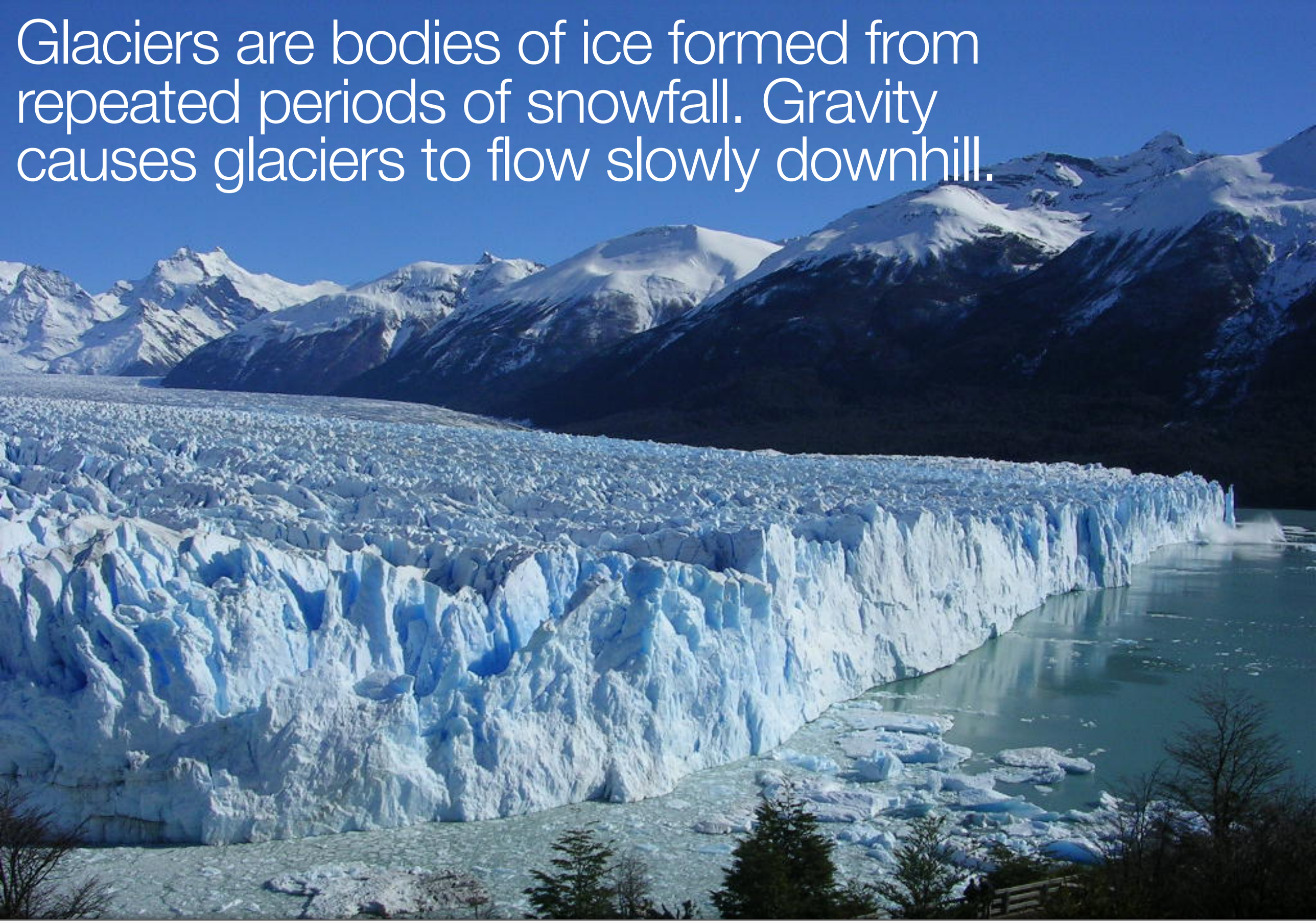

Glaciers
(TAP TO BEGIN)

Glaciers are bodies of ice formed from repeated periods of snowfall. Gravity causes glaciers to flow slowly downhill.



There are two types of glaciers.

Alpine Glaciers

Glaciers that form high in the mountains and travel downhill like rivers of ice.

Continental Glaciers

Massive glaciers that cover entire landmasses, moving outwards from the center.

Alpine Glacier

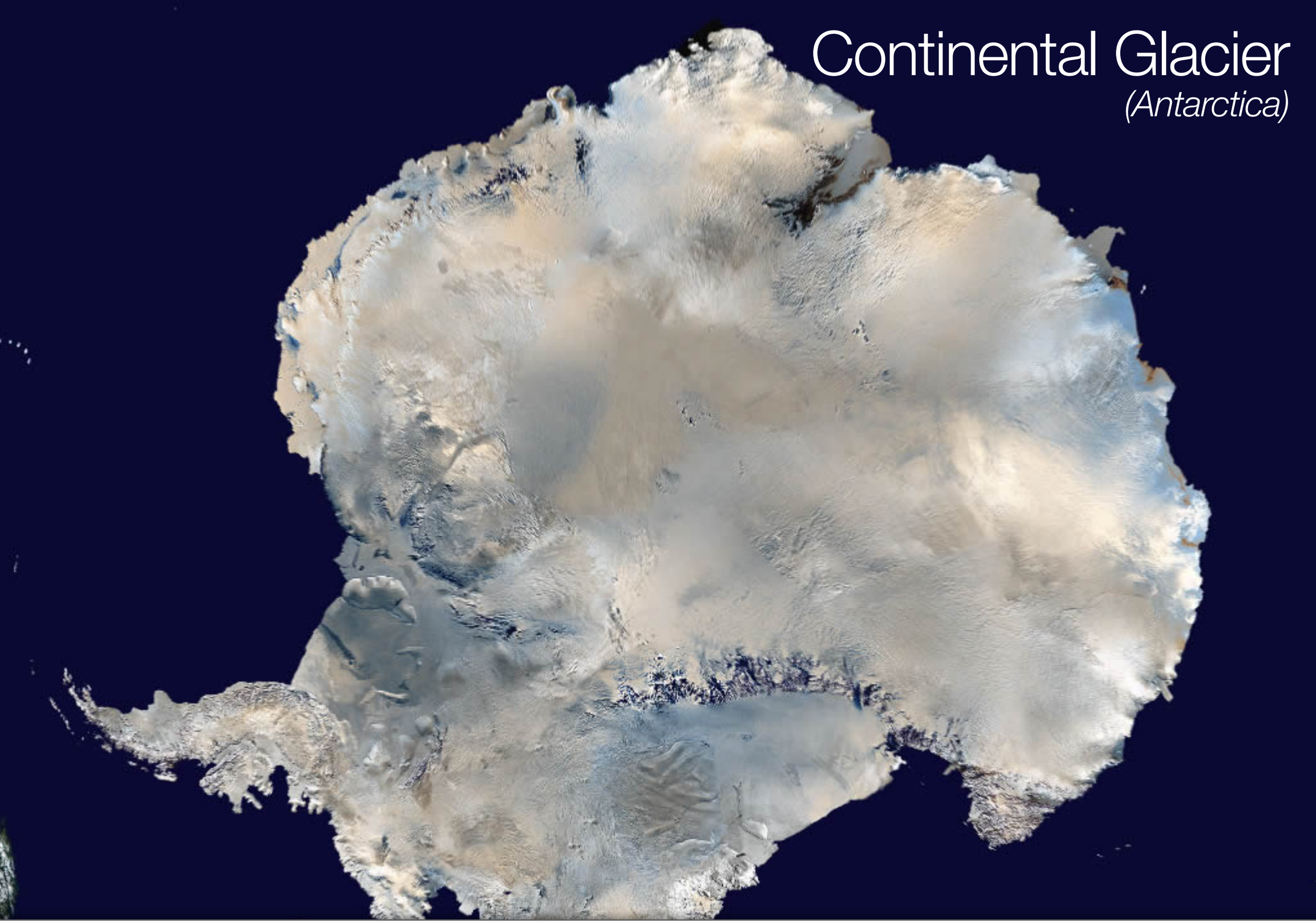
Alpine Glacier

Alpine Glacier

Alpine Glacier

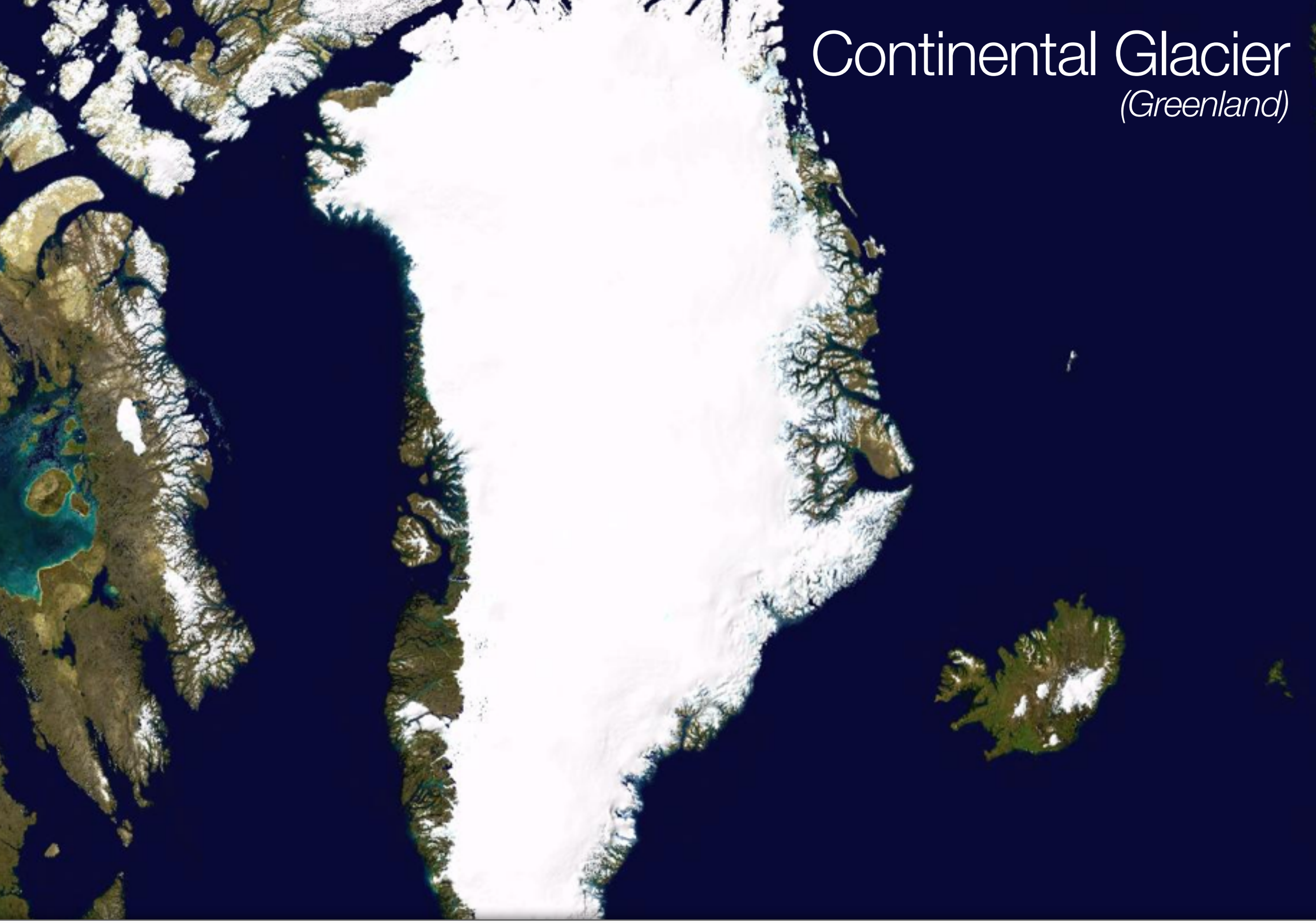
Continental Glacier

(Antarctica)

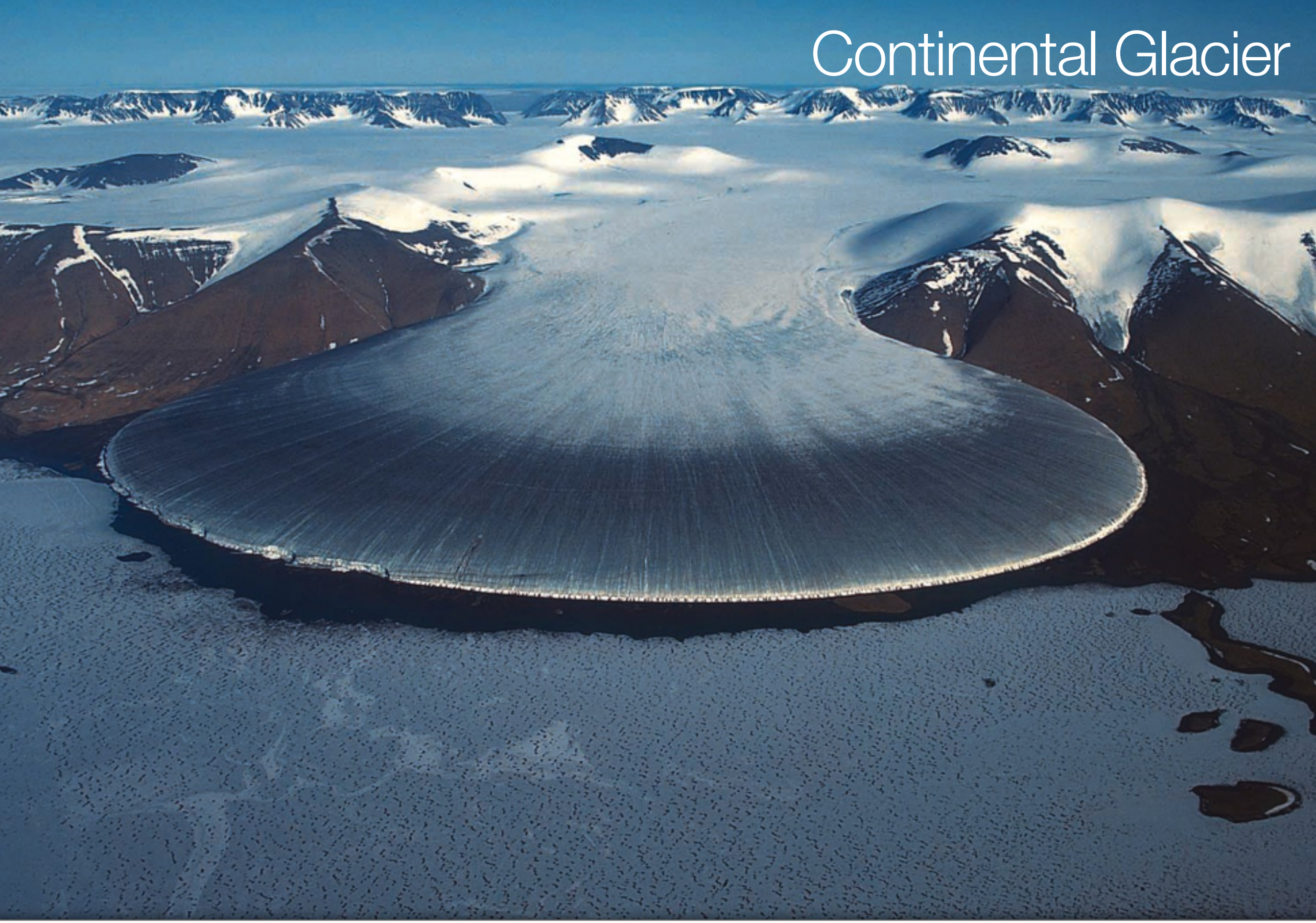


Continental Glacier

(Greenland)



Continental Glacier



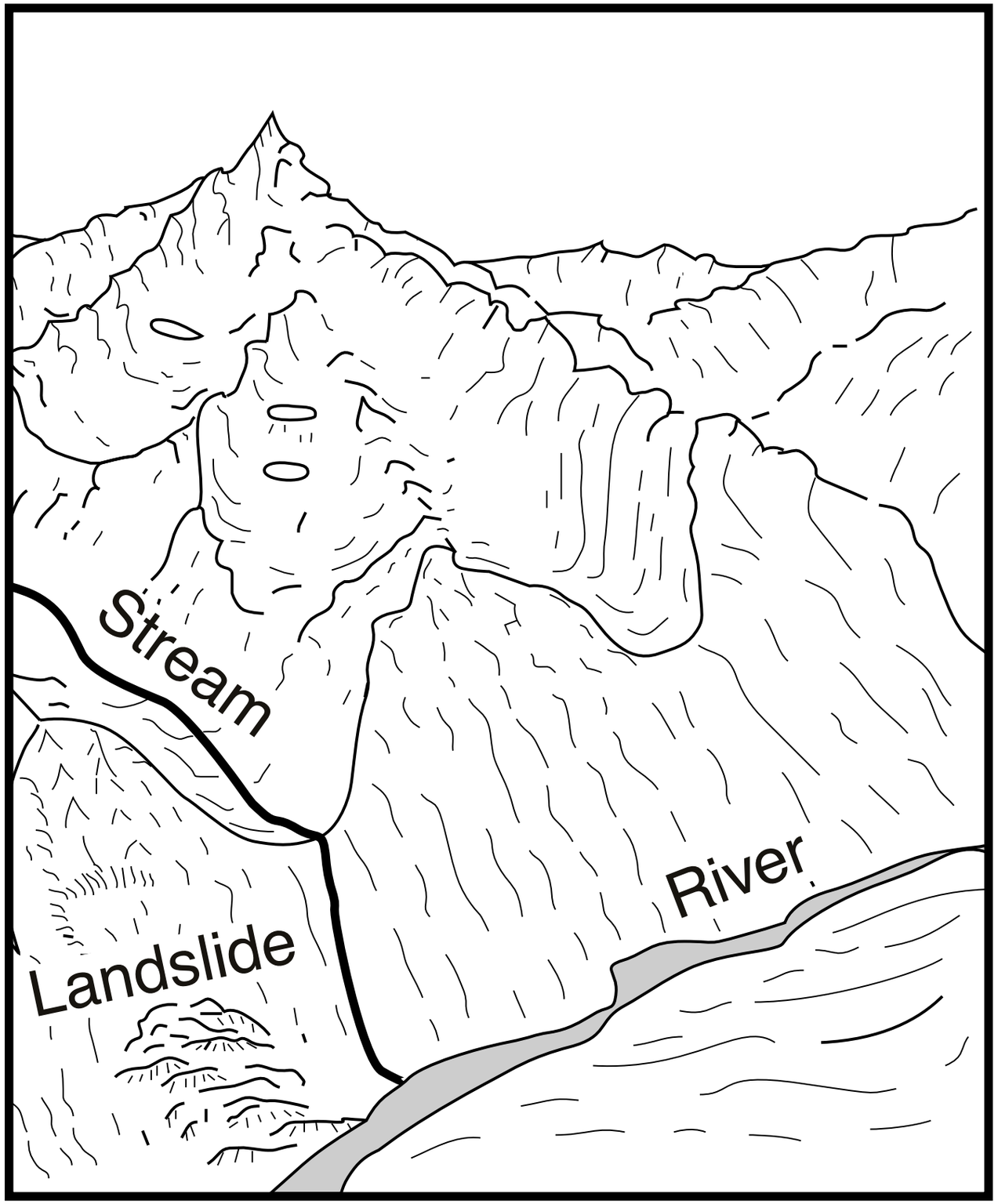
Continental Glacier

Continental Glacier

Continental Glacier

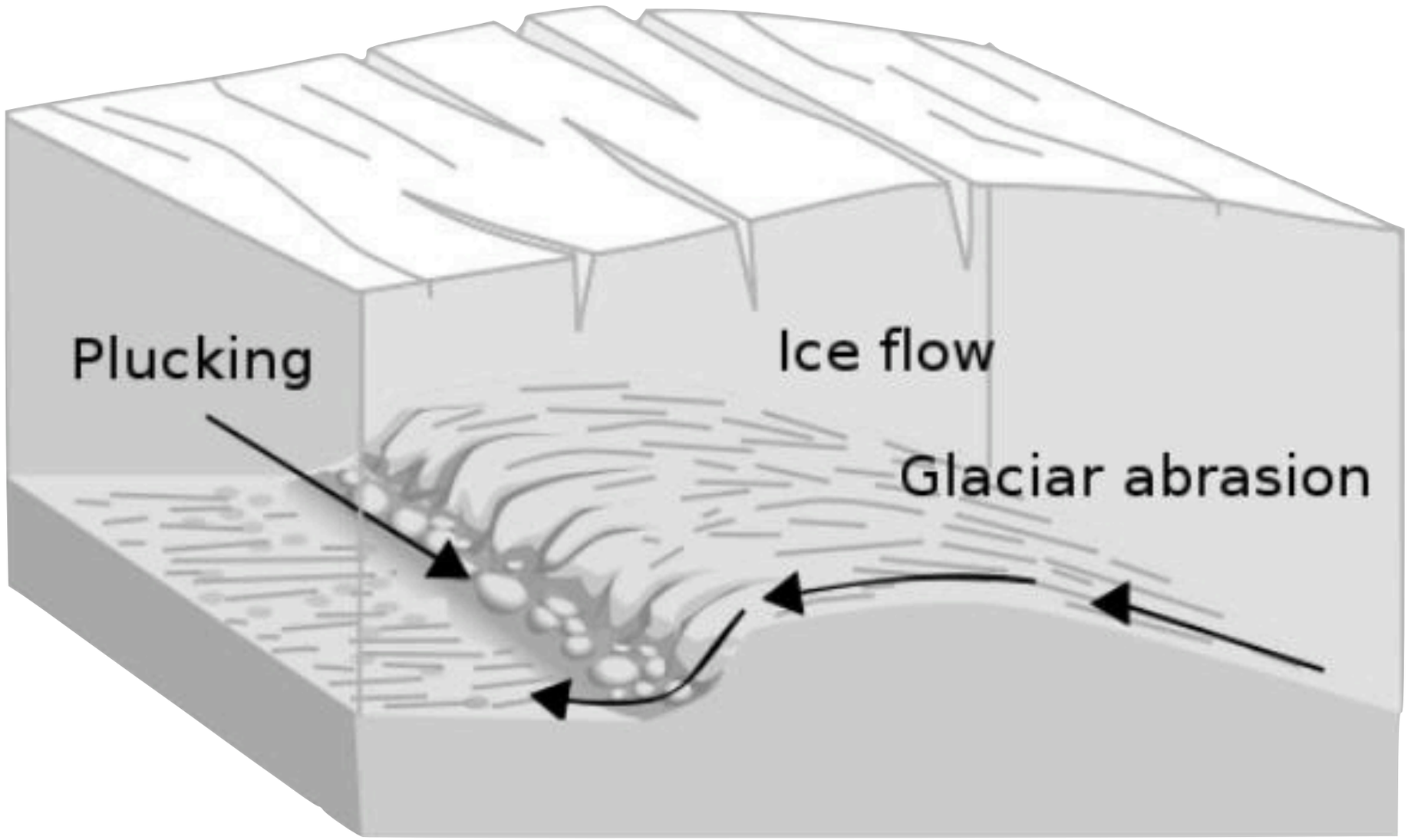
When either type of glacier reaches the ocean, large pieces break off in a process known as **calving**.

These pieces then float away, forming **icebergs**.

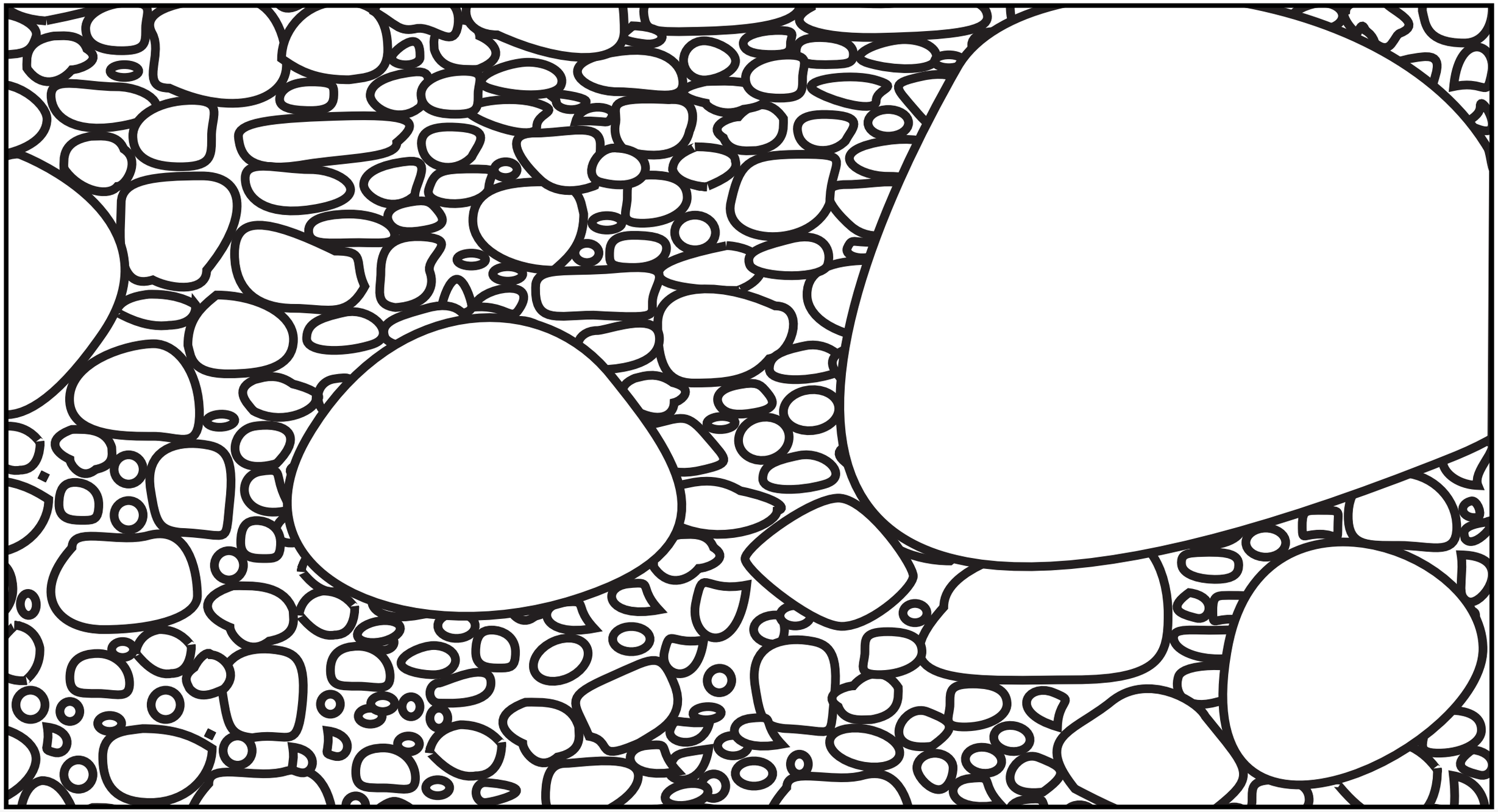


Glaciers grind down the rock on both the sides and bottom of the area where they are traveling. The result is a large, wide, **U-shaped valley**.

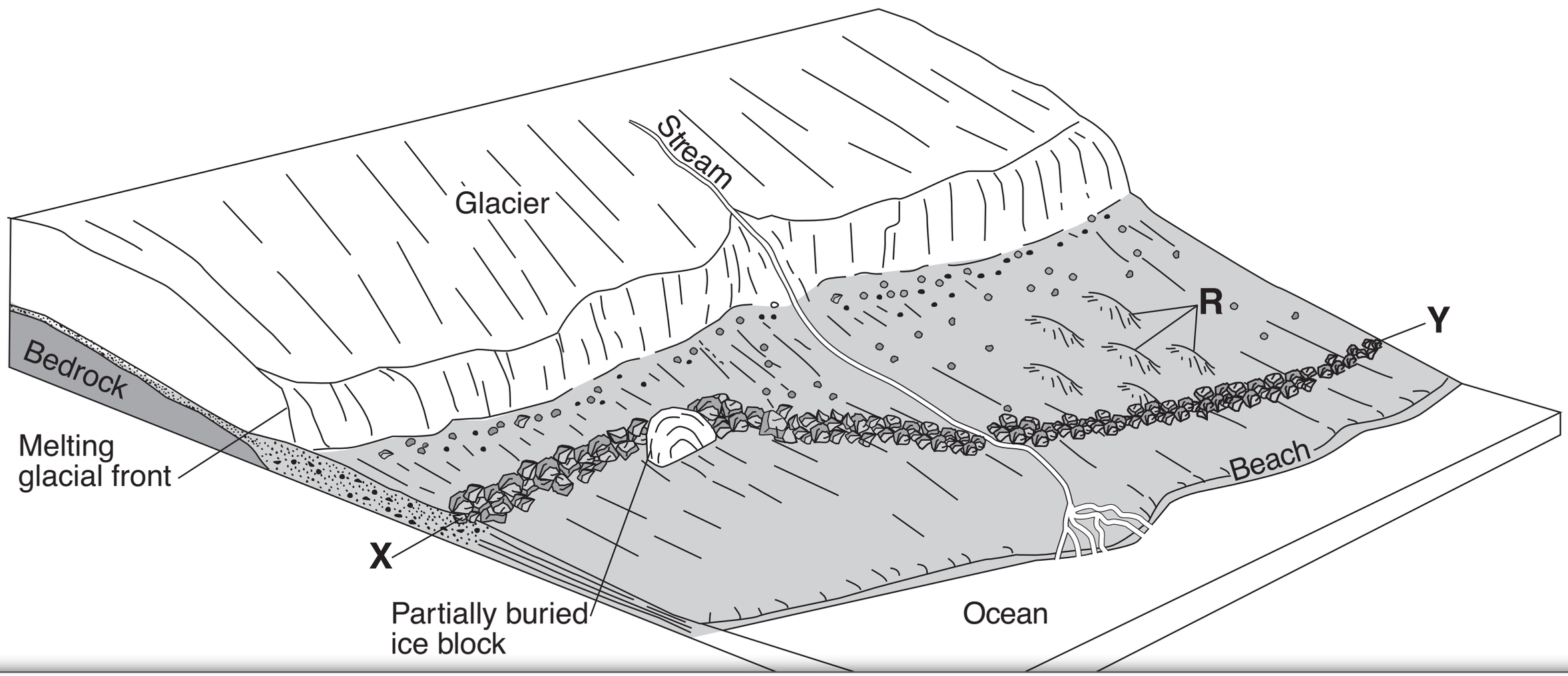
As glaciers grind over the surface bedrock, they leave behind deep scratches in the rock. These groves are called **glacial striations**, and they record the direction of ice flow in the rock.

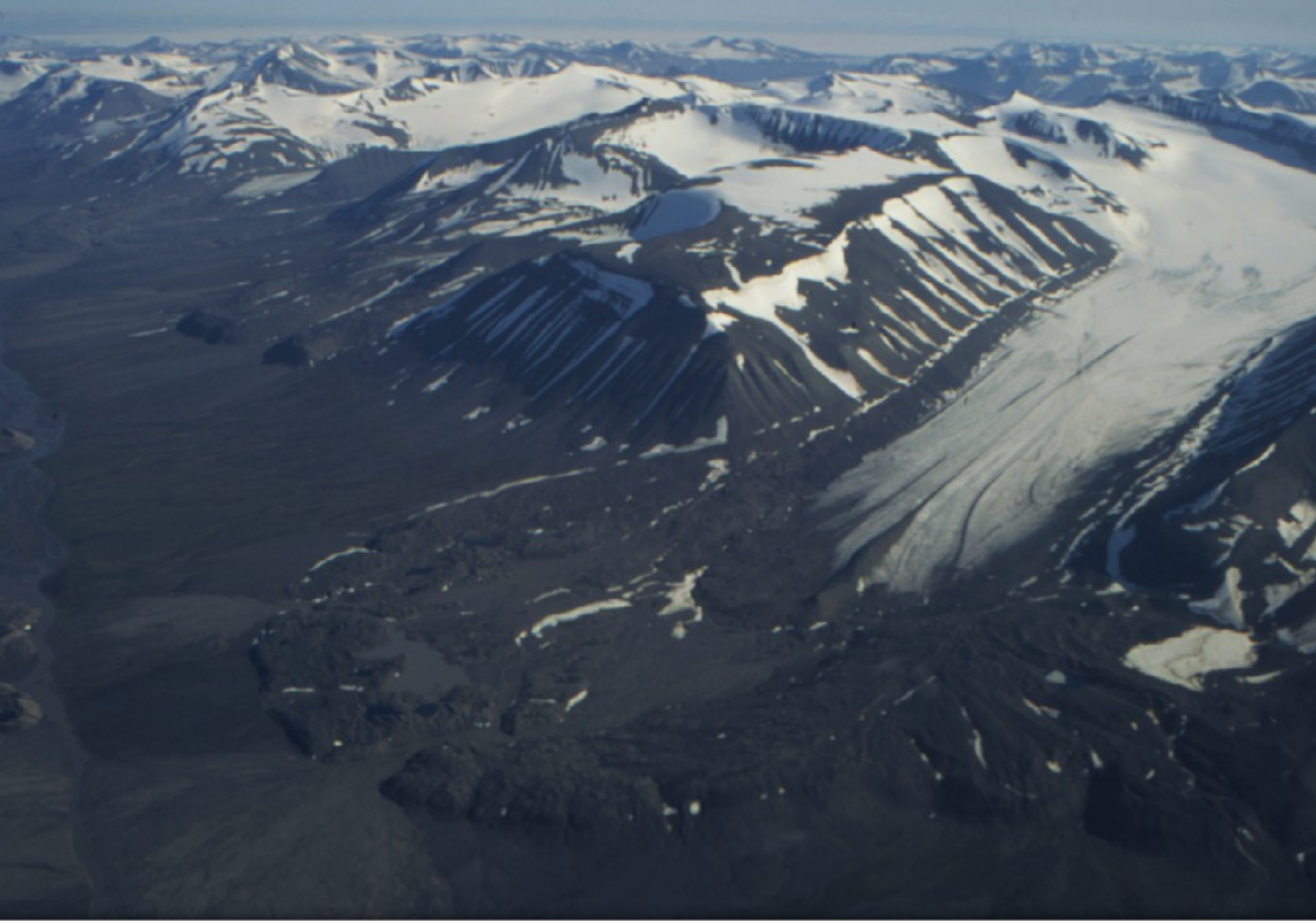


When a glacier melts, it deposits piles of ***unsorted*** and ***unlayered*** sediments. These sediments are known as **glacial till**.

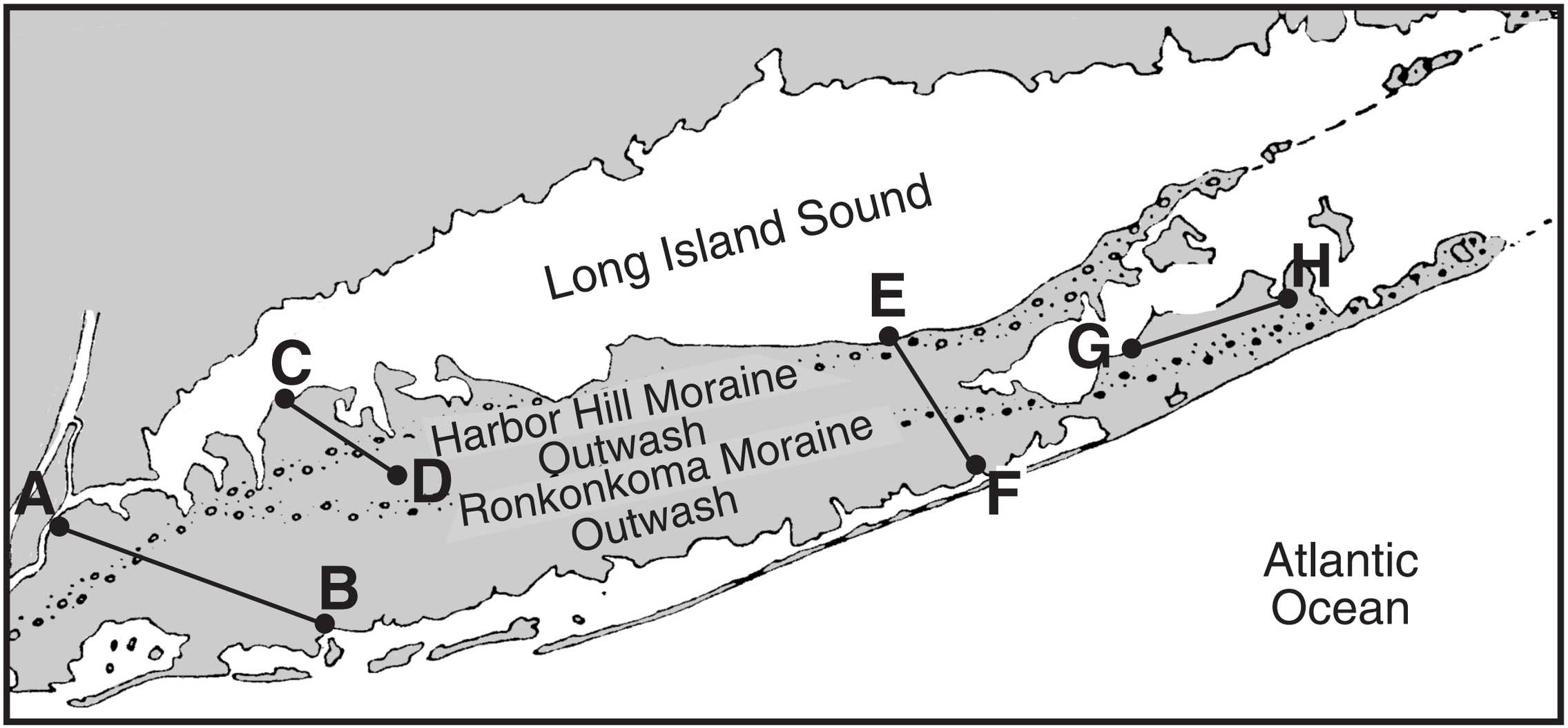


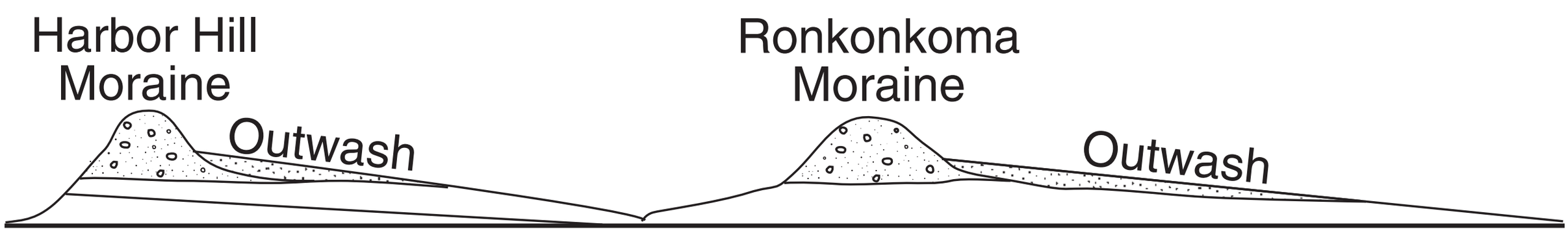
When glaciers move, they tend to push large piles of unsorted sediment out in front of them, just like a bulldozer pushing a pile of dirt. When the glaciers melt, they leave behind piles of sediment known as **moraines**. The **terminal moraine** (line XY) marks the farthest that a glacier traveled before melting.





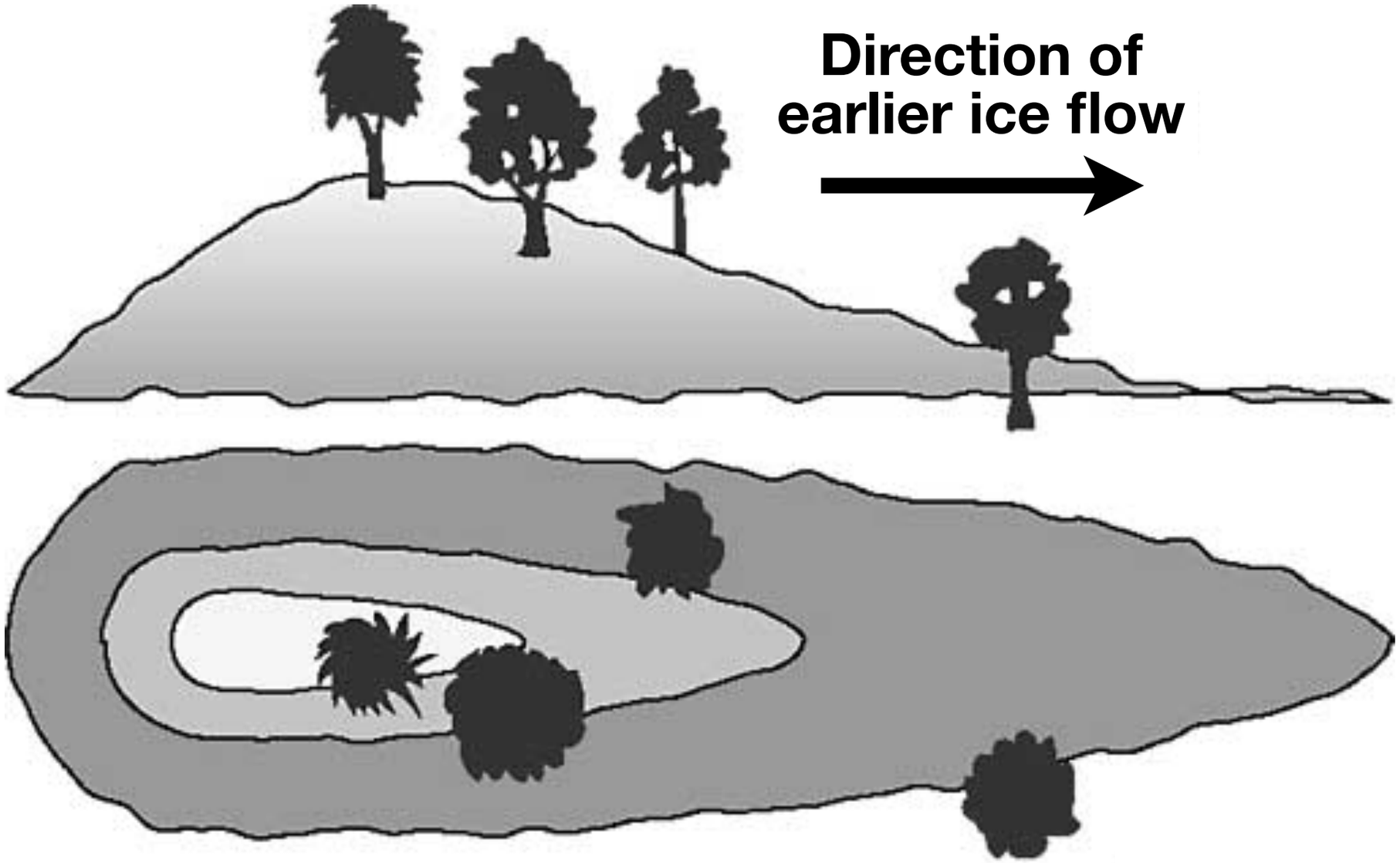
Long Island is a **terminal moraine**.





Glaciers are the only agent of erosion capable of transporting large boulders over long distances. When glaciers melt, they deposit these boulders which then become known as **glacial erratics**.

“Rockingstone” in Larchmont, NY

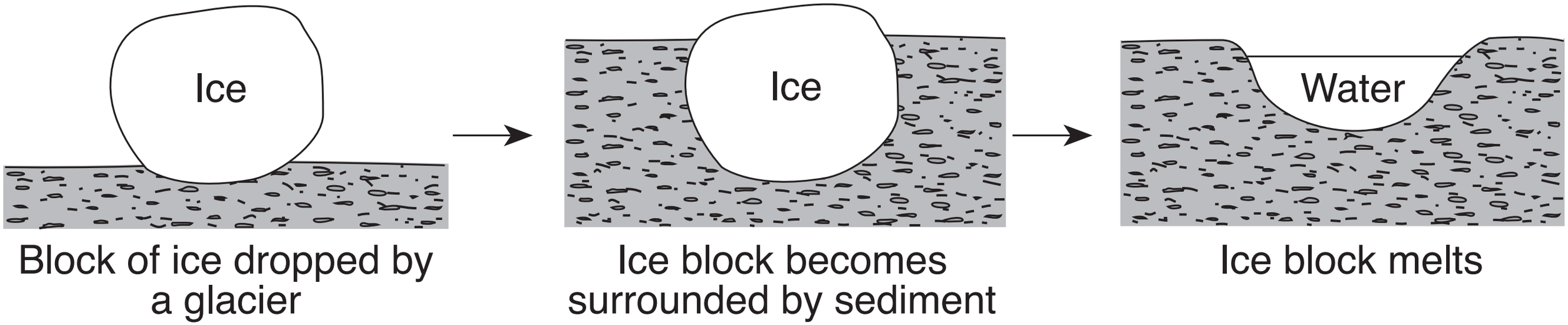


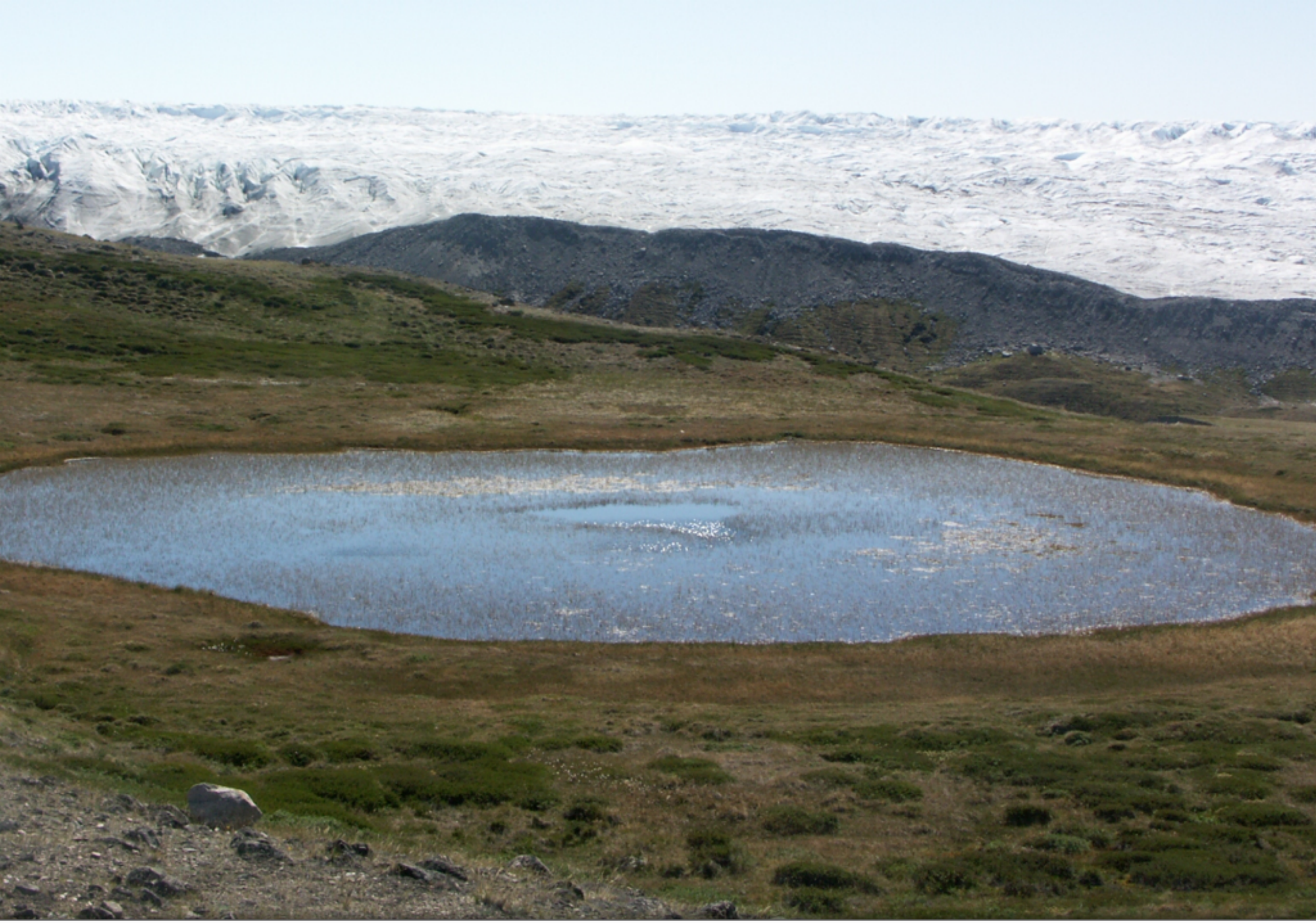
A **drumlin** is an elongated hill of deposited glacial till. The shape of a drumlin reveals the direction that the glacier was moving.


DIRECTION GLACIERS WERE MOVING

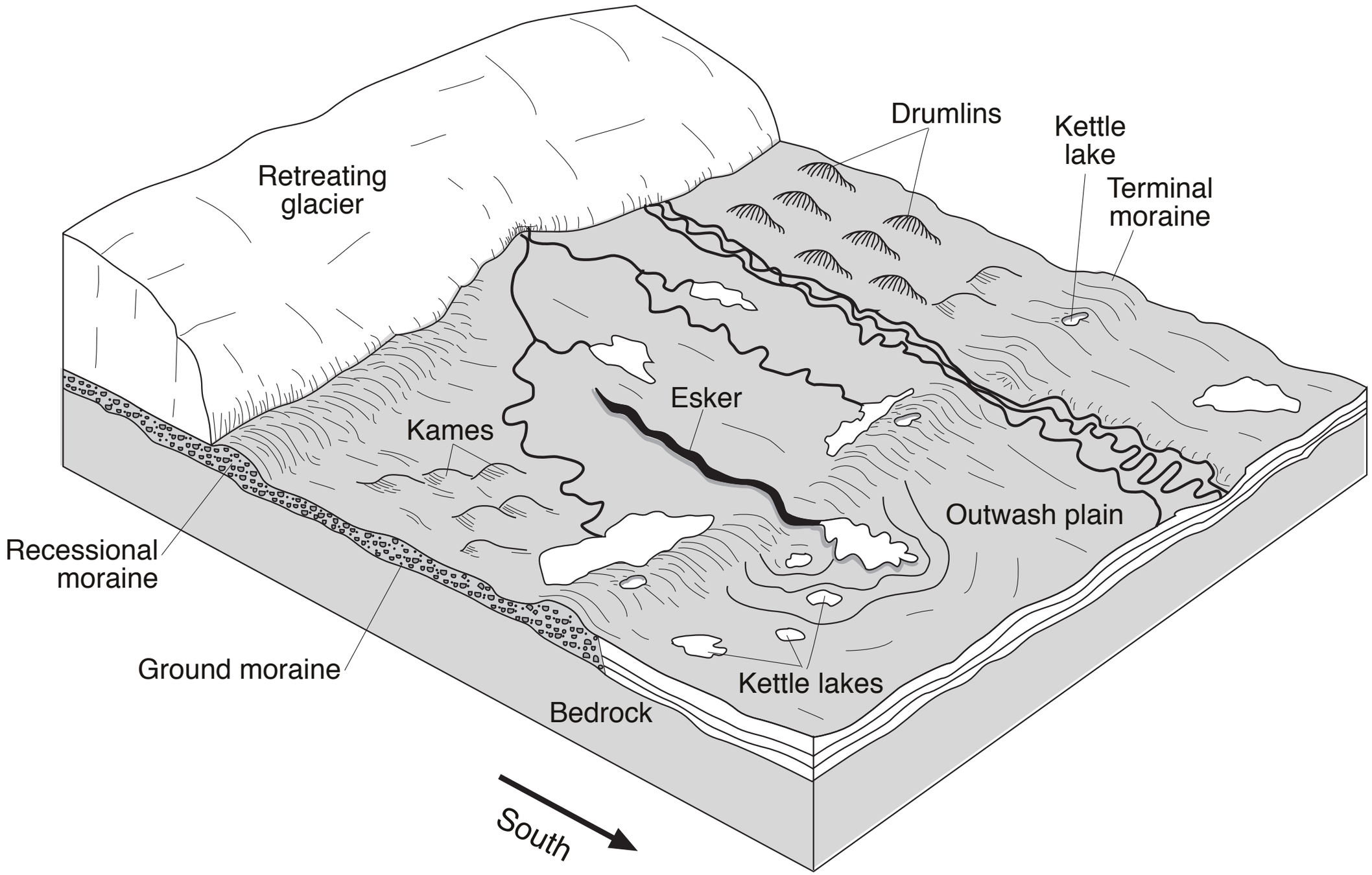

An entire neighborhood
built on a drumlin.

The diagram below shows the stages in the formation of a **glacial kettle**, or **kettle lake**. These formations are very common in areas that were once affected by glaciation.

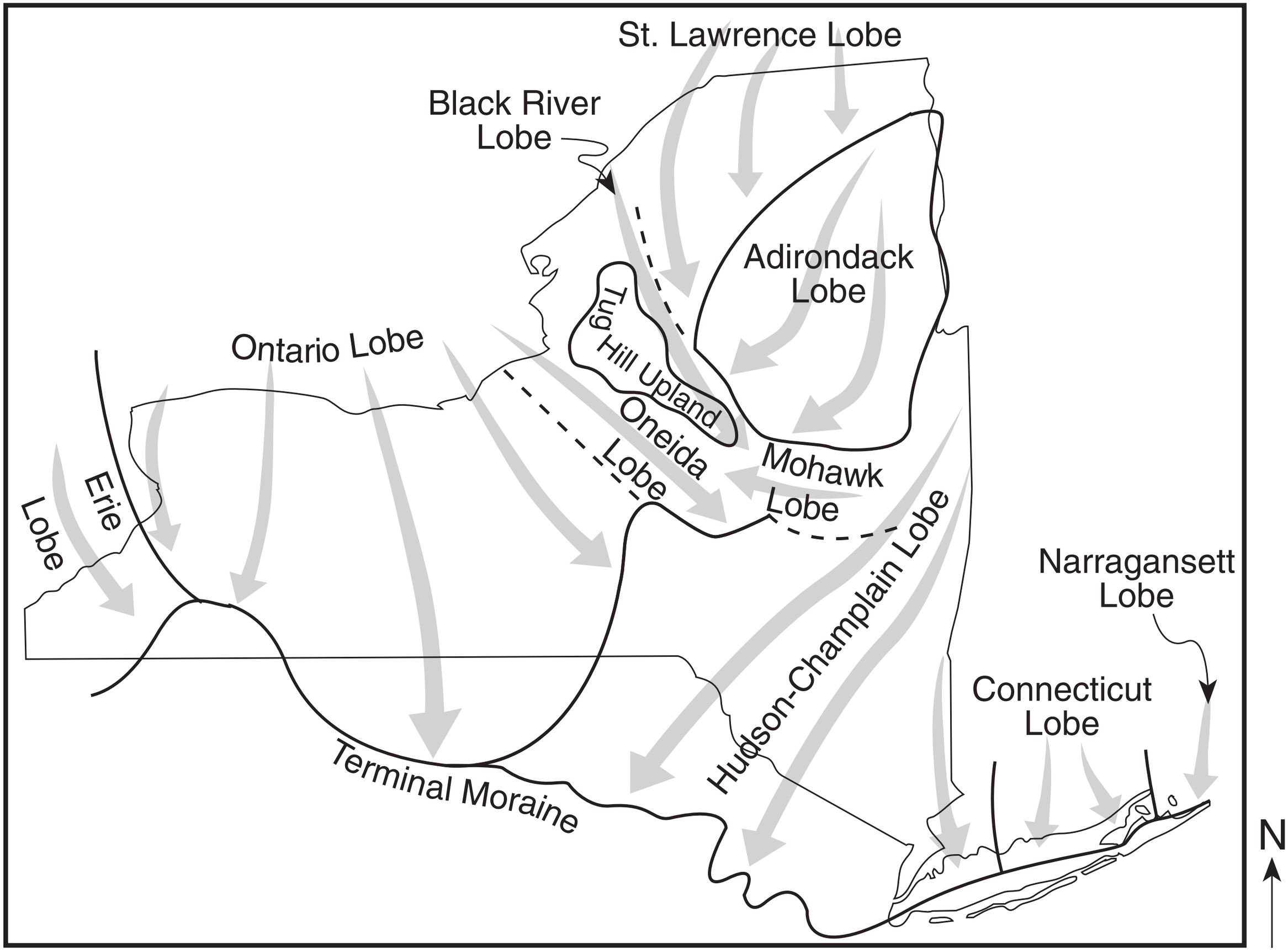




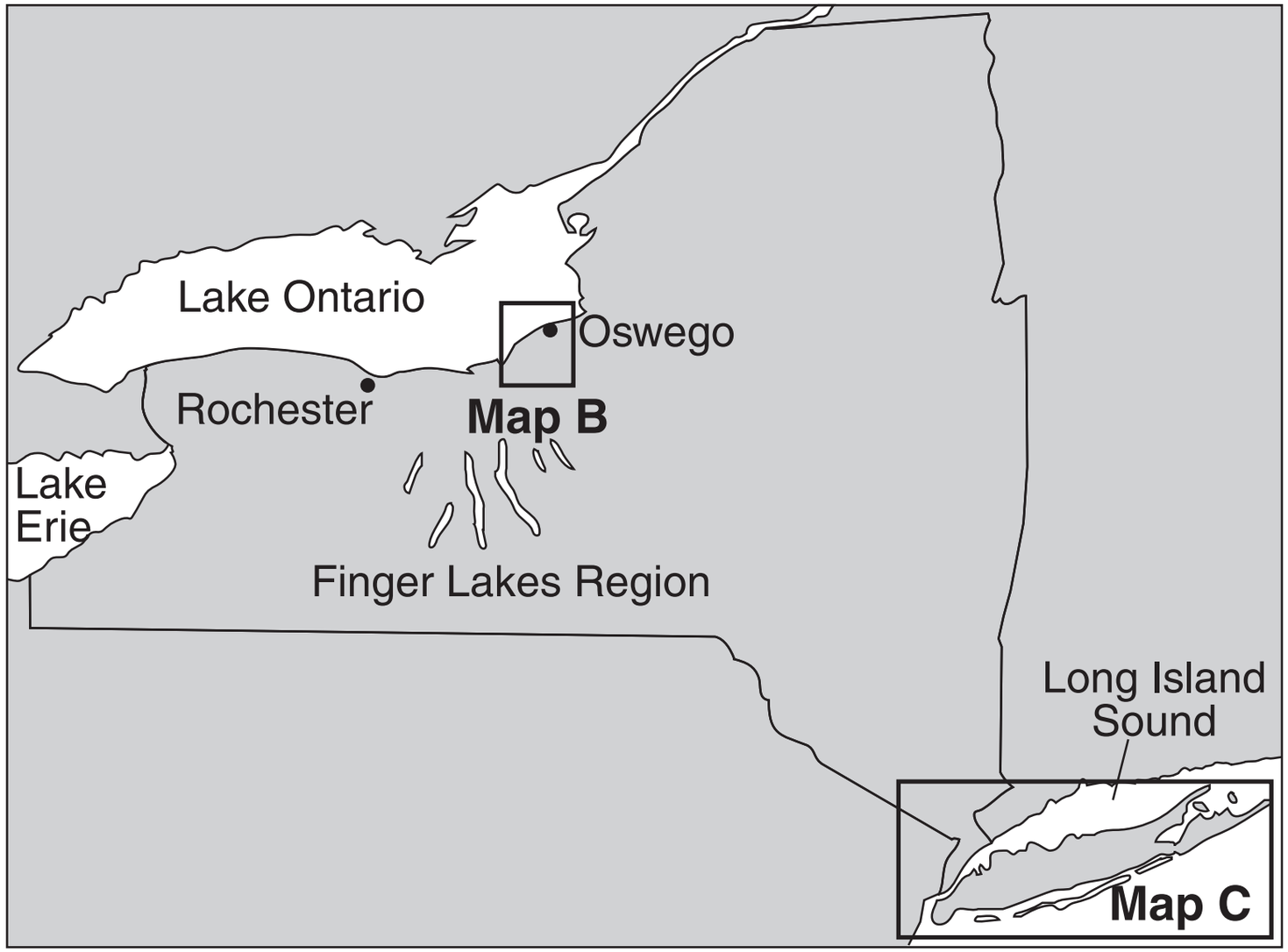
When glaciers melt, the meltwater forms streams which, like all running water, deposit sorted sediments. This creates a region known as an **outwash plain**.



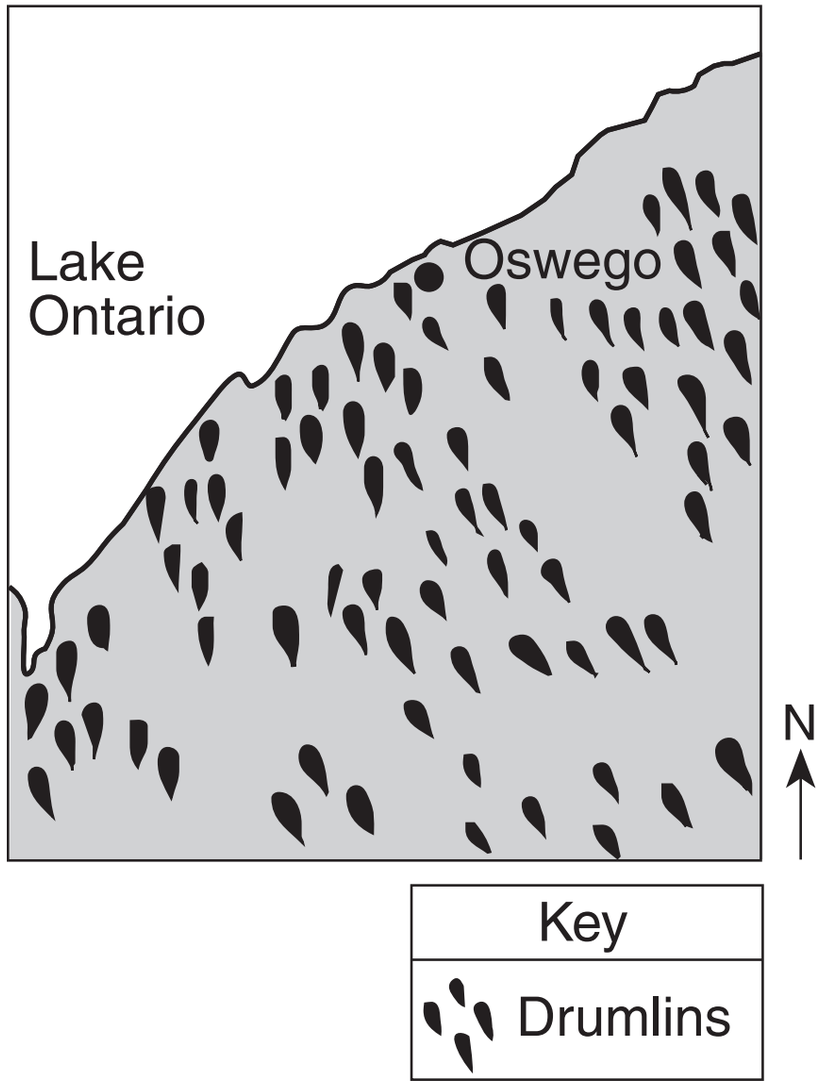

Many New York State features were formed by glaciers
during the last ice age, some 22,000 years ago.


St. Lawrence Lobe
Black River Lobe
Adirondack Lobe
Tug Hill Upland
Oneida Lobe
Mohawk Lobe
Ontario Lobe
Erie Lobe
Hudson-Champlain Lobe
Narragansett Lobe
Connecticut Lobe
Terminal Moraine
N

Map A


Lake Ontario
Oswego
Rochester
Map B
Lake Erie
Finger Lakes Region
Long Island Sound
Map C

Map B


Lake Ontario
Oswego
N
Key
Drumlins

The Great Lakes are simply U-shaped valleys that have filled with water.

The Finger Lakes also formed from U-shaped valleys that have filled with water.

1941

2004

As the global climate warms, glaciers are disappearing at an alarming rate.

1921

2008

1941

2004

Nice job.