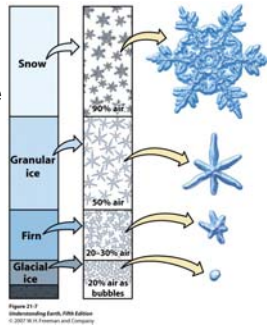


G-100 Lecture, Glaciers



Glaciers

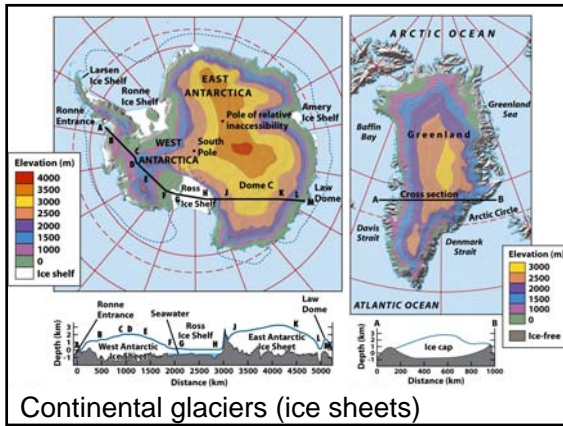
- Ice is rock
 - special properties
- Formation of glacial ice
 - falls as snow and ice
 - recrystallizes w/time to ice
 - pressure of overlying ice;
flow as viscous fluid
- Types of Glaciers
 - Valley
 - Continental

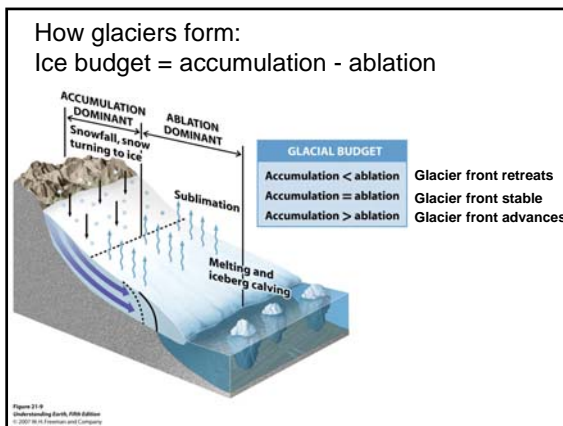


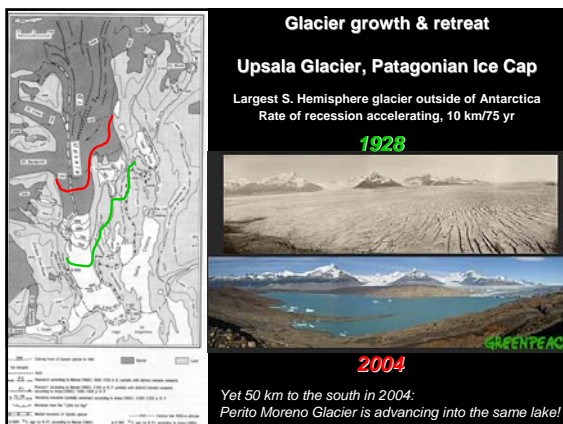
Valley glacier



near Juneau, Alaska







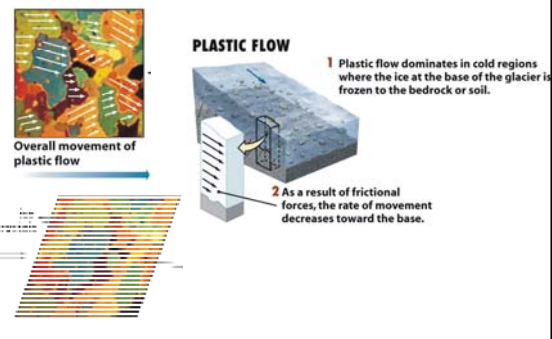


This is it, Jenkins... Indisputable proof that the Ice Age caught these people completely off guard.

In cold regions

• Plastic flow

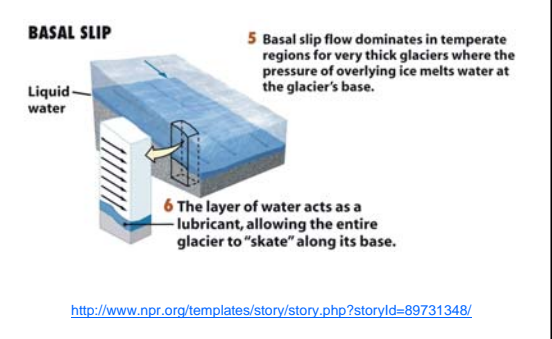
- small slips along microscopic planes in many ice crystals

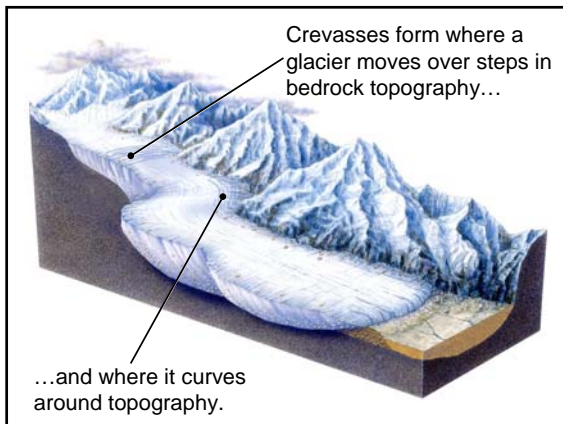


In temperate regions

• Basal slip

- meltwater lubricates base of glacier-whole glacier can slide

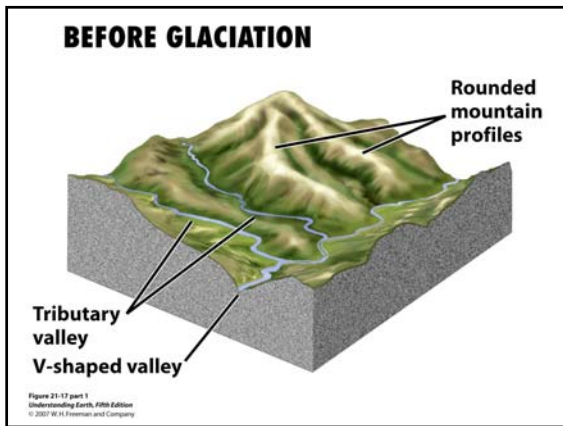


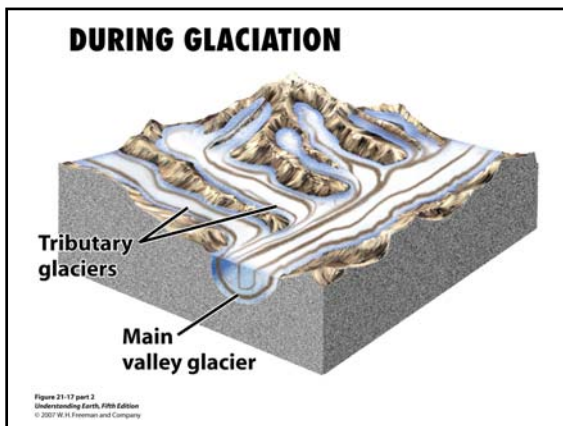


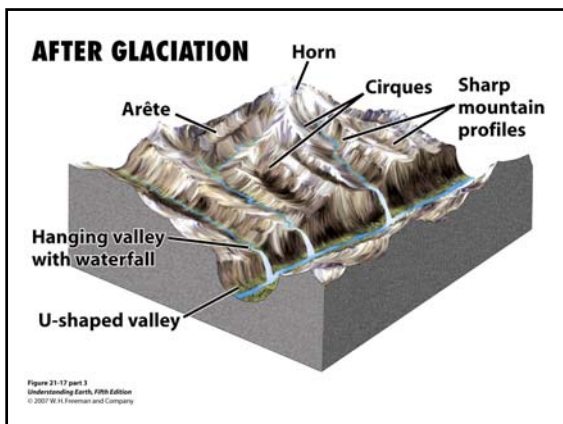
Glacial Landscapes

- Glacial **erosion** & landscapes
 - Poorly sorted sediment (boulders to clay = rock flour)
 - Polish, scratches & grooves on bedrock (striations)
 - Smooth bedrock hills (roches moutonnées)
 - Amphitheaters on mountain peaks (cirques)
 - Knife-like ridges between glacial valleys (arêtes)
 - Sculpted peaks (horns)
 - U-shaped valleys, hanging valleys, fjords









Glacial landscapes: *cirque*

- forms at head of a glacial valley



Glacial landscapes: *arêtes & horns*

- forms by erosion on opposite sides



Glacial landscapes: *U-shaped valley*

- forms by valley glacier's erosion



Glacial landscapes: *fjord*

- where valley glacier enters the sea



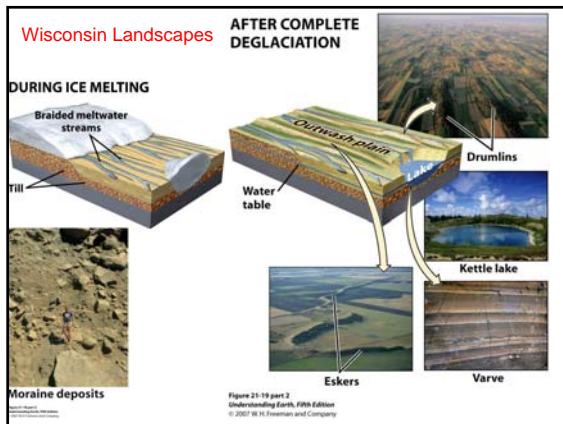
Glacial Landscapes

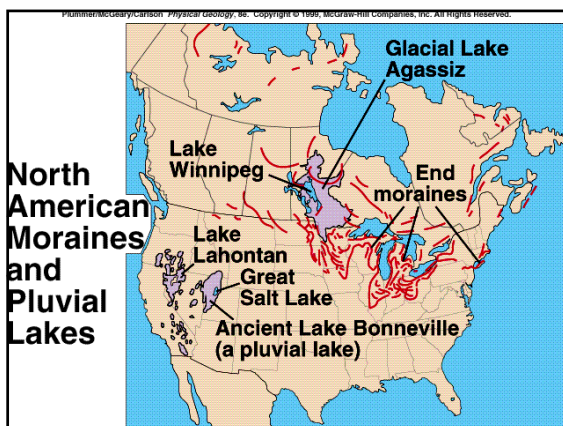
- Glacial **sedimentation** & landforms
 - Glacial drift (all glacial sediment)
 - Glacial till (from melting ice)
 - Erratics (glacial boulders in till; *Chamberlain Rock*)
 - Outwash (glacial sediment re-deposited by glacial meltwater)
 - Ice-lain deposits: moraines, *drumlins* (*State Capitol and Bascom Hall*)
 - Water-lain deposits: kames, eskers, kettles, varved sediment in lakes

Lateral and End Moraines, Sierra Nevada

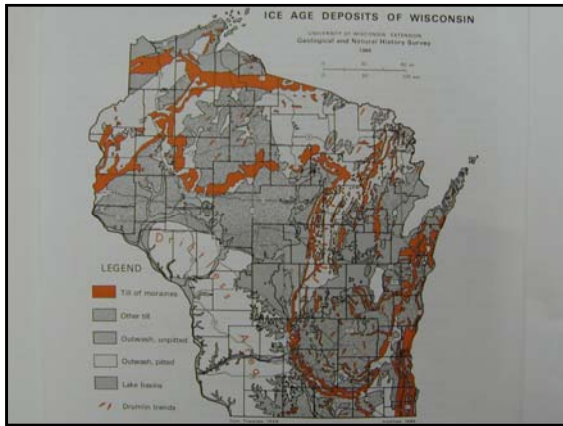


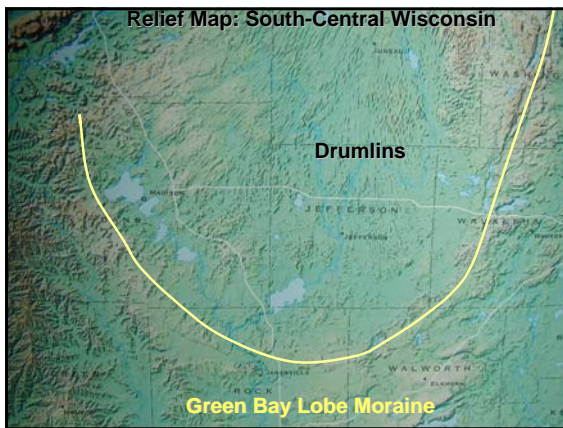
Photo by C. C. Plummer

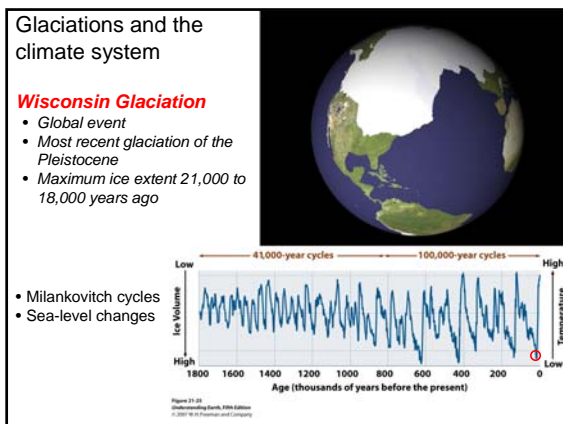












Geological evidence for ancient glaciations

