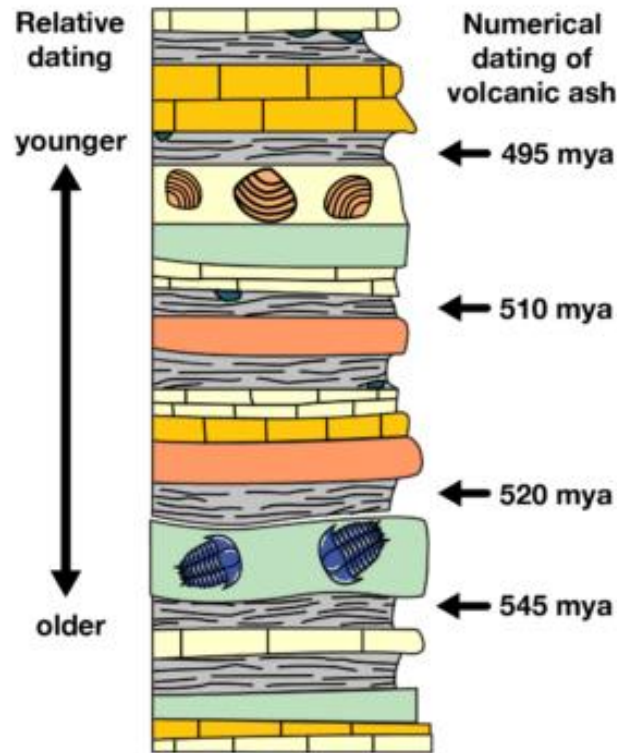


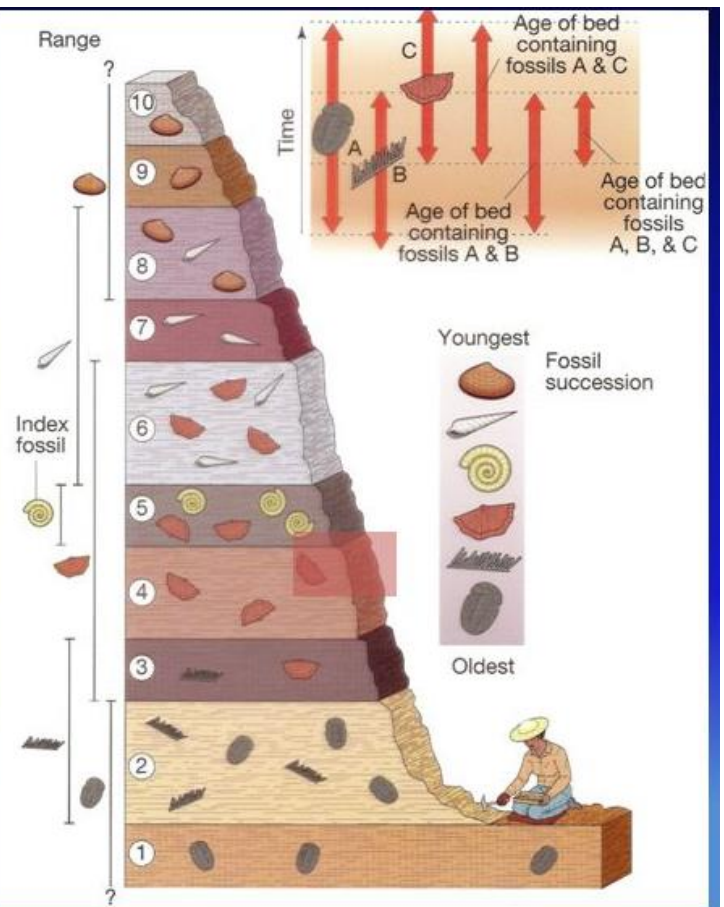
William Smith was a surveyor supervising the digging of the Somerset Canal. As canals were dug he noticed that the fossils in the layers were arranged in the same order – not just in Somerset but wherever he went across England he found the same sequences of fossils in rock layers. He deduced that each type of animal had existed for a particular span of time, overlapping with other animals.



A **biostratigraphic unit** is a body of rock that is defined or characterized by its fossil content.

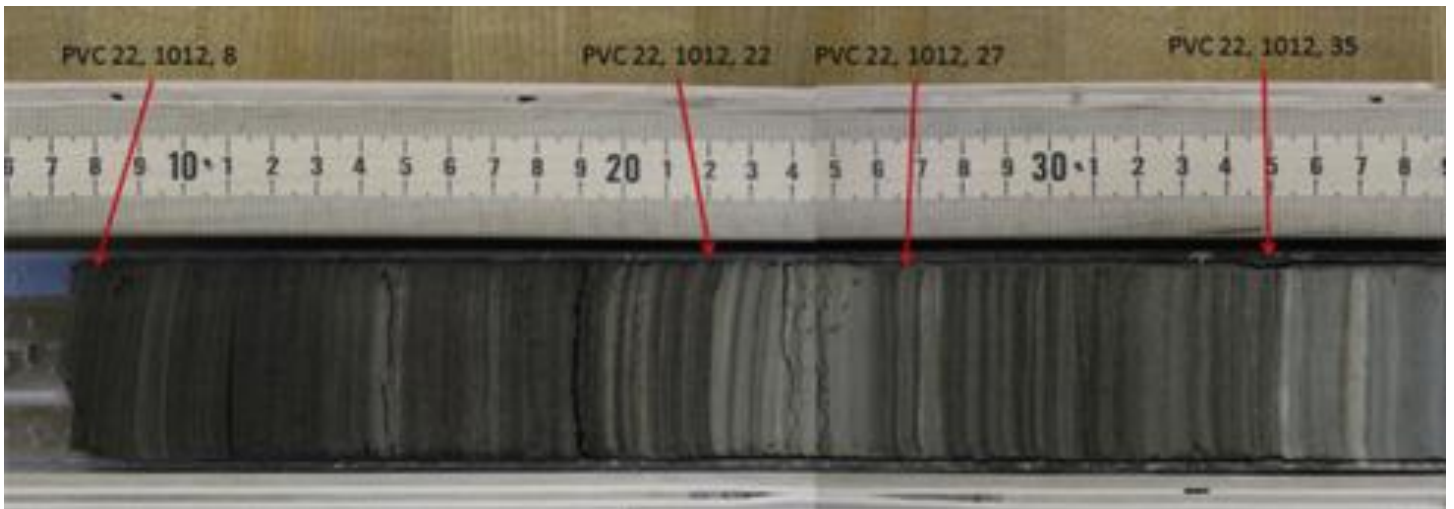
A **fossil zone (or biozone)** is an interval of strata characterized by a particular index fossil.

The best index fossils are those that evolve rapidly and were not sensitive to the sedimentary environment (flyers and floaters)



Example of a drilled core for investigating ostracod types in Lake Bonneville

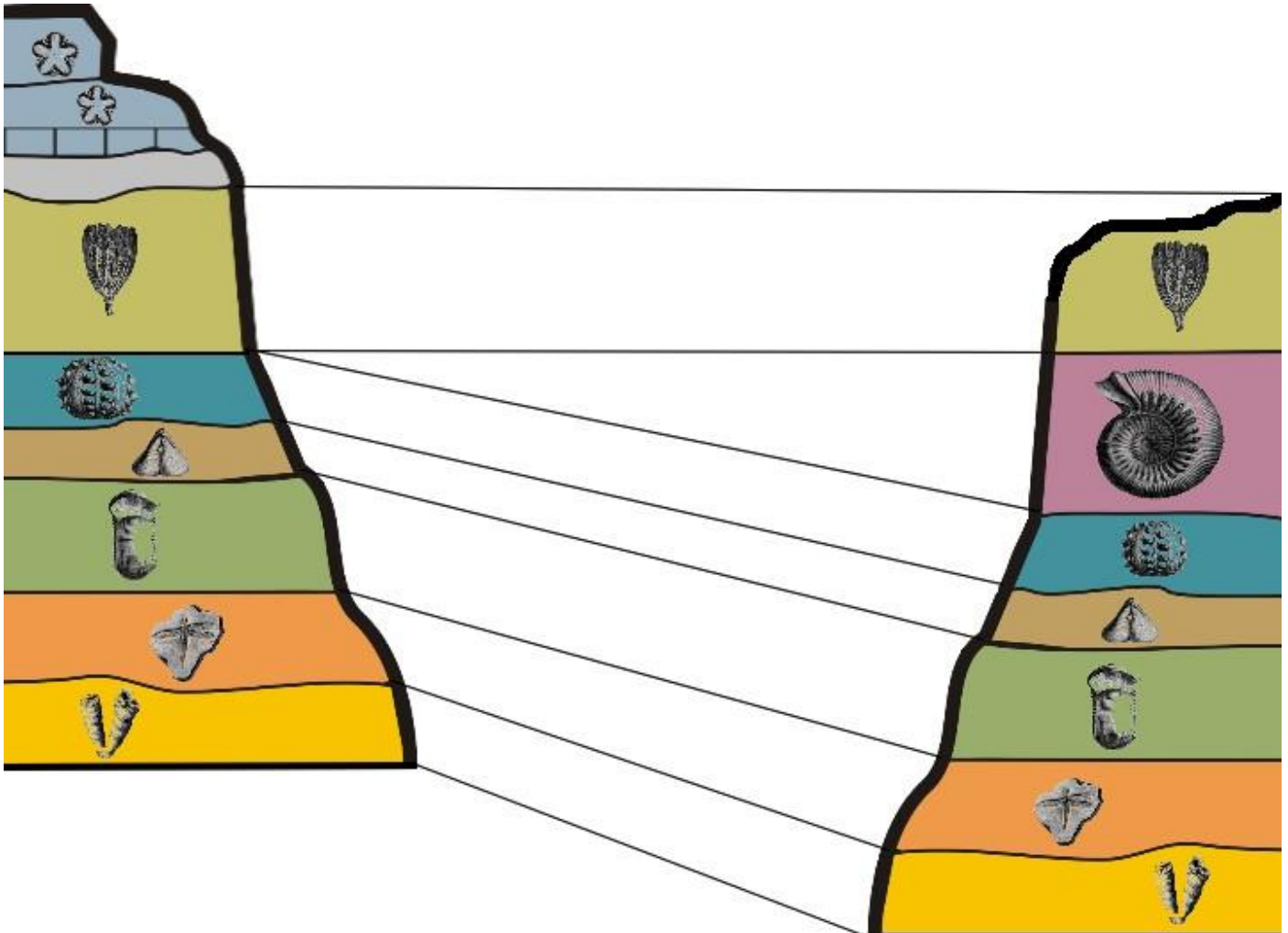
FROM: Lake Bonneville, K.A. Rey, ... S.T. Nelson, in *Developments in Earth Surface Processes*, 2016

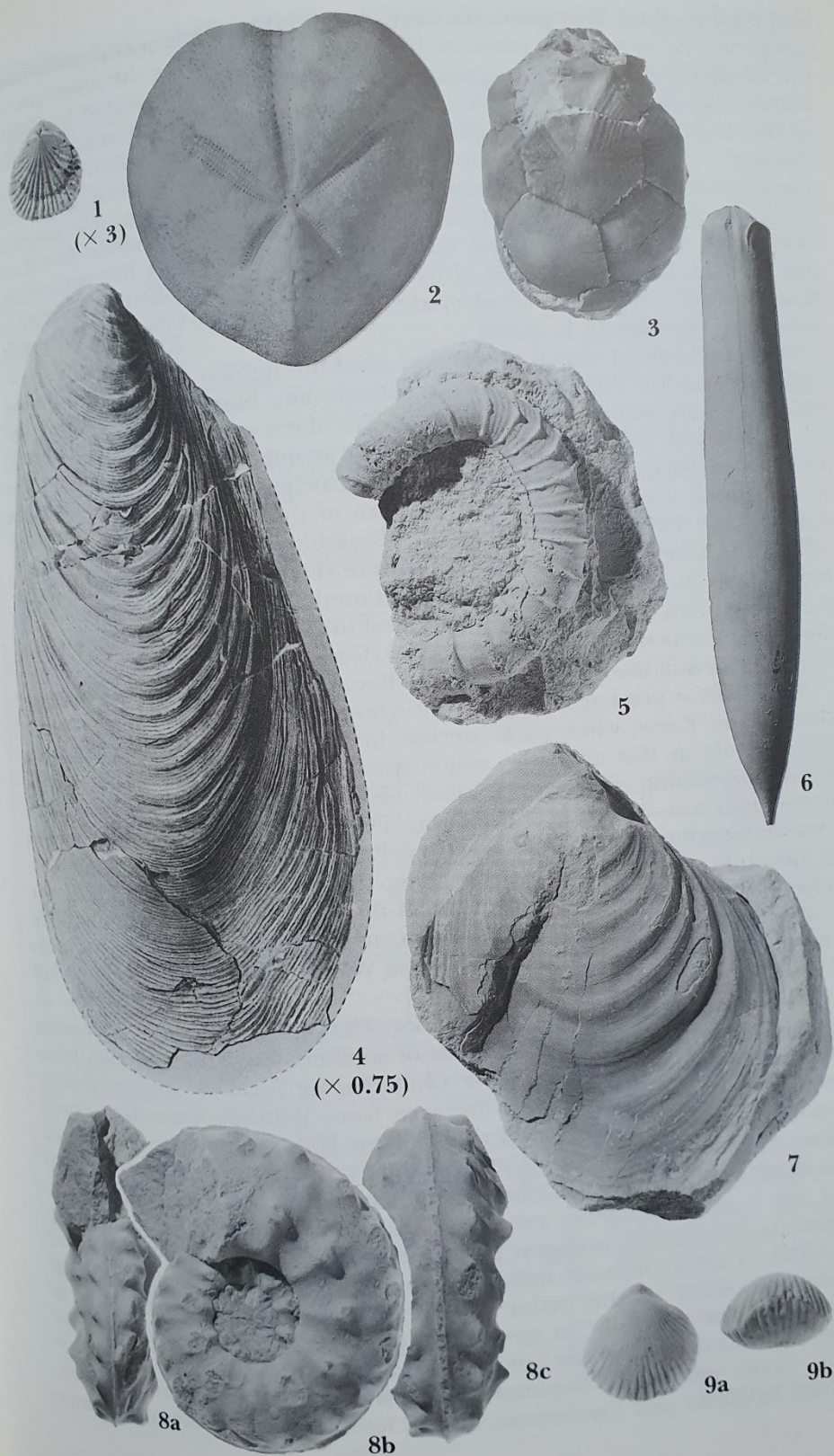


<https://youtu.be/rWp5ZpJAIAE>

PBS video explaining the history of geology and our understanding of deep time, mainly thanks to biostratigraphy. (Source: PBS Eons/YouTube)

Faunal succession: newly discovered fossil introduced into the succession sequence





Rock strata are arranged in units on the basis of their contained fossils:

Biostratigraphy is the name given to the area of geology that deals with the distribution of fossils in the stratigraphic record.

Plate 13 Fossils of the Chalk Group (all natural size, except 1 ($\times 3$) and 4 ($\times 0.75$)).

- 1 *Terebratulina lata* (R Etheridge); Middle Chalk
- 2 *Micraster coranguinum* (Leske); Upper Chalk
- 3 *Marsupites testudinarius* (Schlotheim); Upper Chalk
- 4 *Mytiloides mytiloides* (Mantell); Middle Chalk
- 5 *Hyphantoceras reussianum* (d'Orbigny); Upper Chalk: Chalk Rock
- 6 *Actinocamax plenus* (Blainville); Lower Chalk: Plenus Marls
- 7 *Inoceramus crippsi* Mantell; Lower Chalk
- 8a-c *Schloenbachia varians* (J Sowerby); Lower Chalk
- 9a-b *Orbirhynchia cuvieri* (d'Orbigny); Middle Chalk