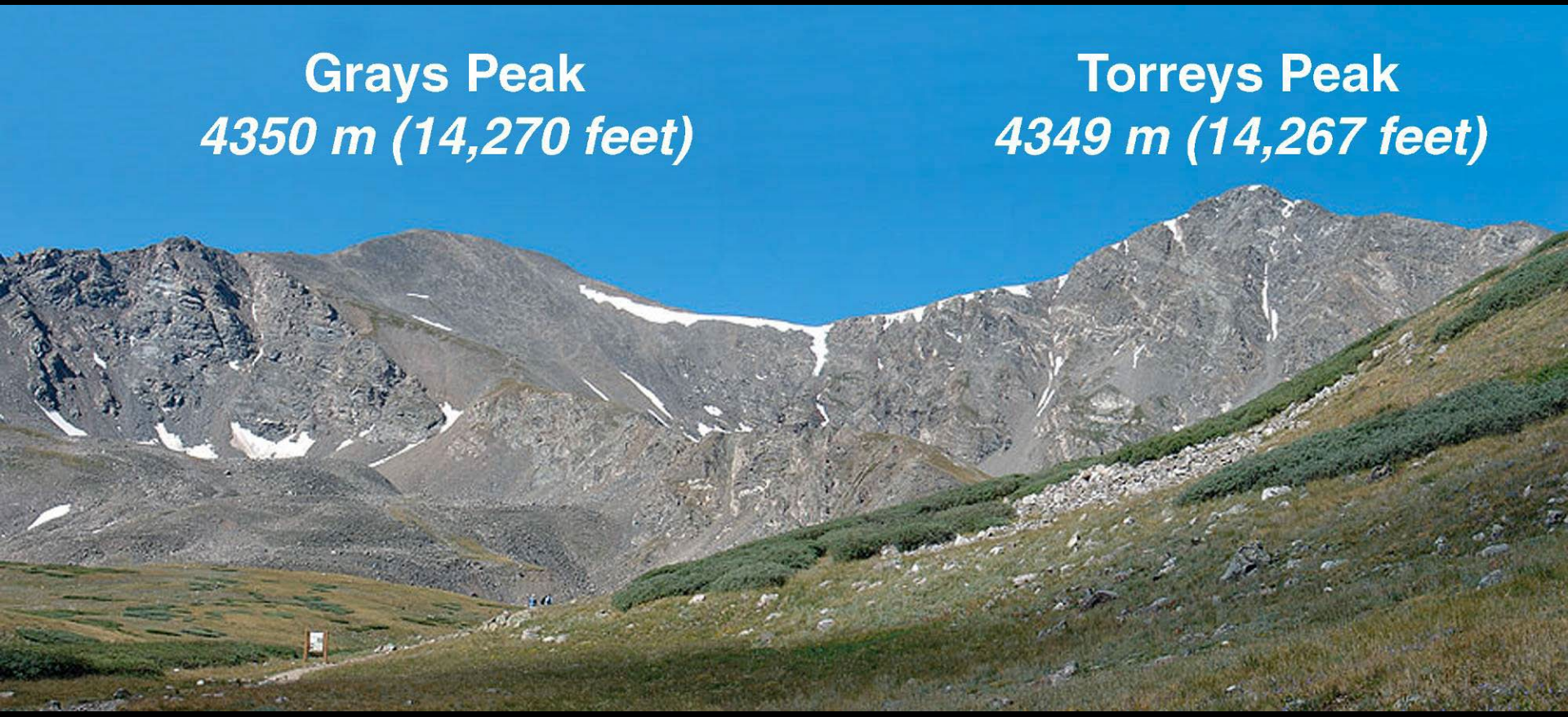
In the 1890s he was the editor of *Forest and Stream* magazine. *Forest and Stream* merged with *Field & Stream* in 1930.
Using his magazine and his political connections in New England, Grinnell began campaigning hard to get the Glacier area declared a national park. His friend Theodore Roosevelt got on board, and in 1910 president William Howard Taft, who was Roosevelt's chosen successor, pushed the legislation through Congress.
Grinnell seems to have invented the phrase "Crown of the Continent." He used it as an attractive promotional handle for the region. It was a brilliant name, quite poetic, and it carried two meanings.



In the first meaning, Grinnell was referring metaphorically to the outstanding beauty of the place. No question about that. The Crown of the Continent was and still is utterly gorgeous. This is Reynolds Mountain, near Logan Pass along the Going to the Sun Highway.
In the second meaning, Grinnell was referring geographically to Glacier's position surrounding Triple Divide Peak.



Here is Triple Divide Peak. It's not much to look at, and the summit elevation is only 2444 metres above sea level. But the divides between three very large watersheds run up the ridges of Triple Divide Peak and meet at its summit. Thus Triple Divide Peak is thought of as the "crown" of these watersheds, in the sense of "crown" as a high point. It's not *the* highest point along these watershed divides. That would be...



Gray's Peak, in Colorado, which is considerably higher. But Gray's Peak is not found at the junction of the three watersheds, while Triple Divide Peak is.

Back in Grinnell's day, these three watersheds were thought to be the main three on the continent, draining to North America's three bounding oceans, the Atlantic, the Pacific and the Arctic. Even now, Americans are taught that Triple Divide Peak is the **hydrographic apex of North America,** which is the physical geographer's term for such a location. Here is the sort of map American kids are shown in school.

If you're wondering what the highest peak in the Rockies is, it's Mt. Elbert, also in Colorado, 80 km (50 miles) away from Gray's Peak to the southwest. Mt. Elbert is 10 km (6 miles) east of the Atlantic / Pacific continental divide, not on it. Summit elevation is 4401 m (14,440 feet). This is the second-highest summit in the contiguous United states, after Mt. Whitney in California, 4421 m (14,505 feet). The third-highest is Mt. Rainier in Washington, 4392 m (14,411 ft).

I found this map posted on **www.nationalatlas.gov,** which is an official U.S. government website.
See the green line? It wiggles northeastward from the Canada-U.S. boundary to the northern tip of Labrador. This is labelled “Northern Divide,” and apparently it’s what the U.S. government views as the Arctic/Atlantic divide.

The orange arrow shows where Triple Divide peak is located. The map shows it on the international boundary, which isn't quite correct. It's actually 47 kilometres south of the line, in southern Glacier National Park. Canadian kids are shown a rather different map.

This map is posted on **nrcan.gc.ca**, an official Canadian government website. It's a fairly recent map, published in 2006.

On this map, the same divide appears as on the American map, and I have likewise marked it green. But this map also shows another divide, one that does not appear on the American map.

It's the blue divide, farther north. It lies between the Arctic Ocean and Hudson Bay. Here, I'll just show you that U.S. map again.

And the Canadian one...

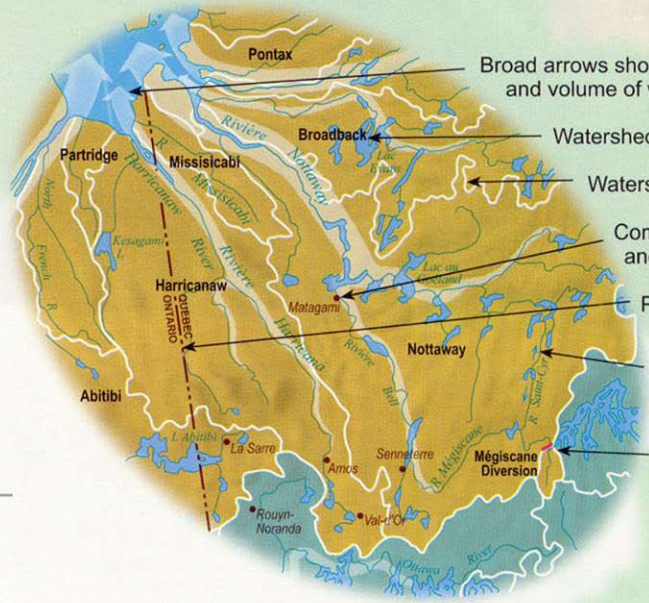
Aha! The Americans are ignoring the Arctic / Hudson Bay divide. Tch, tch, tch.
This omission is a geopolitical statement, telling young Americans, and I was one, that there is nothing north of the “Northern Divide” that is worth mentioning. But the Canadian map is no better. As follows.
Here is the legend for the Canadian map.

Canada's Watersheds

Ocean watersheds

- Arctic Ocean
- Atlantic Ocean
- Gulf of Mexico
- Hudson Bay
- Pacific Ocean
- **Closed watersheds**
  A closed watershed has no outlet to the ocean or to adjacent watersheds

- Glaciers and icefields



Abbreviations used on this map

Abbreviation	Term	Example
E.	East or Eastern	E. Central Vancouver Island
NE	Northeast(ern)	NE Vancouver Island
NW	Northwest(ern)	NW Miramichi
S.	South(ern)	S. and E. White Bay
SW	Southwest(ern)	SW Georgian Bay
Alta.	Alberta	Upper Red Deer (Alta.)
Man.	Manitoba	Moose (Man.)
N.B.	New Brunswick	N.B.
N.L.	Newfoundland and Labrador	Upper Churchill (N.L.)
N.S.	Nova Scotia	N.S.
Ont.	Ontario	Vermilion (Ont.)
P.E.I.	Prince Edward Island	Western P.E.I.
Sask.	Saskatchewan	Upper Churchill (Sask.)

Map scale 1 : 5 000 000

One centimetre equals 50 kilometres

kilometres 50 0 50 100 150 200 kilometres

Map projection: Vertical Near-Side Perspective, centred at 45°00′N 90°00′W, altitude 12 500 000 metres

More detailed information on Canada's watersheds can be found on the following websites:

The Atlas of Canada: **atlas.gc.ca**

Environment Canada: **www.ec.gc.ca/water**

Canadian Wildlife Federation: **www.cwf-fcf.org**

RésEau — Building Canadian Water Connections: **www.environmentandresources.gc.ca/reseau**

I have enlarged part of that legend...

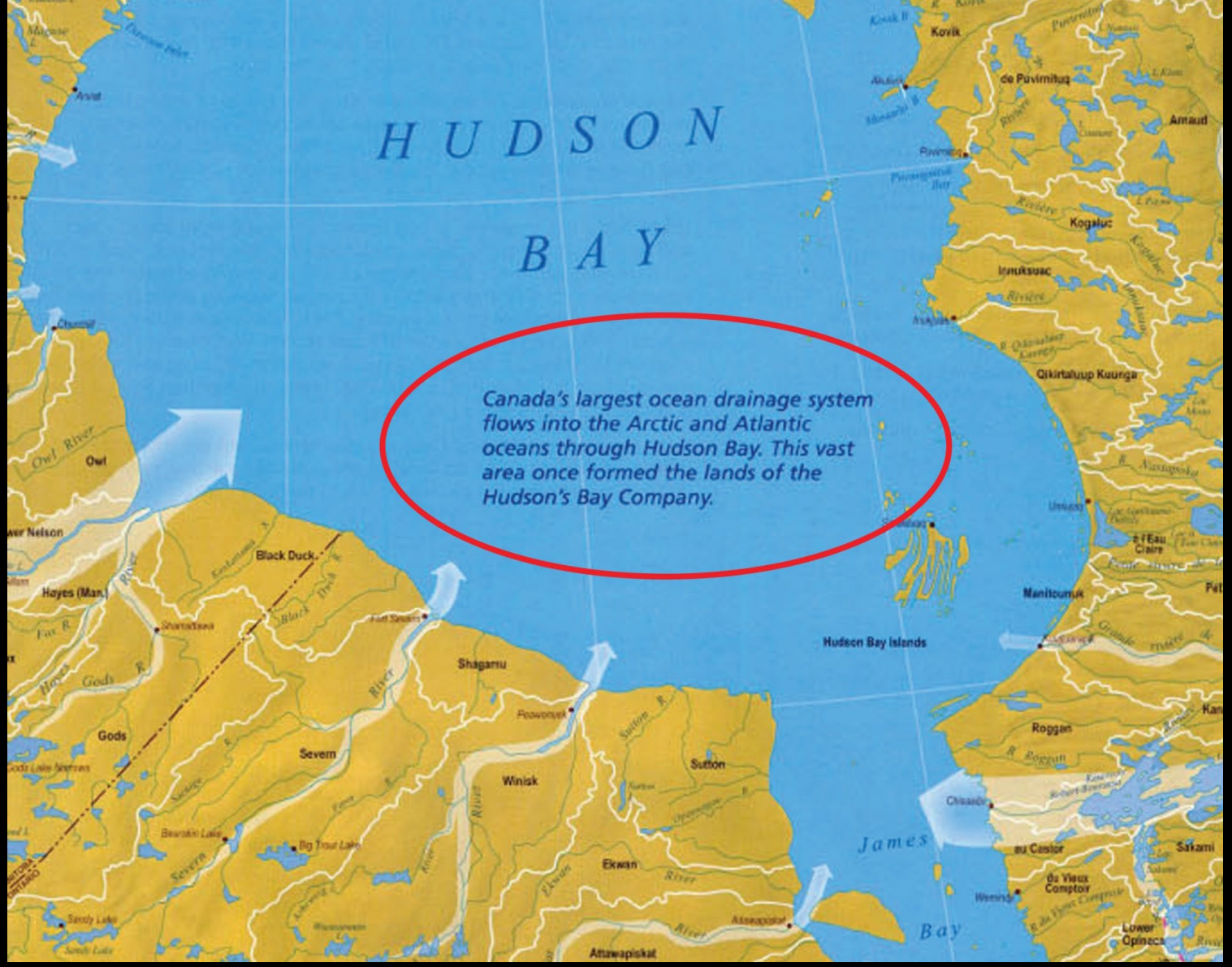
To show you that the map divides Canada up into what are termed “Ocean watersheds.” Hudson Bay is shown as being in an “ocean watershed.”

“Ocean watershed” is not a term I was familiar with. Nor could I find it explained elsewhere on the map. Or anywhere on the Internet. I found web pages going into great detail about the term “watershed,” but there was nothing explaining “watershed” with “ocean” attached. As a watershed, plain and simple, Hudson Bay is the destination for any water draining toward it, just as the Atlantic, Pacific and Arctic oceans are the ultimate destinations for water draining toward them.

But Hudson Bay is *part* of the Atlantic Ocean. Water draining into Hudson Bay is really reaching the Atlantic, no? So what’s this about calling Hudson Bay an “ocean watershed”?

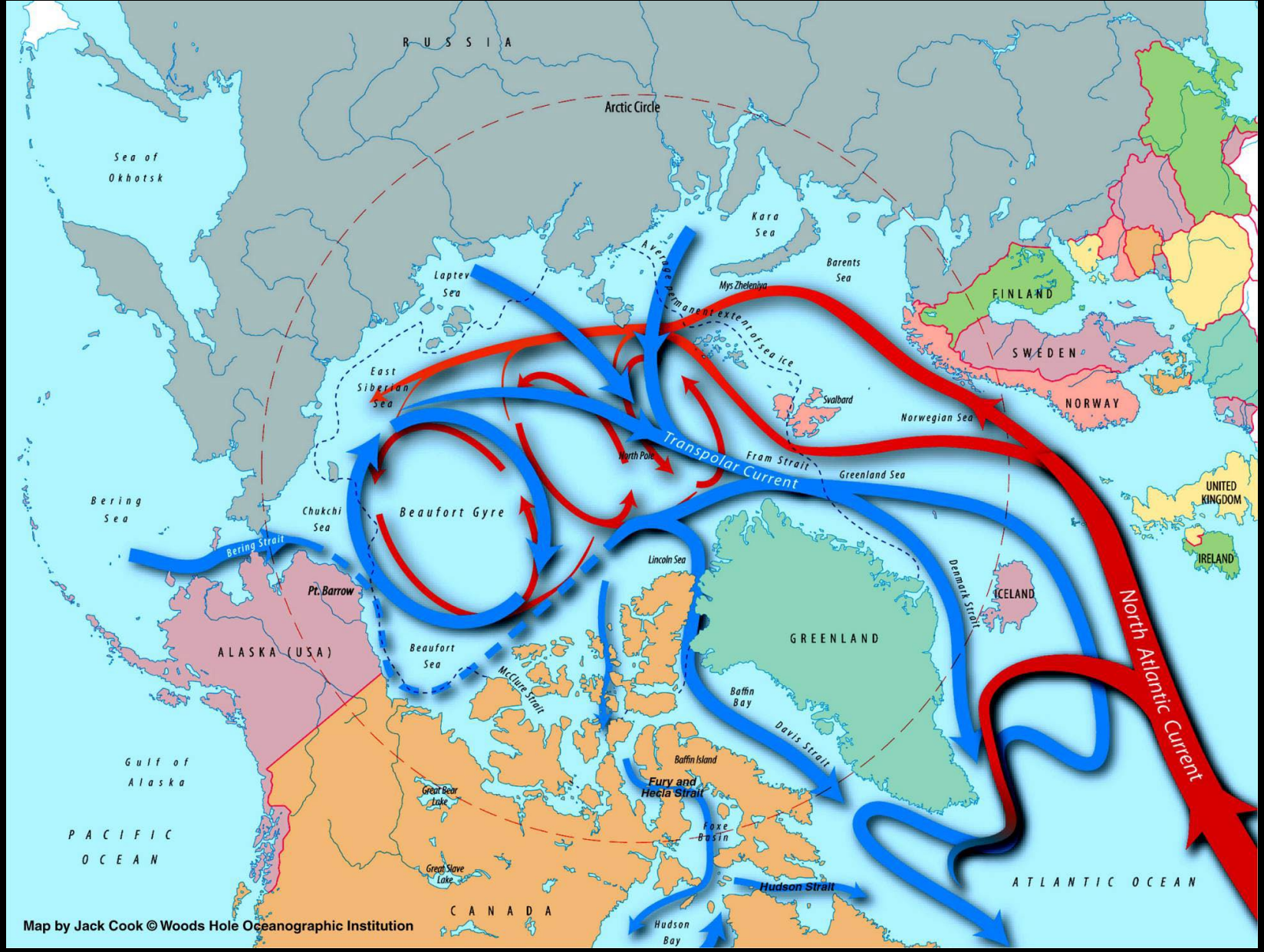
I don’t get it. And neither, I suspect, did the person who stuck “ocean watershed” onto that map. Unsure of the right thing to say, they probably made it up. As far as I can see, it’s gobbledygook. The label should have been simply “Watersheds,” not “Ocean watersheds.”

And another thing about that map. On it there is this message placed on Hudson Bay.

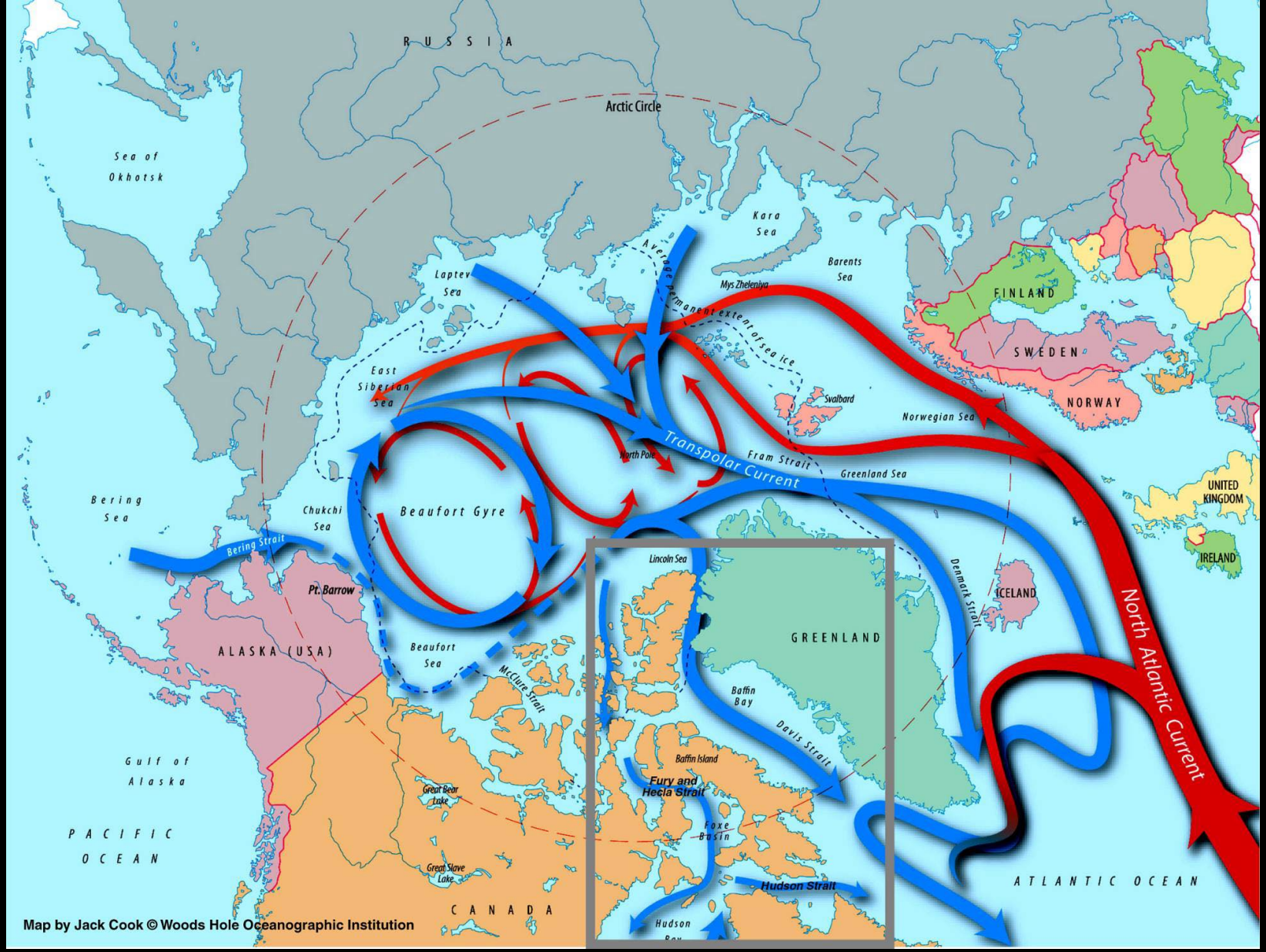


Quote, "Canada's largest ocean drainage system flows into the Arctic and Atlantic oceans through Hudson Bay." Ignoring the part about the Hudson's Bay Company, we are told that Hudson Bay flows to both the Arctic Ocean and the Atlantic Ocean.

But is this actually true?



No. Here is a map of the major currents that carry water in and out of the Arctic Ocean. The map was produced by the Woods Hole Oceanographic Institution, which is the world's authority on such things.



I have outlined the Hudson Bay area at the bottom of the map…

And enlarged that portion for you.

See how the blue current enters Foxe Basin and Hudson Bay through Fury and Hecla Strait?

And leaves it through Hudson Strait?
Thus, any river emptying into Hudson Bay sends its water out of the bay through Hudson Strait. Water does not go north toward the Arctic Ocean. It goes to the Atlantic Ocean.
But maybe the map's author is just referring to the fact that you can sail from Hudson Bay to the Arctic Ocean by going through the Arctic Islands.
Whatever.
Bottom line, I'm not terribly happy with either map, American or Canadian. One demonstrates poor draftsmanship and jingoism, while the other demonstrates sloppy thinking.

Back to the American map. I think it was pretty sneaky of the Yanks to leave the true northern divide off their map.
Here it is, added by me, in blue.

The blue divide is a no-nonsense divide. On one side it is Hudson Bay drainage, meaning Atlantic drainage, and on the other side it is Arctic drainage. Unequivocally, it is the Arctic/Atlantic divide.

It's a stretch to think of the Northern Divide on the American map—the green divide—as the line dividing Arctic drainage from Atlantic drainage.

Especially when the tip of Labrador, which is where the green divide ends, is Atlantic drainage all the way around. I have circled that spot in red. So I have concluded that we should *not* treat the green line as *the* northern continental divide. In fact, it marks the southern boundary of the Hudson Bay drainage basin, hardly a continental divide at all.

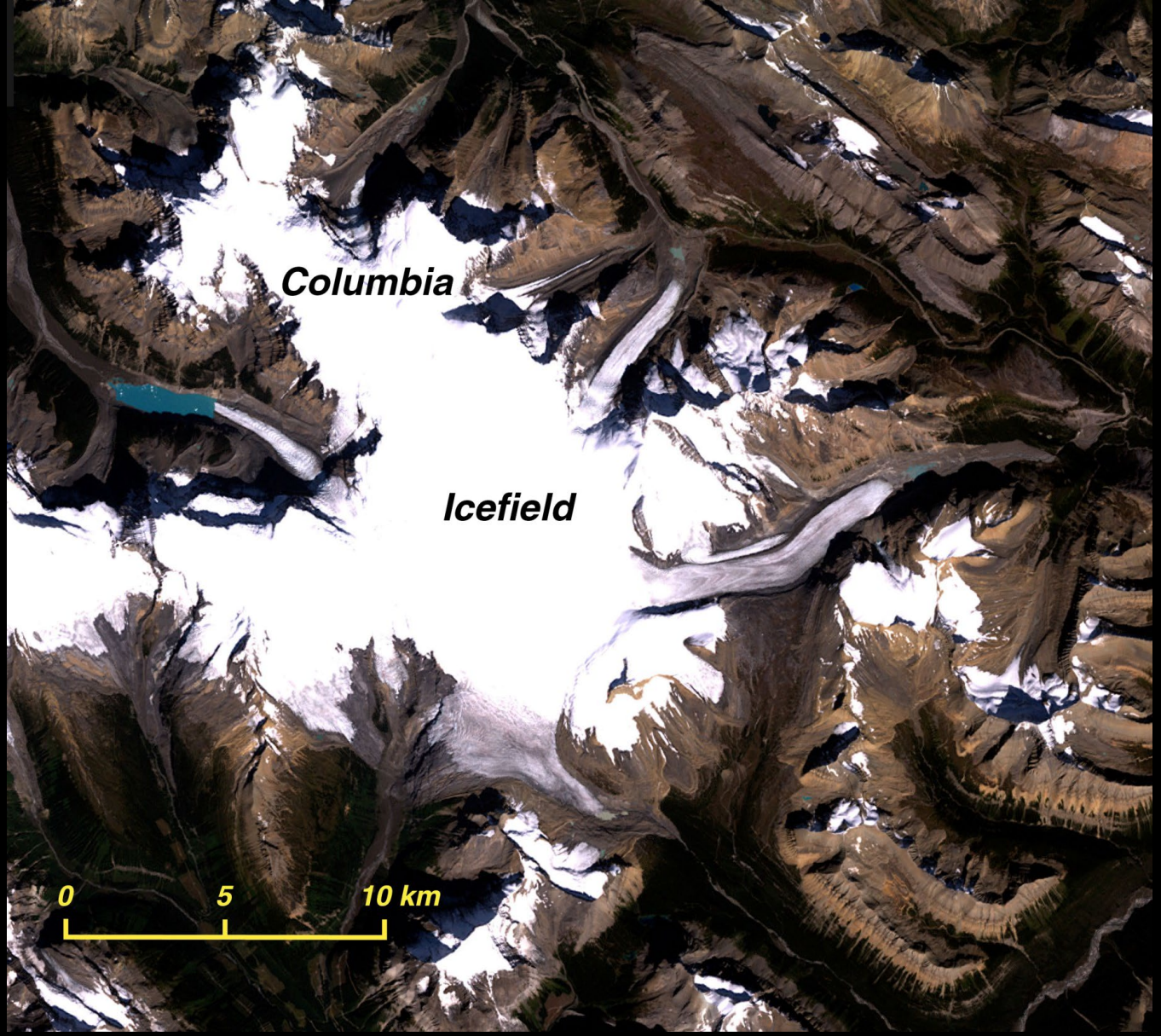
But the blue line, the Arctic/Atlantic divide, is the real thing. It is the continental divide between the Atlantic Ocean and the Arctic Ocean. That divide lies completely within Canada. None of it is found within the United States. Oho! Geopolitics again. Looks like Canadian geographers versus American geographers. Are you all taking sides?

Well, perhaps you should. The hydrographic apex of North America is at stake. The crown of the continent, geographically. Which country really owns it? Canada does, as the following cartographic summation demonstrates.

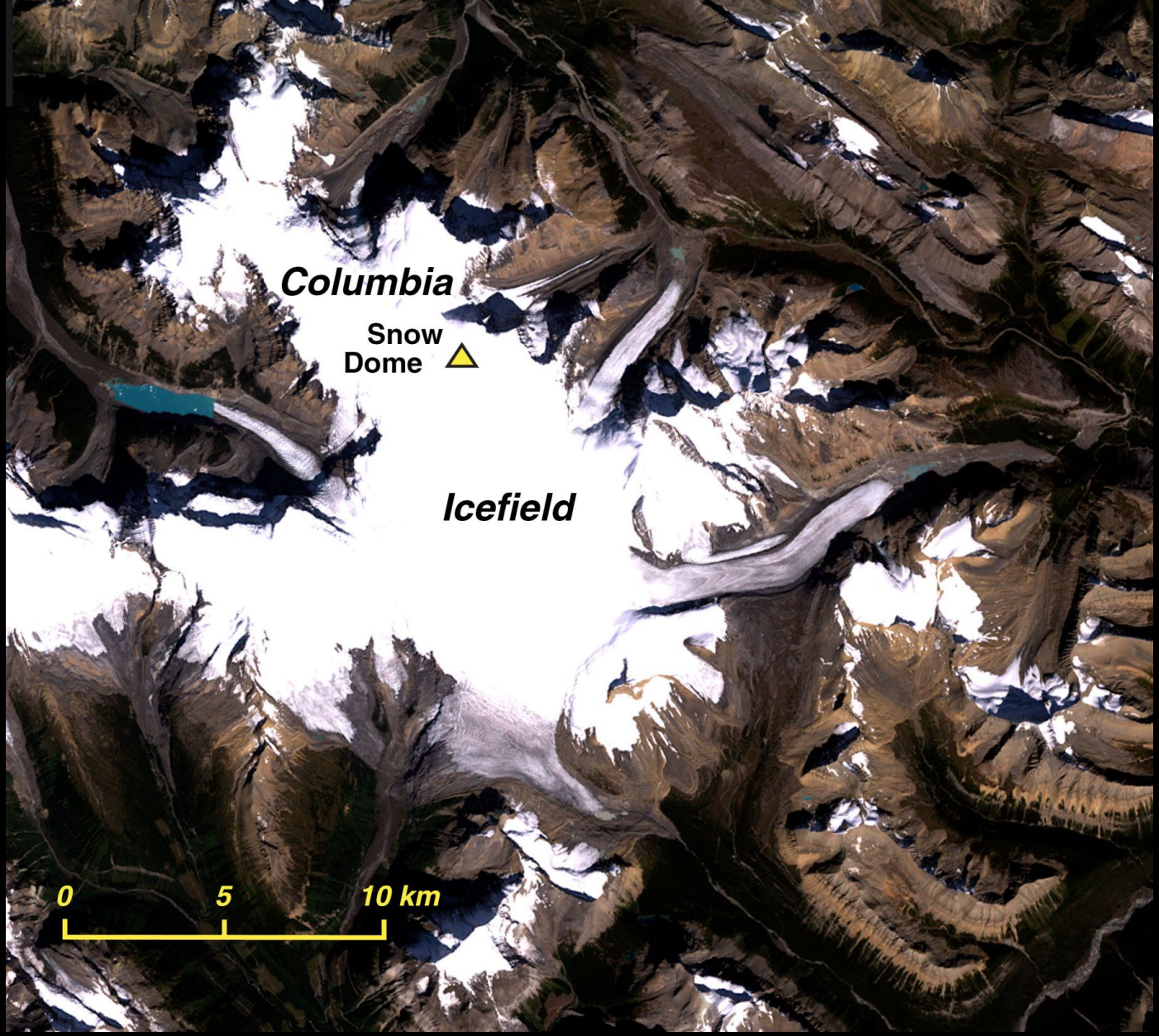
Here is how most people think of North America, as having just one continental divide. You may hear it referred to as the "Great Divide."
The green blob along that divide is the Canadian portion of the Rocky Mountains. However, as we have seen, there is that other divide.

The Arctic/Atlantic divide.
The Arctic Ocean, and the Arctic Ocean *alone,* lies on the north side of it. So this is indisputably a second continental divide. And it splits the Great Divide in two.
The upshot is that North America has not one, not two, but actually *three* continental divides.

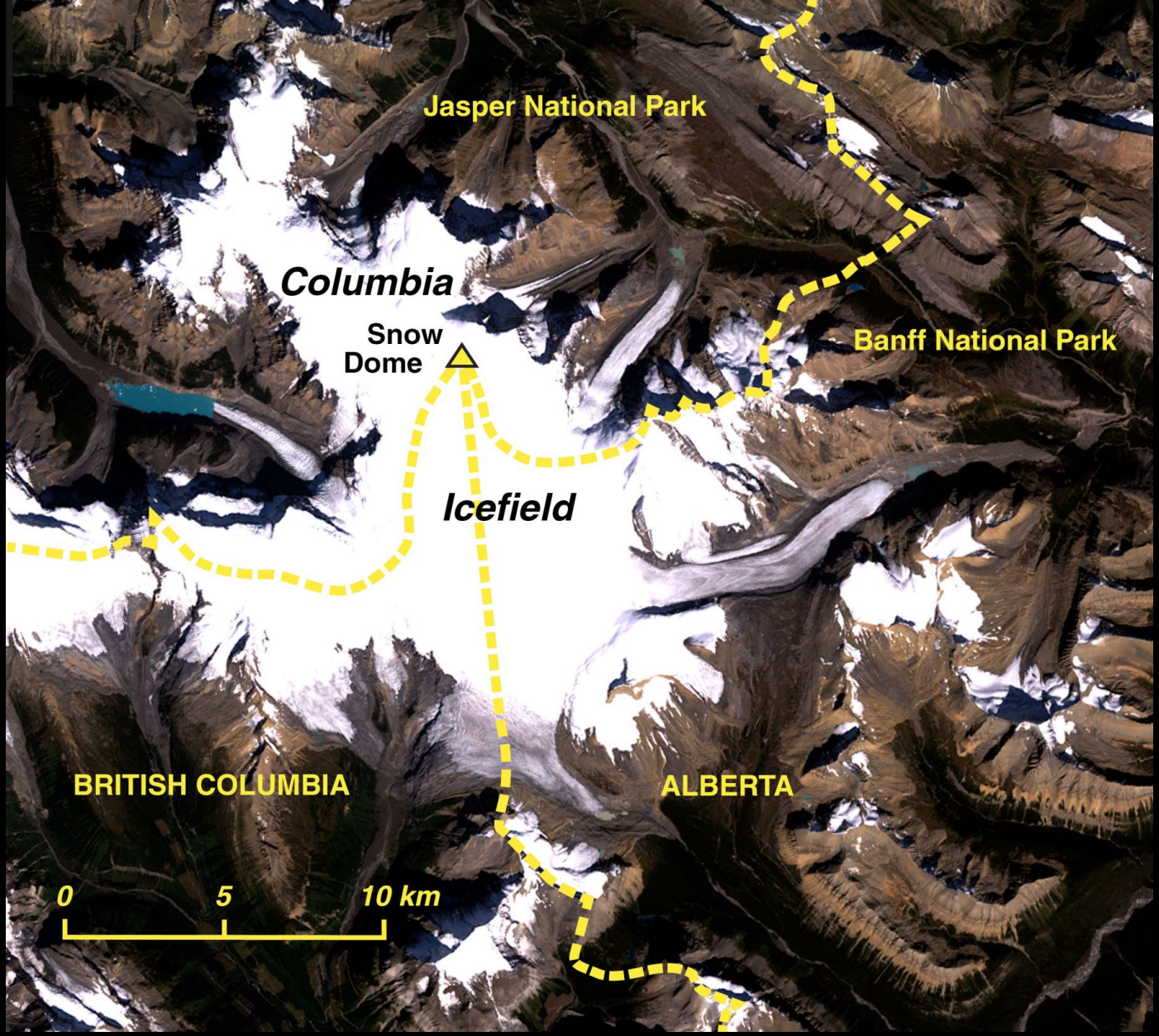
Here they are, nicely labelled for you, Arctic/Pacific, Arctic/Atlantic and Atlantic/Pacific. All three come together at the Columbia Icefield, the largest glacier in the Rocky Mountains, where Jasper National Park and Banff National Park also touch.



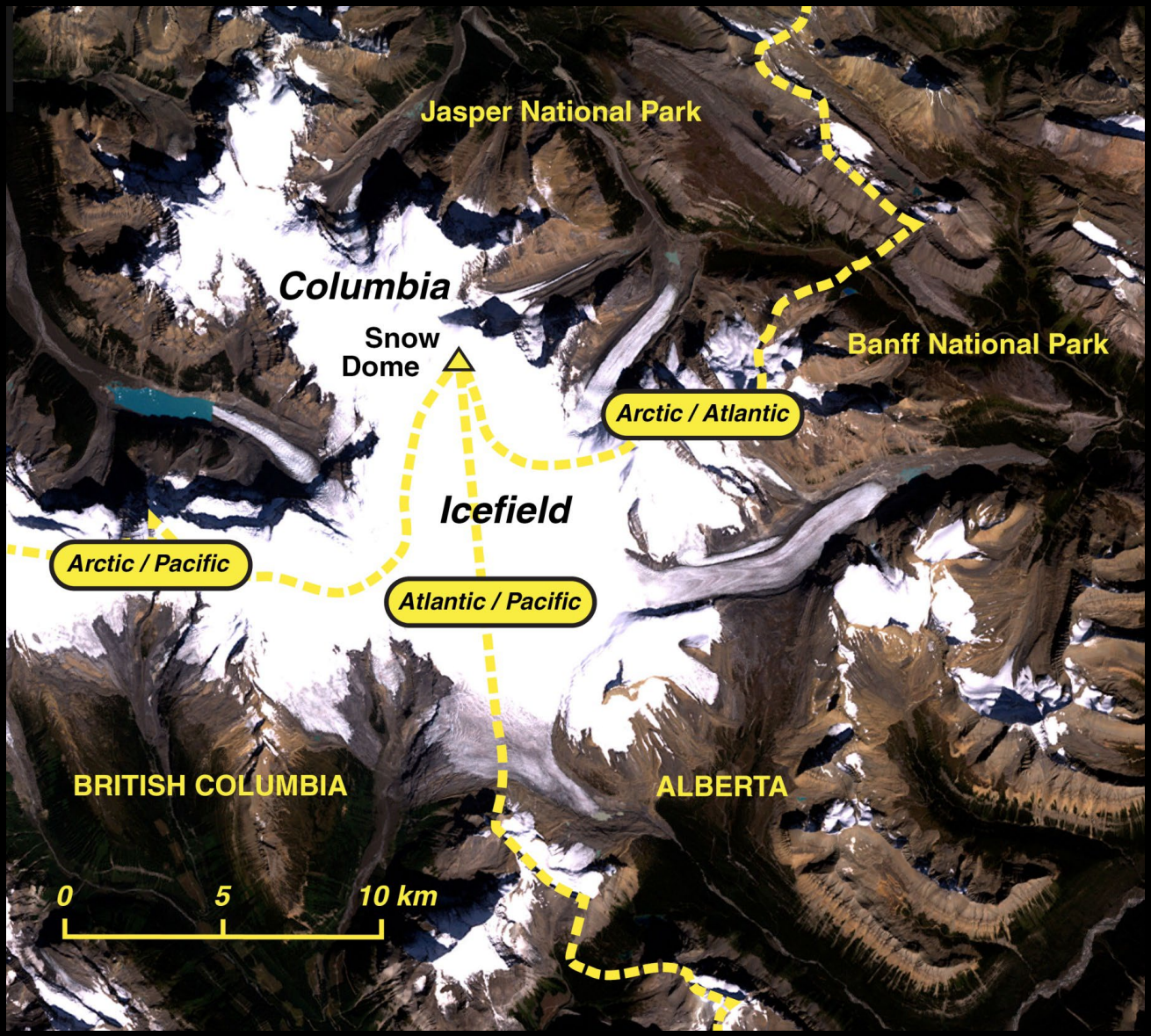
Here is a satellite view of the Columbia Icefield. It's the big white thing, a huge glacier. It touches another icefield on the left, and we can see a bit of that. As on the other maps I have been showing you, north is up. On the Columbia Icefield, the exact point where all three continental divides meet is a mountain named the Snow Dome.



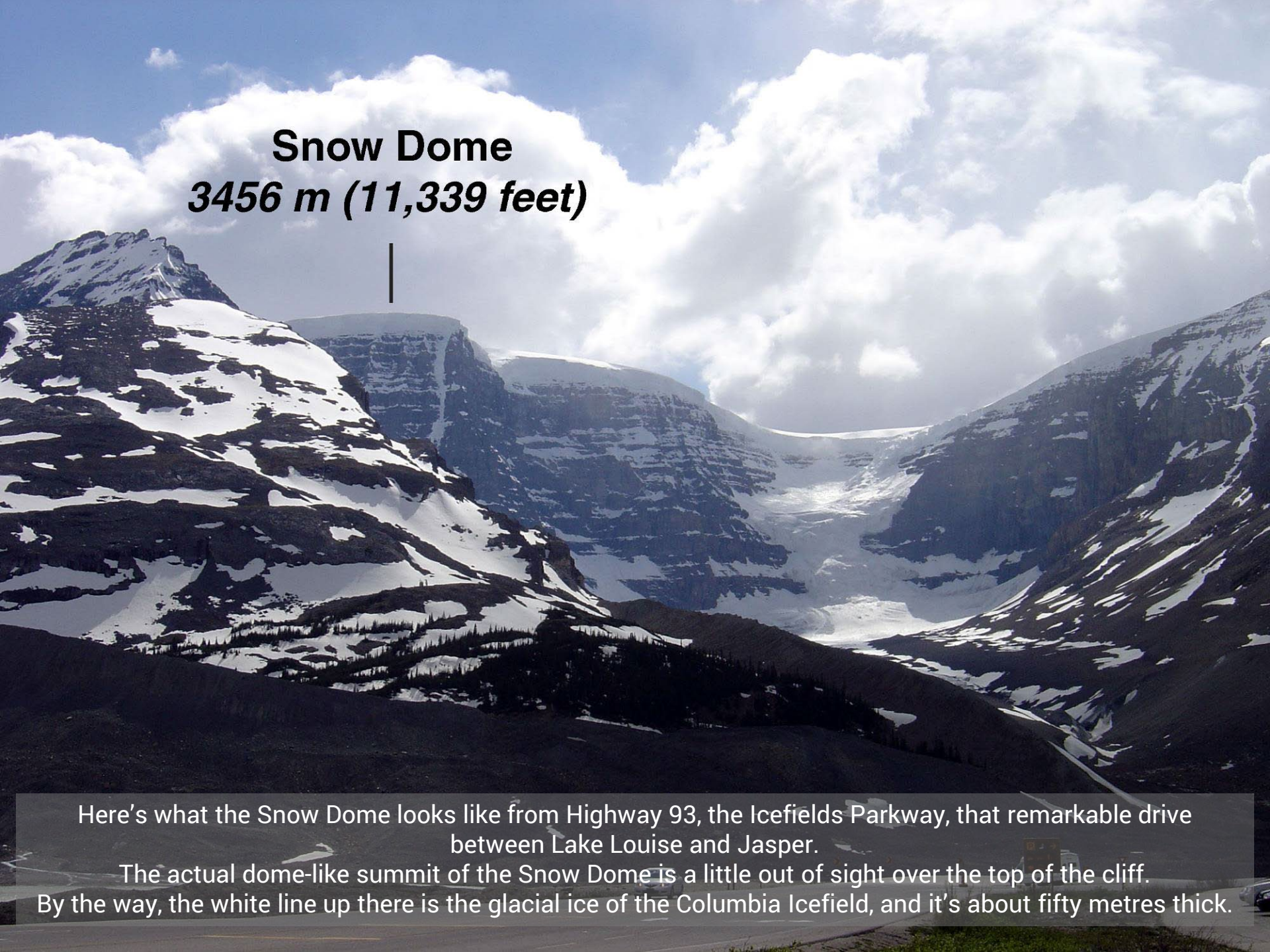
Here it is, labelled.



And here are the three divides, shown as dashed yellow lines, converging on the Snow Dome. Note how those divides also separate Banff National Park from Jasper National Park, and Alberta from British Columbia.



Now I have labelled the divides, so you can tell them apart. There really are three. Ice moves slowly down from the summit of the Snow Dome toward all three oceans. On the northern and western sides of the Snow Dome, meltwater from the ice flows through Jasper National Park. It follows the Athabasca, Slave and Mackenzie rivers to the Arctic Ocean. On the southwestern side of the Snow Dome, meltwater flows into British Columbia. It follows the Columbia River to the Pacific. And on the southeastern side of the Snow Dome, meltwater flows into Banff National Park. It follows the Saskatchewan and Nelson river systems to Hudson Bay and the Atlantic.



Here's what the Snow Dome looks like from Highway 93, the Icefields Parkway, that remarkable drive between Lake Louise and Jasper.
The actual dome-like summit of the Snow Dome is a little out of sight over the top of the cliff.
By the way, the white line up there is the glacial ice of the Columbia Icefield, and it's about fifty metres thick.

Back to the cartographic summation.
Given all of the foregoing, I cannot see how *anyone* could fail to agree that the Snow Dome is the true hydrographic apex of North America. Are there still doubters in this audience?
I know, I know. Some of you are loyal to Triple Divide Peak.

You are thinking, “If the Snow Dome is the hydrographic apex, what, then, of Triple Divide Peak?”
Not to worry. Triple Divide Peak is just as lovable as they come, and it remains a triple divide. It’s an important one, too. This is because yet another major divide exists.

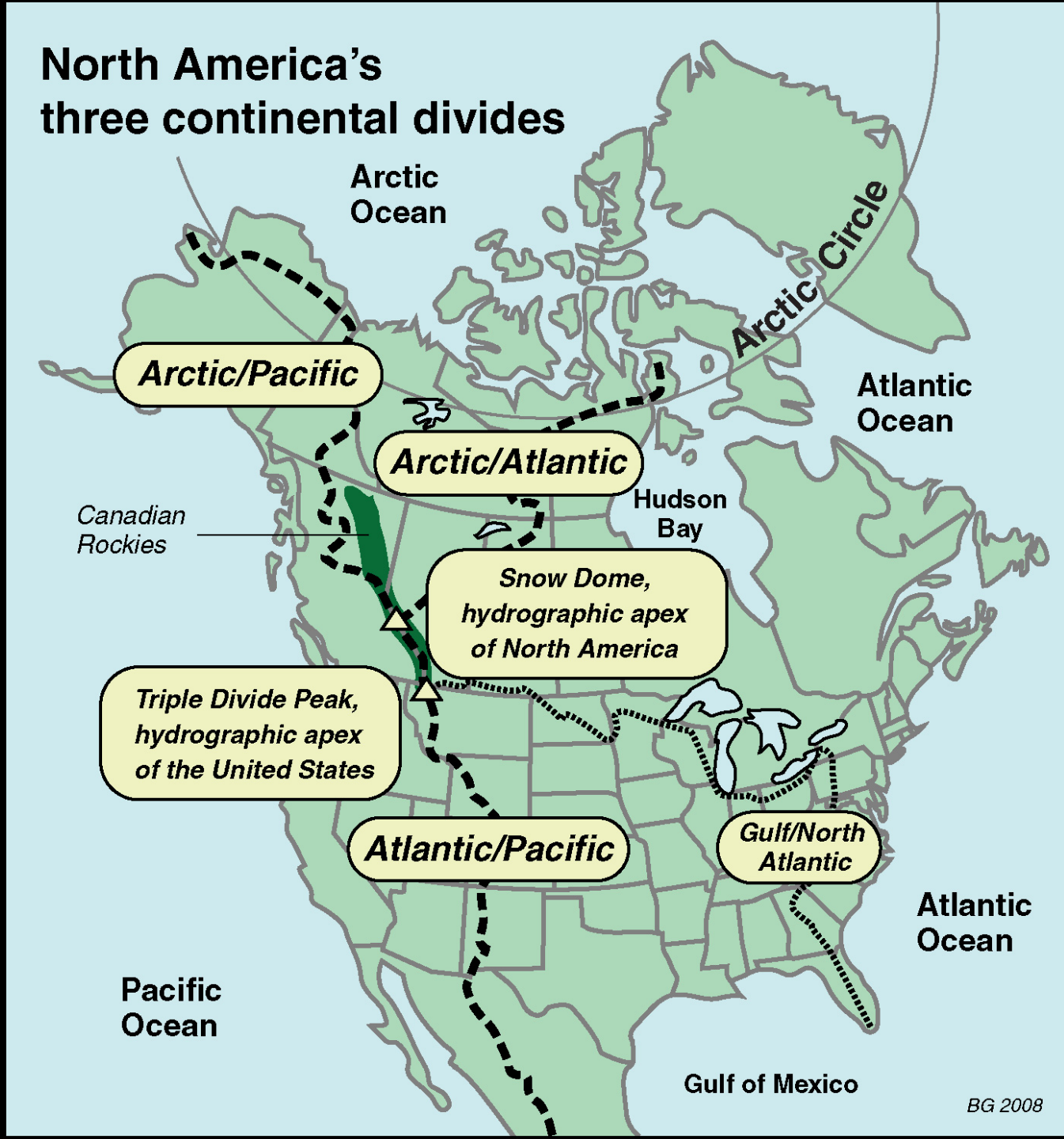
It's the divide between the Gulf of Mexico and the rest of the Atlantic. The orange arrow points to it. Triple Divide Peak sits where the Gulf / North Atlantic divide bumps into the Atlantic/Pacific divide. This is not a true continental divide, because the water on both sides winds up in the same ocean, the Atlantic.

On this map you can see the position of Triple Divide Peak. Since there can be only one true hydrographic apex of North America, and the Snow Dome is it, how should we refer to Triple Divide Peak?

As the hydrographic apex of the United States, of course. It's the only point in the U.S. from which water drains to both the Gulf of Mexico and the rest of the Atlantic, plus the Pacific. So Triple Divide Peak ranks as the hydrographic apex of the whole country.

In this we can include all 50 states. Hawaii rests entirely in Pacific drainage, and there is no major apex along the Alaskan portion of the Arctic/Pacific divide. So Triple Divide Peak is the U.S. champion, here.

And by the way, since Alaska is part of the U.S., the U.S. *does* have a shore on what is indisputably the Arctic Ocean. For those Americans in the audience, please feel free to use one of our favorite Canadian expressions, "From sea to sea to sea."



Crown of the Continent Network

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Crown of the Continent - A Magical Landscape

The 10-million-acre Crown of the Continent is a rare and special place - an ecological crossroads where plant and animal communities from the Pacific Northwest, eastern prairies, southern Rockies, and boreal forests mingle. This spine of glacier-carved mountains is also the headwaters for North America, where pristine rivers originate and flow to the Pacific Ocean, Gulf of Mexico, and Hudson Bay. Nowhere else on the continent retains its full complement of native habitat and native predators - wolves, grizzly and black bears, cougar, coyote, fox, wolverine, bobcat, and lynx - as well as large populations of moose, elk, bighorn sheep, pronghorn, and deer.

Back to the Crown of the Continent. With Triple Divide Peak dethroned, should we keep calling the Crown of the Continent “the Crown of the Continent?” Perhaps we should be calling it the…

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Crown of the Country, meaning just the U.S.A.
But that's not right. Waterton Lakes National Park is included, and it's in Canada. So maybe it should be…

Waterton - Glacier Area
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This, the Crown of the Waterton – Glacier Area. But then, does the name “Waterton” get first billing? Canadians would say, “Of course.” But in the U.S. I can imagine the name being slightly altered…

Glacier - Waterton Area
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To put “Glacier” first.

Well, as it turns out, this side issue has already been settled. In 1932, both governments got together and established Waterton - Glacier International Peace Park, with the words in that order, Waterton first. This may have just been the Americans making nice. Or perhaps they were quietly acceding in a minor way to the outcome of a previous international dispute …

The War of 1812

The War of 1812.
It was started by the U.S., which invaded Canada. At the time, Thomas Jefferson thought that, quote, “The acquisition of Canada this year, as far as the neighbourhood of Quebec, will be a mere matter of marching, and will give us the experience for the attack on Halifax, the next and final expulsion of England from the American continent.” [Thomas Jefferson was not actually the president at this time. He had been replaced by James Madison, who was president from 1809 to 1817.] However, things did not turn out as Jefferson expected.

The War of 1812 ended with Canada, which was officially British back then, repelling the Americans. And just to rub it in, the redcoats sailed up the Potomac River to Washington, DC, and burned the U.S. capitol.
Clearly, in cross-border issues, Canada should not be provoked.

Back to the Crown of the Continent one last time. This region includes a lot of protected areas in addition to Waterton and Glacier. Perhaps this should be reflected in the name.

Kananaskis, Top of the World, Bob Creek, Lizard Range, Crowsnest, Akamina-Kishinena, Waterton-Glacier, Whitefish Range, Flathead Lake, Great Bear, Mission Mountains, Bob Marshall, Scapegoat and Rattlesnake

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The 10-million-acre Crown of the Continent is a rare and special place - an ecological crossroads where plant and animal communities from the Pacific Northwest, eastern prairies, southern Rockies, and boreal forests mingle. This spine of glacier-carved mountains is also the headwaters for North America, where pristine rivers originate and flow to the Pacific Ocean, Gulf of Mexico, and Hudson Bay. Nowhere else on the continent retains its full complement of native habitat and native predators - wolves, grizzly and black bears, cougar, coyote, fox, wolverine, bobcat, and lynx - as well as large populations of moose, elk, bighorn sheep, pronghorn, and deer.

Hell of a letterhead.

No, let's close this particular can of worms before it overflows. Name-wise, how about we just agree to stick with what we have now?

Crown of the Continent Network

Healthy Environment, Livable Communities, and Vibrant Economy

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After all, “Crown of the Continent” is too good a name to mess with. George Bird Grinnell may have been off the mark geographically, but metaphorically he was bang on. When it comes to scenery, the Crown of the Continent qualifies one hundred percent.

What I especially like about this name is that it also amounts to a classic Canadian-style compromise. We Canadians get “Crown,” pip pip, and the Americans get “Continent,” which they so dearly want. In fact, the resolution to this dare-I-say “watershed issue” is so compelling for both sides that it has been adopted officially. And at the highest level. Here is the press conference at which this historic agreement was announced.

This didn’t make the news in your area?

END