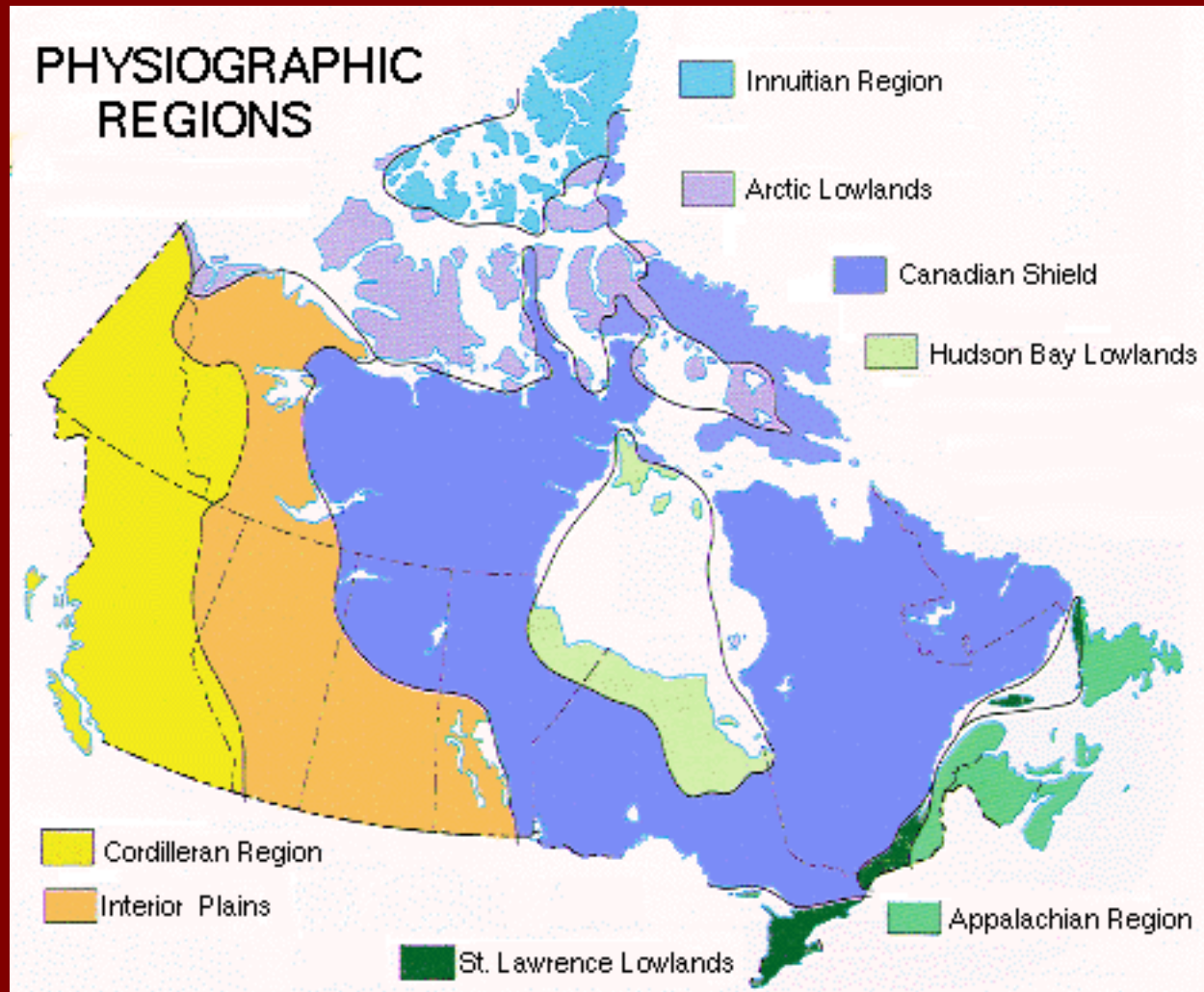


Canada's Landforms



What is a Landform?

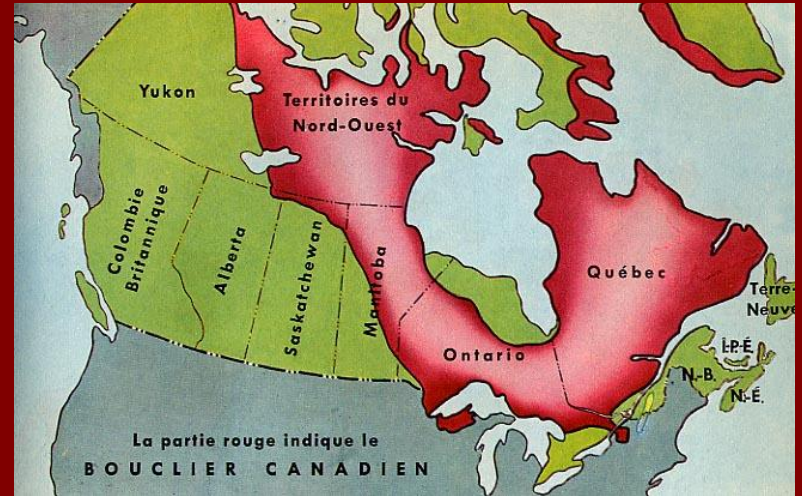
- A landform is any physical feature of the Earth's surface having a characteristic, recognizable shape, produced by natural causes.
- Landforms include major features (e.g. continents, ocean basins, plains, plateaus, mountain ranges) and minor features (e.g. hills, valleys, slopes, drumlins, dunes).
- Collectively, the landforms of Earth constitute the entire surface configuration of the planet.

Landforms in Canada

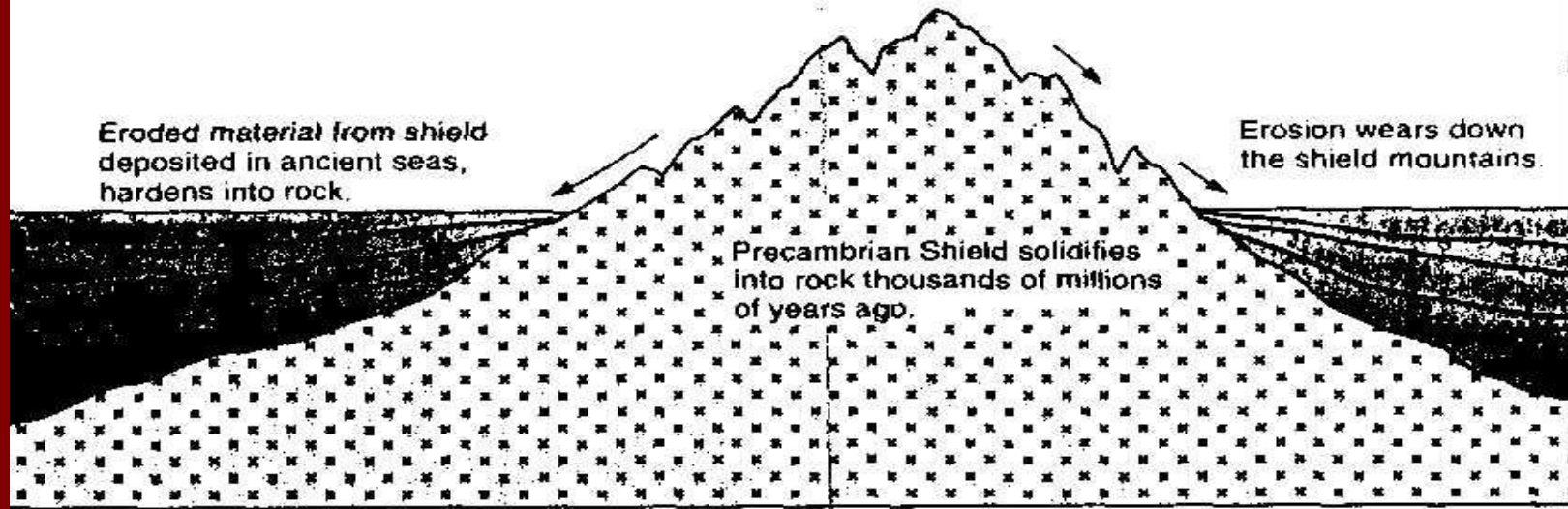
- Canada is made up of three distinct types of landforms:
 - Canadian Shield
 - Highlands
 - Lowlands
- Within these landforms there are smaller sub-regions which have different characteristics.

Canadian Shield

- The Canadian Shield is the foundation of Canada's land mass. It lies under more than half of Canada and some parts of the United States.
- The Shield is an extremely old region, formed during the Precambrian era.



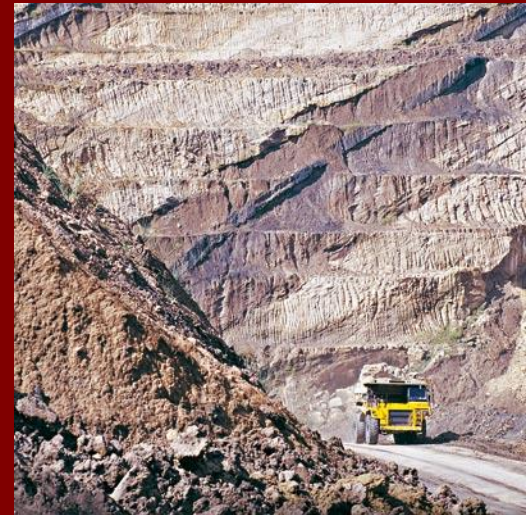
Earliest “Canada” – billions of years ago



Canada about 65 million years ago

- The Shield was formed by tectonic forces (mountain building) and was at one time far higher than any mountains presently on Earth.
- Over its long history, the shield was worn down by erosion, and now is nearly flat, with rounded hills of rock.
- The Shield is also made up of many different minerals and metals, which were formed in the igneous and metamorphic rock of the Shield.

- Due to these mineral deposits, many towns and cities have been built on top of it (ie. Sudbury ON, Thompson MN.)
- The Shield is not well suited for farming, as the soil is thin on top of the rock, from glacial erosion. As well, water does not drain well as the Shield is rock, and impervious to water.



The Lowlands

- There are three lowland regions in Canada, surrounding the Shield:
 - The Interior Plains
 - The Great Lakes-St. Lawrence Lowlands
 - The Hudson Bay-Arctic Lowlands
- The bedrock of these regions was formed by the eroded material of the shield being deposited by the seas which covered parts of Canada. These sediments were gradually compressed over time into rock.

Interior Plains



- This region stretches from the 49th parallel (the U.S.-Canada border) up to the Arctic Ocean (about 2700 km)
- At the southern point, the plains stretch 1300 km east to west, but are only about 275 km wide in the Northern regions.



- The soil that has developed in this region is fertile and deep, and has allowed the growth of many crops in the Prairie region (Canada's "breadbasket")
- The region was also shaped by glaciation, and lakes such as Lake Winnipeg were formed as a result of glacial forces.



Great Lakes-St. Lawrence Lowlands

- South of the Canadian Shield, this region is made up of two different parts, which are intersected at one point (near Kingston) by the Shield.
- South of this point, the Great Lakes lowlands are found. The region is relatively flat and made up of sedimentary rocks left by glaciers. The Great Lakes were themselves gouged out of the landscape by glacial movement.
- The St. Lawrence lowlands were formed as a result of tectonics, in a process called *Faulting*. Two plates moving apart left a valley in between, which became flooded with water. The St. Lawrence River is a result of this process.

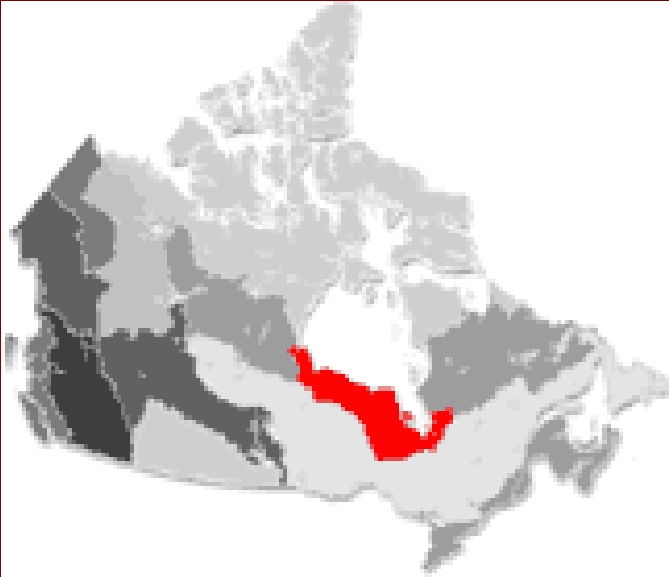


- The warm climate and good soil of the Great Lakes-St. Lawrence region allow agriculture to prosper.
- In addition, these factors have allowed the growth of large cities, which are well situated for trade on the major waterways.
- About 50% of Canada's population live in this region, and 70% of the country's manufacturing takes place here.

Hudson Bay-Arctic Lowlands

- The Northern regions of Canada are also relatively flat and formed from glacial debris and sediment.
- The harsher climate of this region makes it difficult for agriculture, as the ground remains frozen in many areas, year round.





- The Hudson Bay lowlands are located near the southwestern shore of Hudson Bay and James Bay.



- The Arctic lowlands refer to the islands scattered across Canada's far north.

The Highlands

- Canada also has three highland areas to the east, north and west of the Shield and lowland areas.
 - The Appalachians
 - The Innuitians
 - The Western Cordillera
- Each of these three areas has a different geologic history and appearance.

The Appalachian Mountains

- These mountains are the oldest highland region in Canada, formed about 300 million years ago.
- Tectonic folding forced the layers of rock upwards as the North American plate collided with the plates of Europe and Africa during the formation of Pangaea.



- Millions of years of erosion has worn the peaks of the Appalachians down into rolling hills and mountains.
- During the last ice age, the weight of the glaciers on the region forced the plate downwards, and allowed the flooding of the lower areas by the ocean. As a result, the coastline of the area is dotted with deep inlets.

The Innuitian Mountains

- These mountains were formed in the Mesozoic era, by the northward movement of the North American plate.
- Since these mountains are younger than the Appalachians, they have not been worn down as dramatically.





- Due to their location and climate, the mountains are barren as trees cannot survive on them.
- Mineral deposits in this region have been found, but are not commercially feasible, due to the remoteness of their location.

The Western Cordillera

- This region, on the Western coastline of Canada, is made up of tall, rugged mountains. These features tell us that the mountains here are still geologically young.
- The interaction of the Pacific and North American plate led to the uplifting of the region into several mountain ranges.

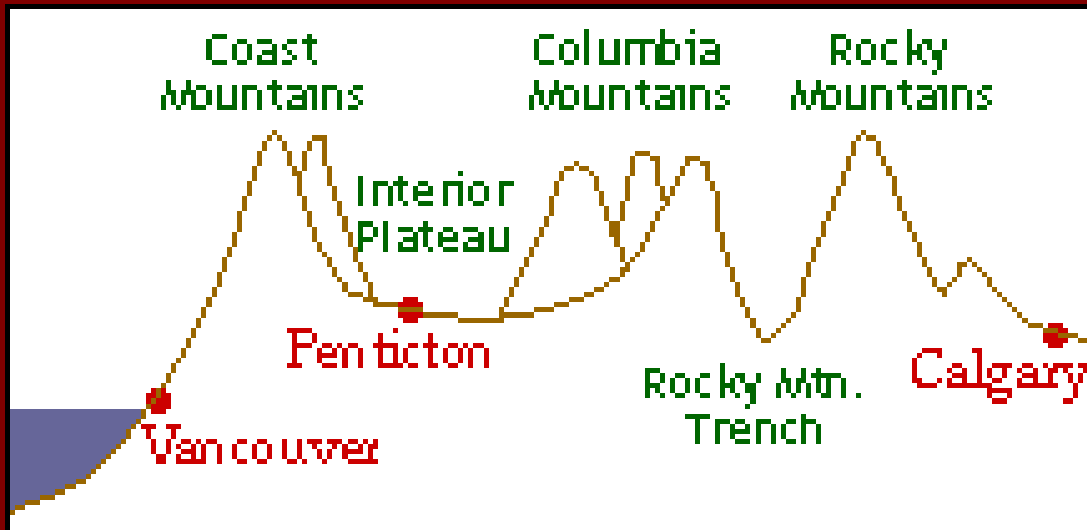


- The large cities in this region (Victoria, Vancouver, etc) are built in the flatter coastal area.
- Tourist towns, such as Banff and Jasper, offer tourists a view of the beauty of the mountains.
- Glaciers still exist in the Northern and elevated areas of the region.



A Common Misconception of the Cordillera Region

- The mountains in this area run in a North-South direction. There are three distinct and different mountain ranges in this region:
 - The Eastern Mountains (Rocky & Columbia Mountains)
 - The Interior Plateaus (Okanagan Valley, etc)
 - The Coast Mountains
- The Western Cordillera is therefore not **only** the Rocky Mountains, but several other ranges.



The Western Cordillera

Earthquakes in Canada?

- The continuing movement of the North American and Pacific plates makes the West coast of Canada the most active earthquake zone in the country.
- Over 100 earthquakes of a magnitude of 5 or more have been recorded in the ocean west of Vancouver Island over the past 70 years.