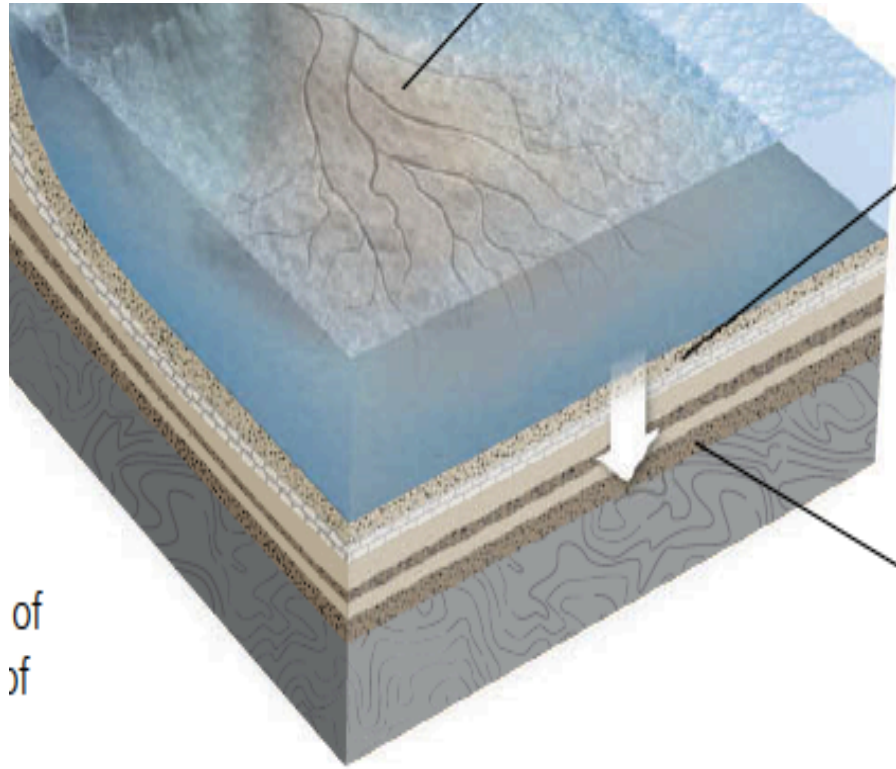


Stratigraphy, Geological Time Scale, Evolution of Life Through Time

Subhronil Mondal

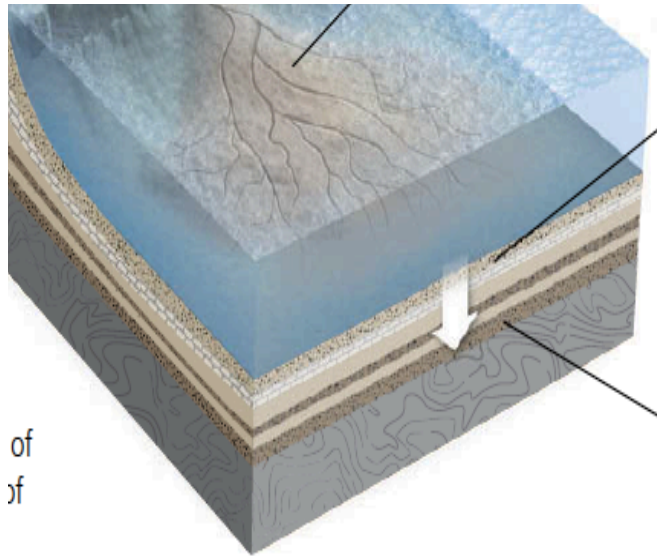
Sedimentary Rocks and Stratigraphy



STENO'S PRINCIPLES

Original Horizontality

All sedimentary rocks are originally deposited horizontally. Sedimentary rocks that are no longer horizontal have been tilted from their original position. [Steno, 1669]

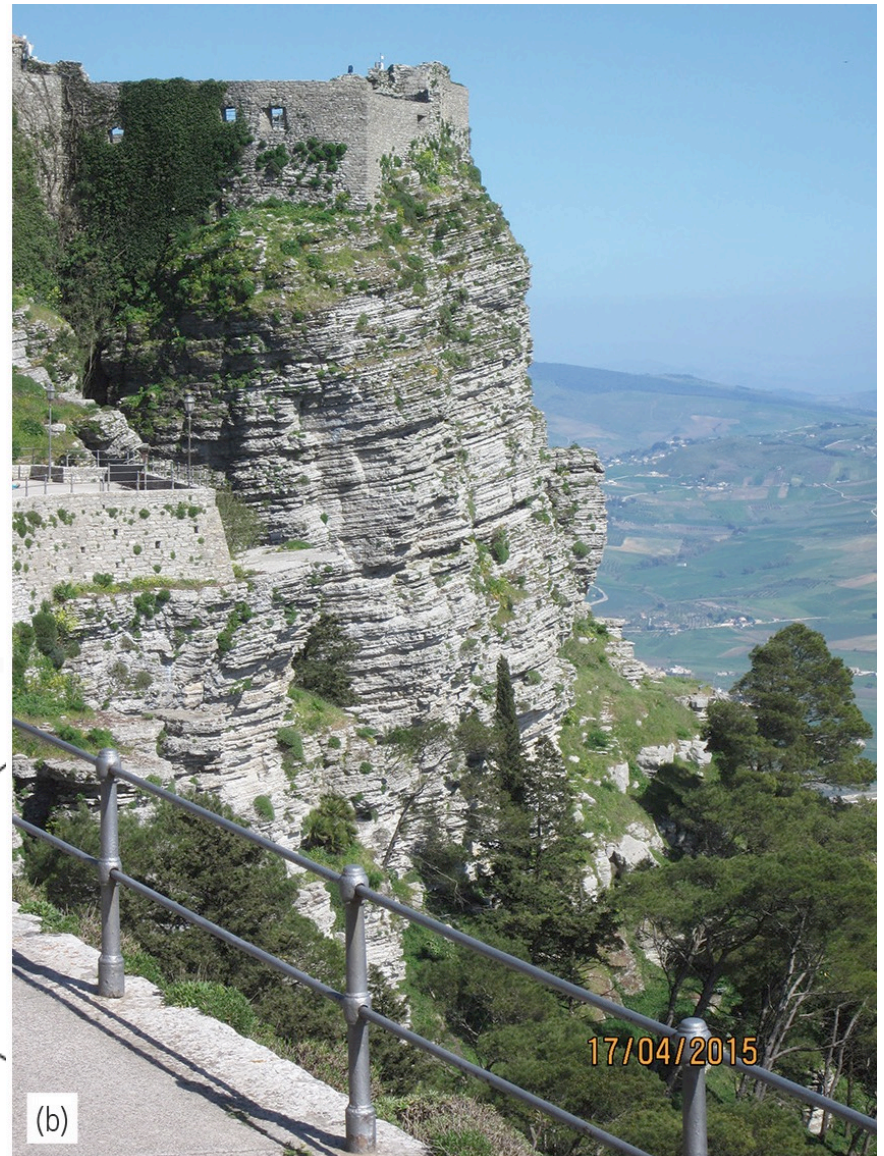
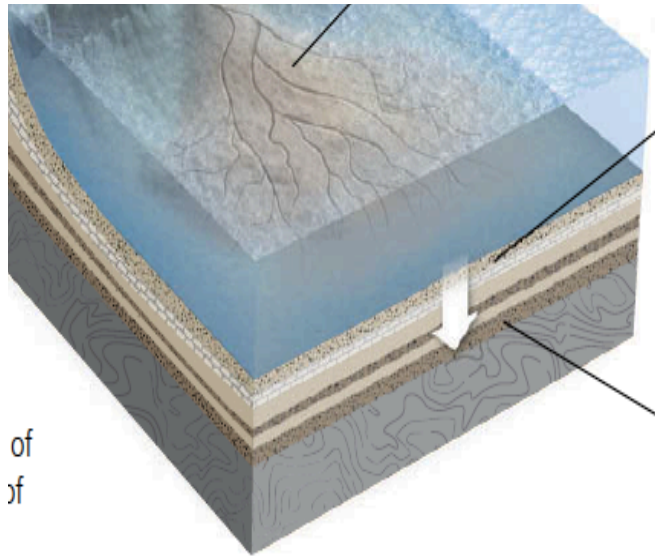


STENO'S PRINCIPLES

Lateral Continuity

Material forming any stratum were continuous over the surface of the Earth unless some other solid bodies stood in the way.

[Steno, 1669]



(b)

STENO'S PRINCIPLES

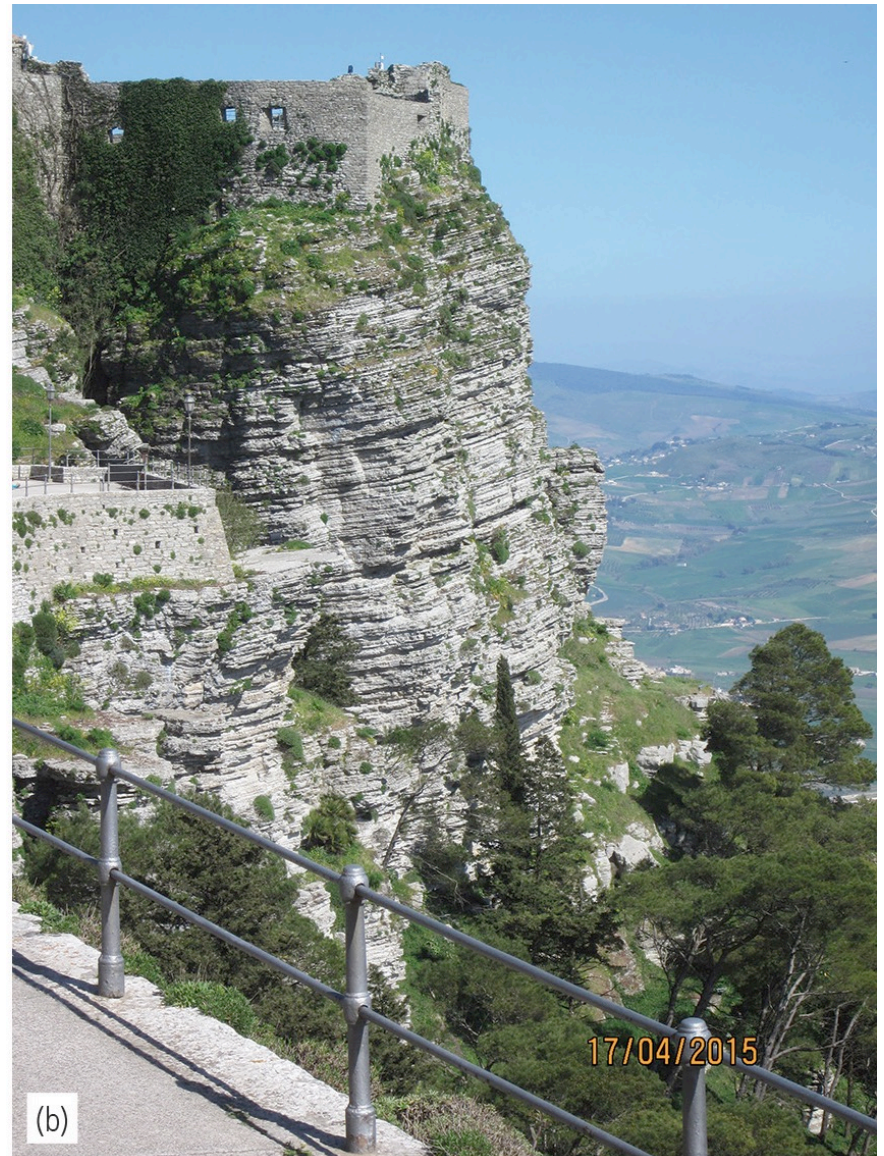
Superposition:

...at the time when the lower stratum was being formed, none of the upper strata existed.

[Steno, 1669]

Older at bottom

Younger at top

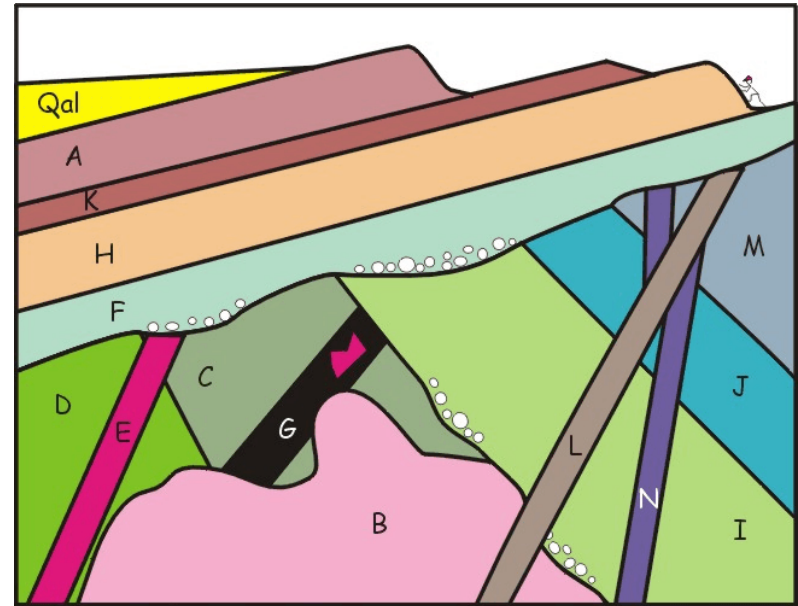


STENO'S PRINCIPLES

Cross-Cutting Relations:

If a body or discontinuity cuts across a stratum, it must have formed after that stratum.

[Steno, 1669]



Key to formations (listed in alphabetical order)

A	Angela arkose	H	Hickson sandstone
B	Bird granite	I	Inan graywacke
C	Chisholm schist	J	Johnmuntean shale
D	Deger amphibolite	K	Kai shale
E	Einaudi diorite	L	Lamb rhyolite
F	Frieauf conglomerate	M	Marsh sandstone
G	Guillermo andesite	N	Nonastacie basalt
Qal	Quaternary alluvium		Conglomerate unit

Note: Don't forget one episode of regional metamorphism and three erosional events!

Law of Inclusions- this law states that rock fragments (in another rock) must be older than the rock containing the fragments. Refer to **Inclusions**.

STENO'S PRINCIPLES

Principle of faunal succession/Law of faunal succession

Sedimentary rock strata contain fossilized flora and fauna, and that these fossils succeed each other vertically in a specific, reliable order

Stratigraphy and TIME



Information complete?
individual events not
known?

Class 1 –present [note taken]
Class 2 –present [note taken]
Class 3 –absent -----
Class 4 –present [note taken]

MORE GAPS THAN RECORD

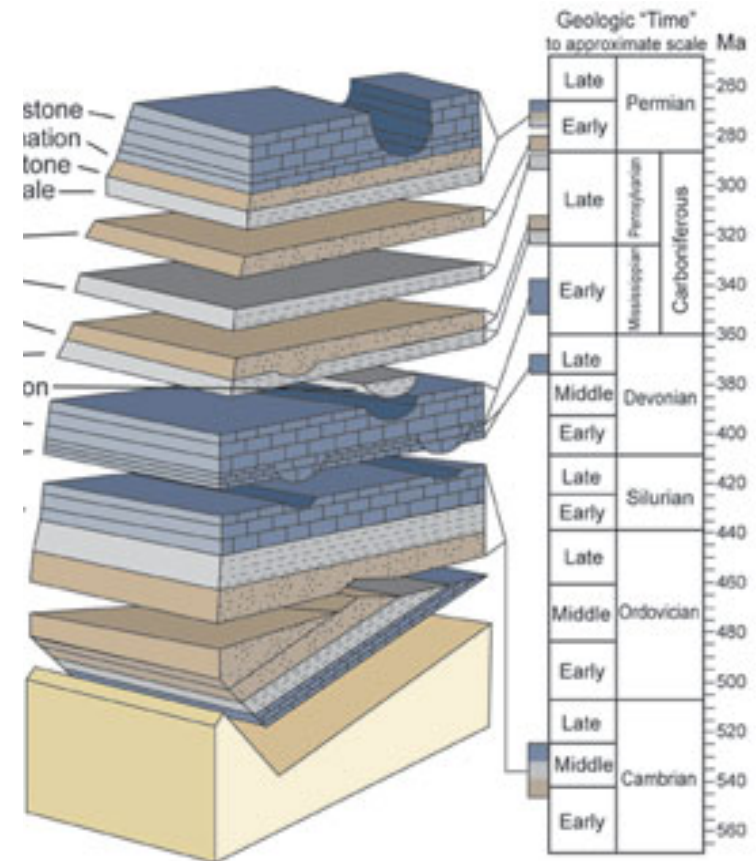


Image: S. Windsor

CLASSIFYING SUCCESSIONS

