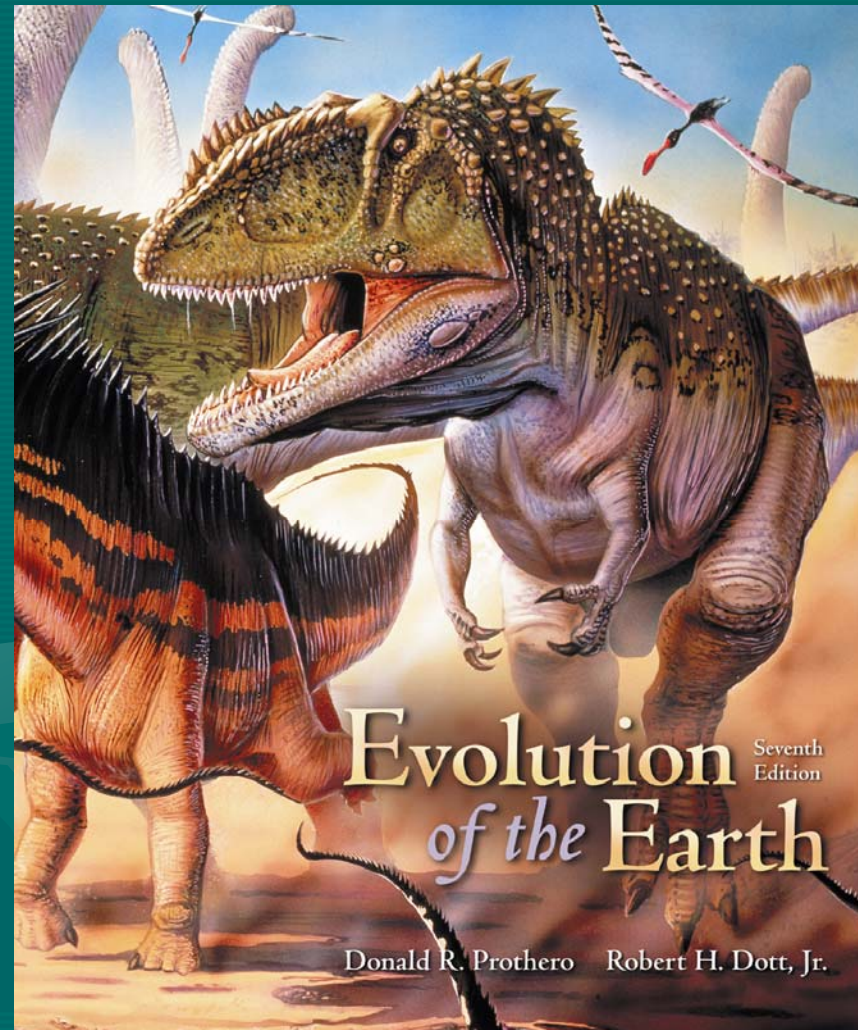


EPS 212 - HISTORICAL GEOLOGY



CONTENT

Week	Lecture Topic	References
1	Introduction to the Course	
2	The present is the key to the Past	
3	Geological Time	
4	The rock record (Stratigraphic column)	
5	Origin of the atmosphere and oceans	
6	The origin of life	
7	Paleoclimate and sea level changes	
8	Midterm Exam	
9	Precambrian Geology	
10	Paleozoic era (Early Paleozoic)	
11	Middle Paleozoic	
12	Late Paleozoic	
13	The Mesozoic Era	
14	The Cenozoic Era	
15	Final exam	

Scheme of Assessment

- Periodical Exams: 30 %
- Contributions & Quizzes: 10%
- Practical Sessions : 30%
- Final Exam: 30%

REFERENCES

- Earth and Life Through Time .By Steven M.Stanley, W.H.Freeman and Company, 1986.
- Historical Geology. L.Wmintz, 1981.
<http://www.uwsp.edu/geo/faculty/ozsvath/images/stratigraphy.jpg>

INTRODUCTION

- **Historical Geology:** Is defined as a branch of geology concerned with the systematic study of bedded rocks and their relations in time and the study of fossils and their locations in a sequence of bedded rocks.

Concept

- Geologists are concerned primarily with two subjects: Earth's physical features and the study of the planet's history. These two principal branches of geology are known, appropriately enough, as physical geology and historical geology. Today they are of equal importance, but in the early modern era, geologists were most focused on topics related to historical geology. A breakthrough came with the introduction of uniformitarianism, a still-influential principle based on the idea that the geologic processes at work today have always been at work. Opposing uniformitarianism was catastrophism, or the idea that Earth was formed in a short time by a series of cataclysmic events. Discredited at the time, catastrophism later gained acceptance, though this did not lead to support for the concept of a young Earth. In fact, the planet is very old—so old that all of human history is almost inconceivably short in comparison.

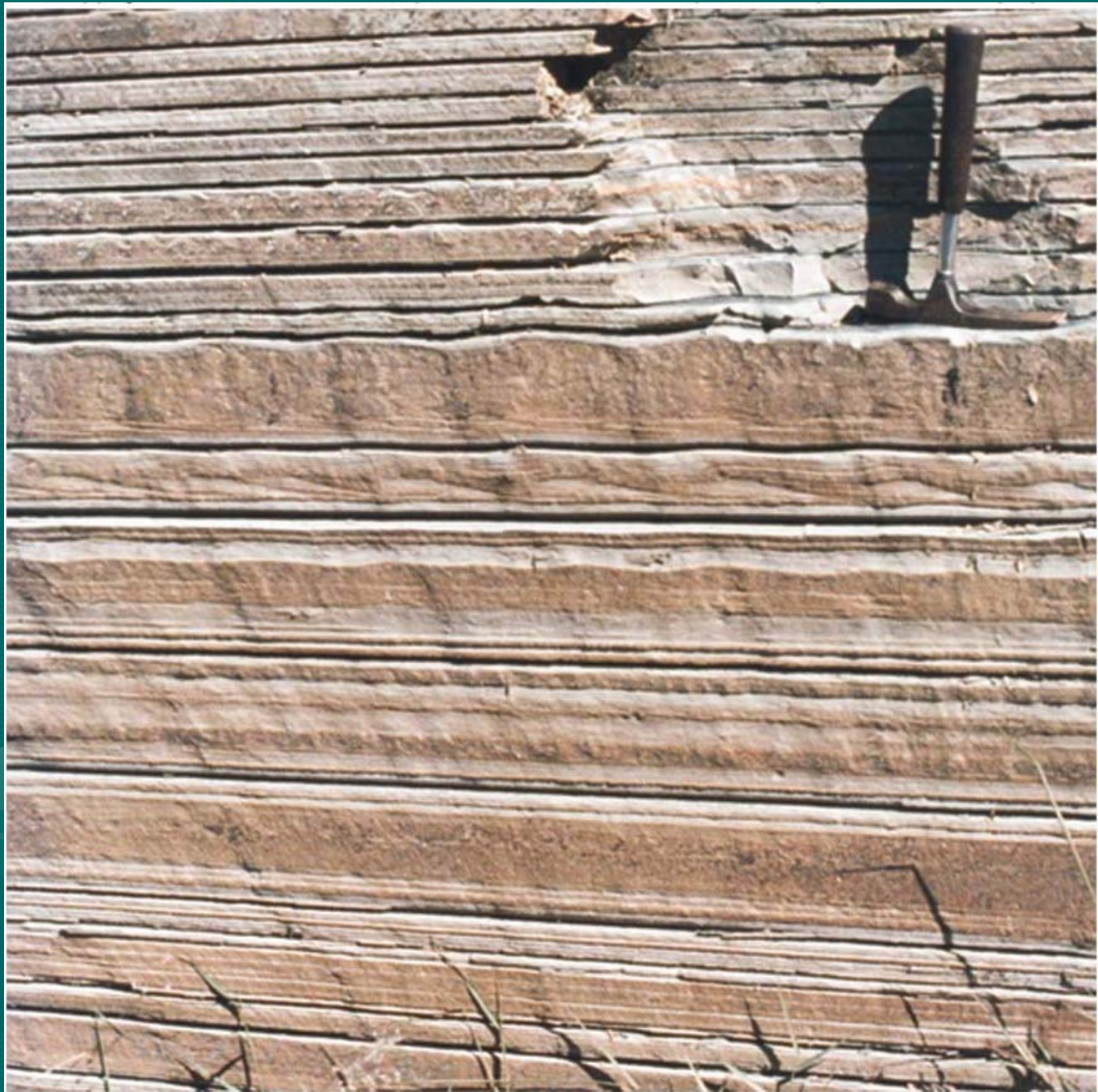
Uniformitarianism

- The theory of **uniformitarianism** suggested that the landscape developed over long periods of time through a variety of slow geologic and geomorphic processes .

Stratification
(bedding) in
sandstones.

Nicolas Steno was
the first (1669) to
fully interpret
these features and
that led to his
famous 3 laws:

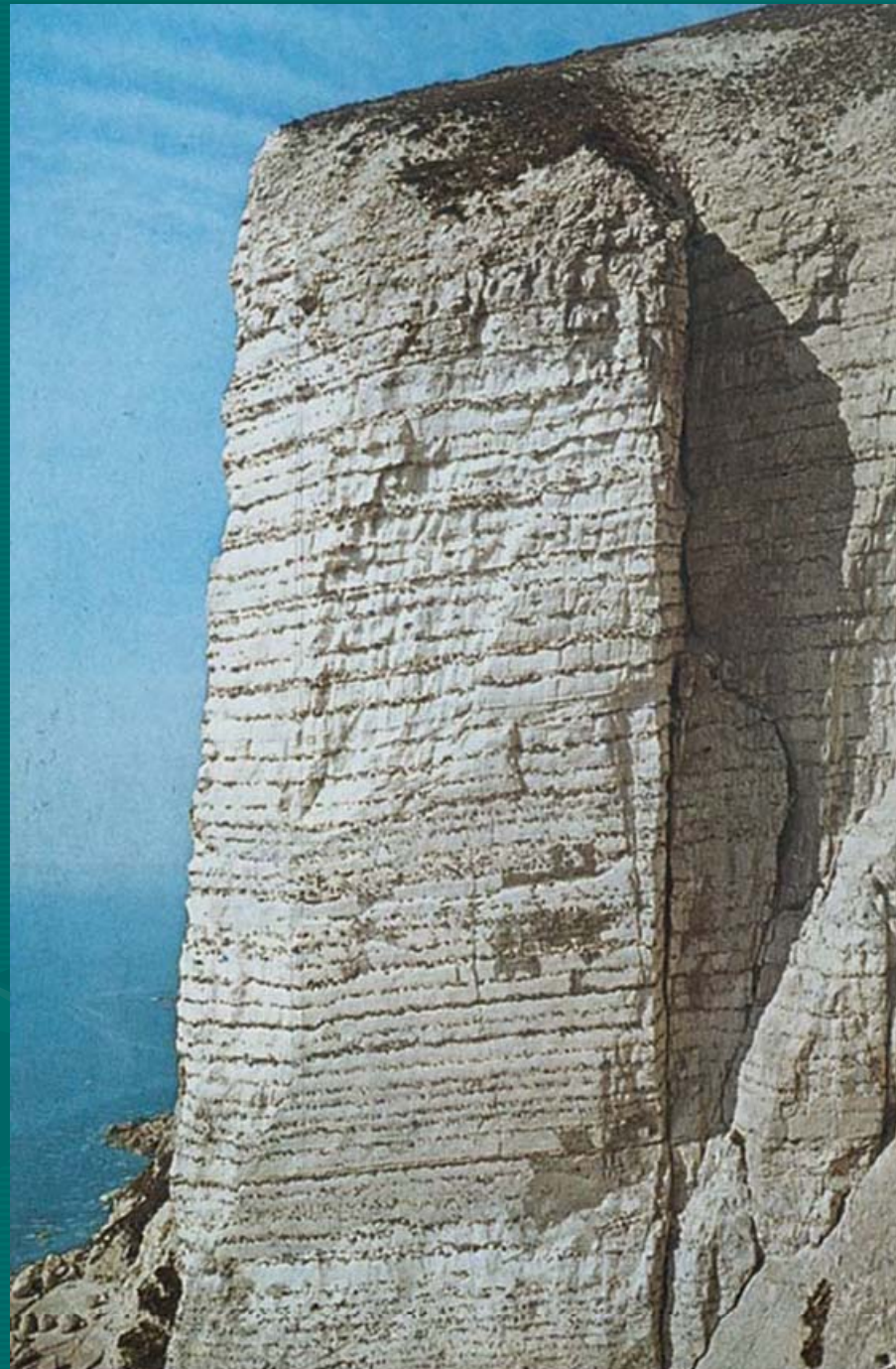
superposition,
horizontality and
continuity.



The famous “White Cliffs of Dover”, formed from the calcareous skeletons of billions of microscopic algae (coccolithoporids) which bloomed in abundance in the Late Cretaceous.

Which of Seno’s laws are illustrated here?

What are algae?



Catastrophism

- **Catastrophism** is the idea that Earth has been affected by sudden, short-lived, violent events that were sometimes worldwide in scope.