

George Cuvier (1769 – 1832)

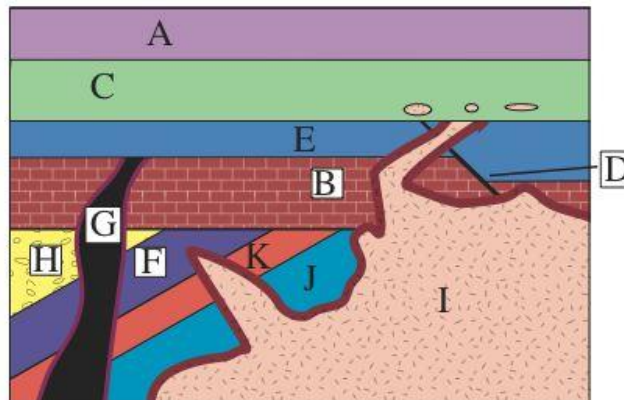
- Introduced the concept of catastrophism
- Six major catastrophes from the bible
 - Most recent was the great flood (Noah's Ark)

Abraham Werner (1749 -1817)

- Challenged catastrophism
- Neptunism: rocks form from crystallization in the early earth's oceans

James Hutton (1726 – 1797)

- “present is the key to the past” – Uniformitarianism
- Uniformitarianism: geologic process creates and destroys rock.
- Studied rock exposures, showed how rocks could form by slow geologic process
- Recognized that granite and basalt were once molten/magma
- **#4 principle of relative dating**
 - Cross cutting: and igneous intrusion or a fault must be younger than the rock intrudes or faults.

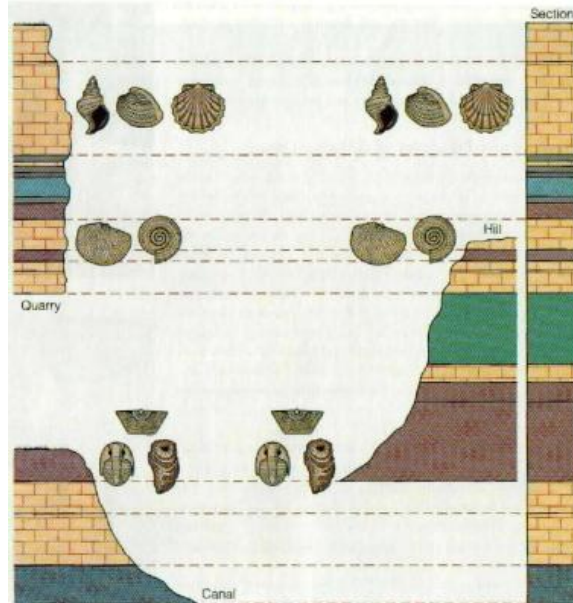


<http://serc.carleton.edu/images/quantskills/methods/xcut2.jpg>

William Smith

- **#5 principle of relative dating**

- Fossil succession: fossils change with time in a constant matter, therefore, 2 rocks from different location with the same fossils are the same age.
- More fossils in the rocks = increases accuracy



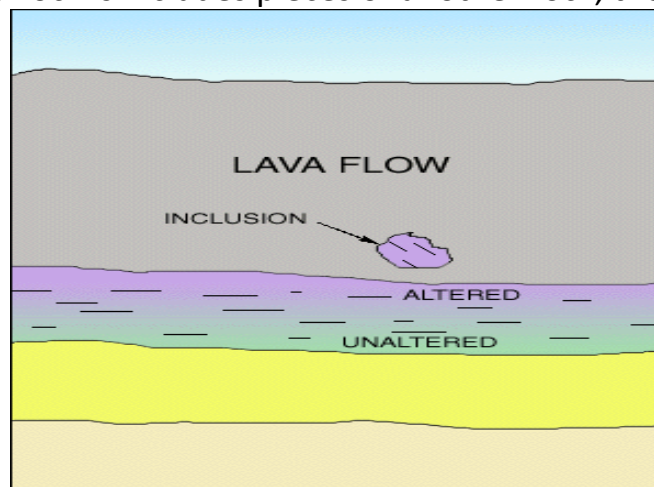
http://www.belmont.sd62.bc.ca/teacher/geology12/photos/geotime/correlation_fossil.jpg

Charles Lyell (1797 – 1875)

- Published geological text
- Promoted uniformitarianism, helped establish it as a fundamental principle of geology

- **#6 principle of relative dating**

- Inclusion: if a rock includes pieces of another rock, the pieces are older.

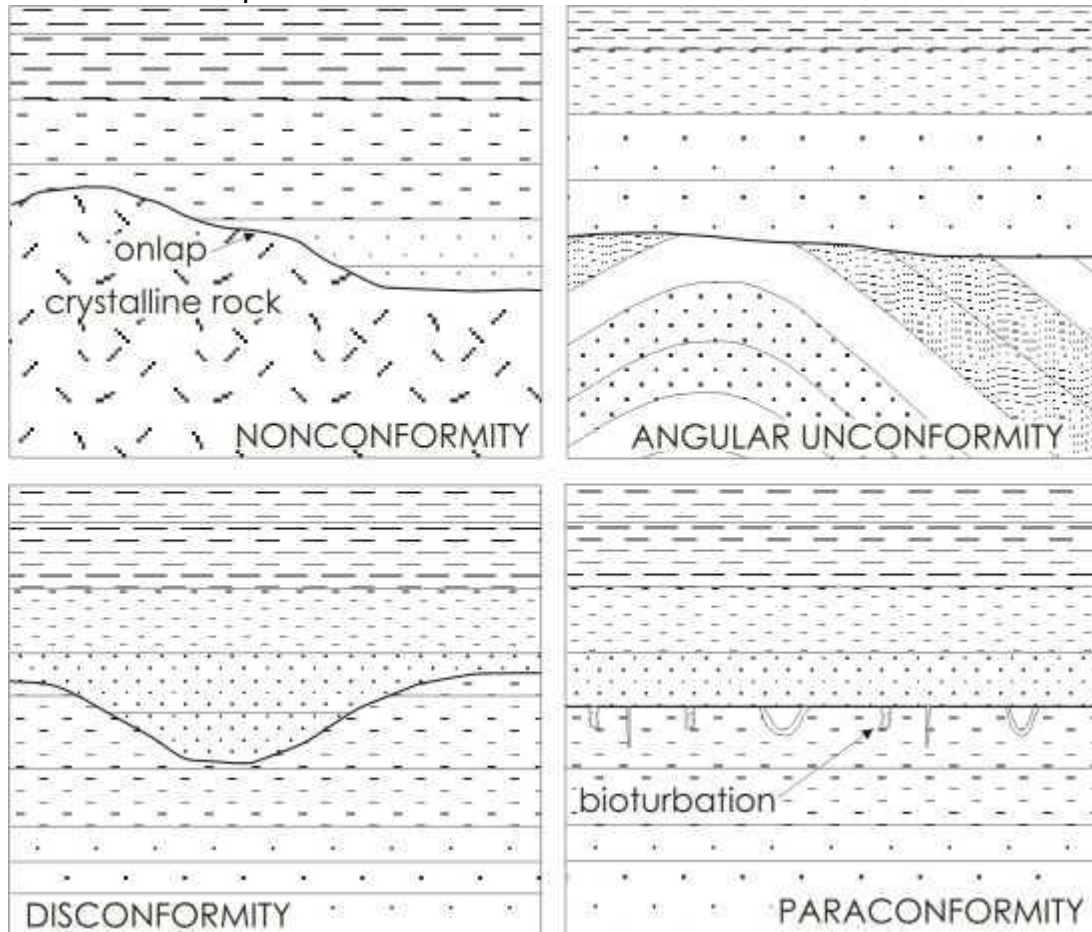


http://academic.brooklyn.cuny.edu/geology/leveson/core/topics/rocks/field_relationships/graphics/replace4.gif

Hiatus: interval of time where there is no rock present

Unconformity: boundary layer between 2 rocks that represents a hiatus.

- Disconformities: sedimentary rock above and below the disconformities are parallel to one another
- Angular unconformity: sedimentary rock, rock layers above and below are not parallel to one another.
- Nonconformity: sedimentary rocks on top of plutonic igneous rocks or metamorphic rocks



<http://www.outreach.canterbury.ac.nz/resources/geology/glossary/unconformities.jpg>