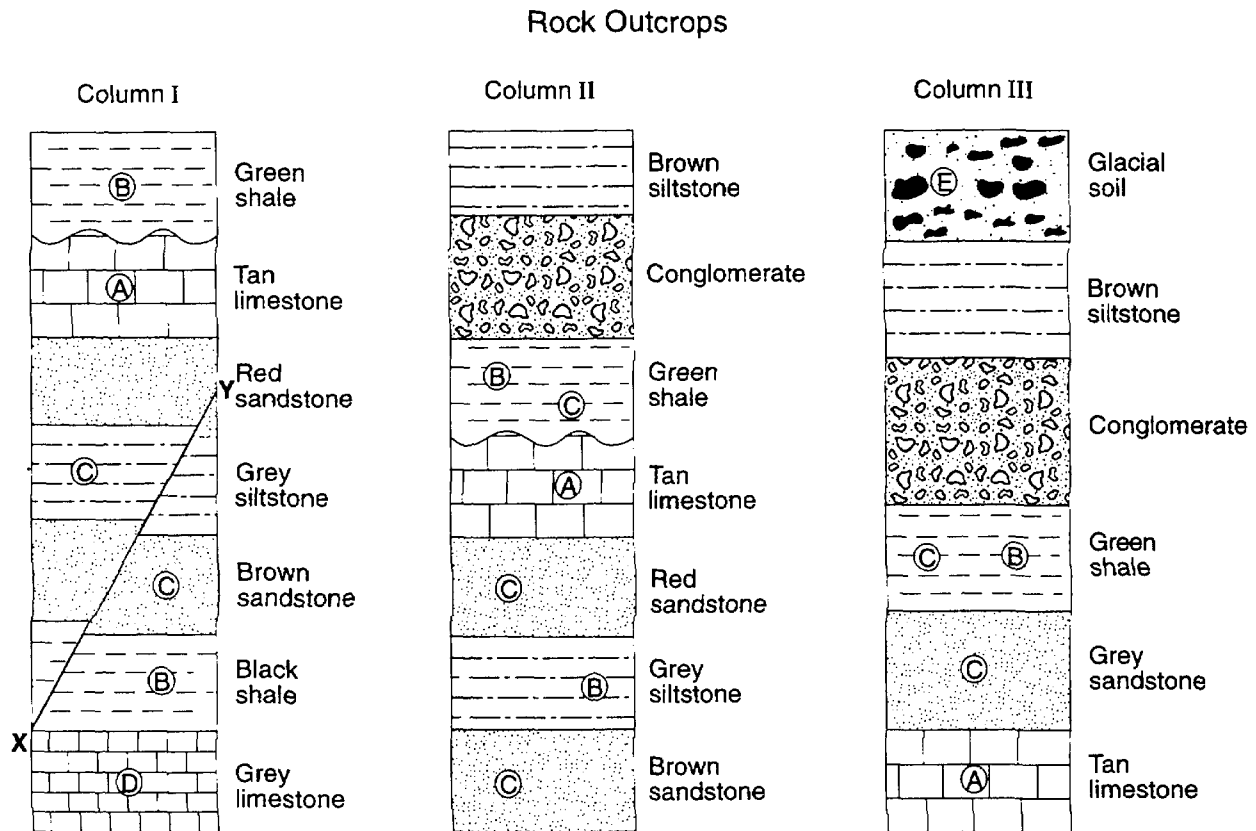


Base your answers to questions 1 through 5 on the diagram below which shows three geologic columns representing widely separated rock outcrops. Letters A through E represent fossils found in the outcrops. Line XY represents a fault in column I. The layers have not been overturned.



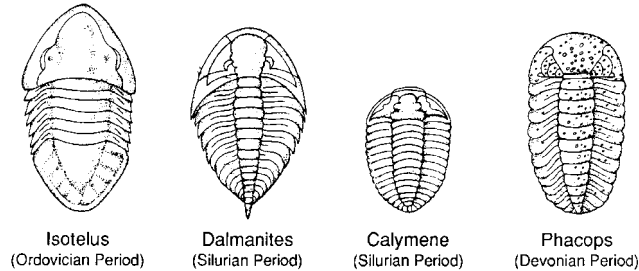
- What is the oldest layer shown?
  - glacial soil
  - brown sandstone
  - tan limestone
  - grey limestone
- When did fault XY, located in column I, most likely occur?
  - before the formation of the grey limestone
  - during the formation of the grey siltstone
  - during the formation of the black shale
  - after the formation of the red sandstone
- Which rock would most likely be produced by the metamorphism of the grey limestone?
  - quartzite
  - slate
  - marble
  - gneiss
- The wavy line located between the green shale and the tan limestone layers in columns I and II most likely represents
  - contact metamorphism
  - a volcanic ash layer
  - a buried erosional surface
  - an igneous intrusion

## Rock Correlation

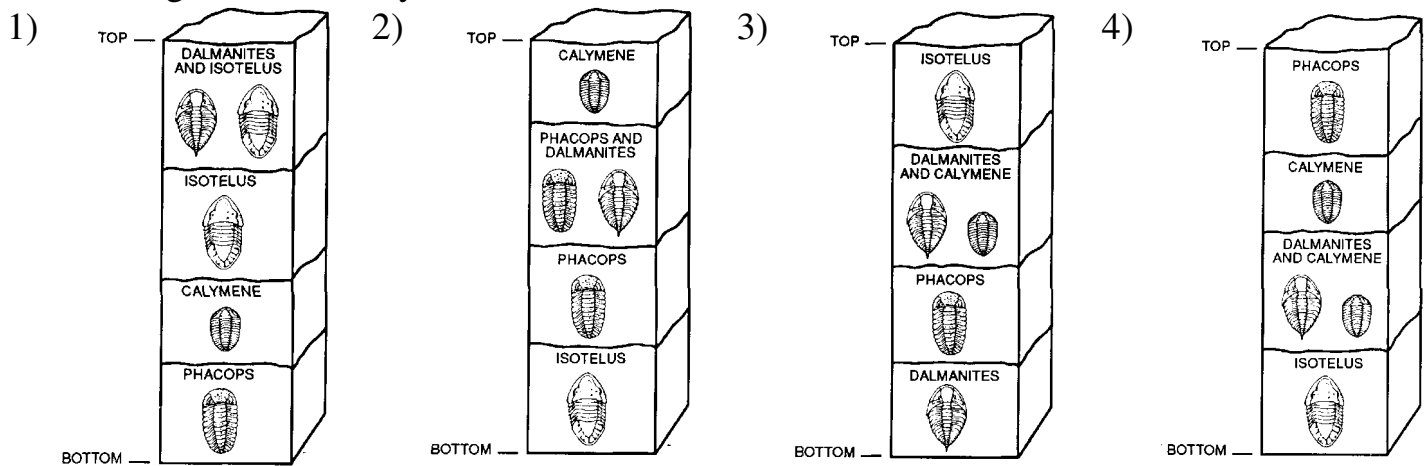
5. Fossil A, in the tan limestone layer, is a fossil of the first known coral. This tan limestone layer was most likely deposited during which geologic time interval?

- 1) Precambrian      2) Paleozoic      3) Mesozoic      4) Cenozoic

6. Base your answer to the following question on the diagrams of fossil trilobites shown below. The geologic period in which each trilobite form existed is given.

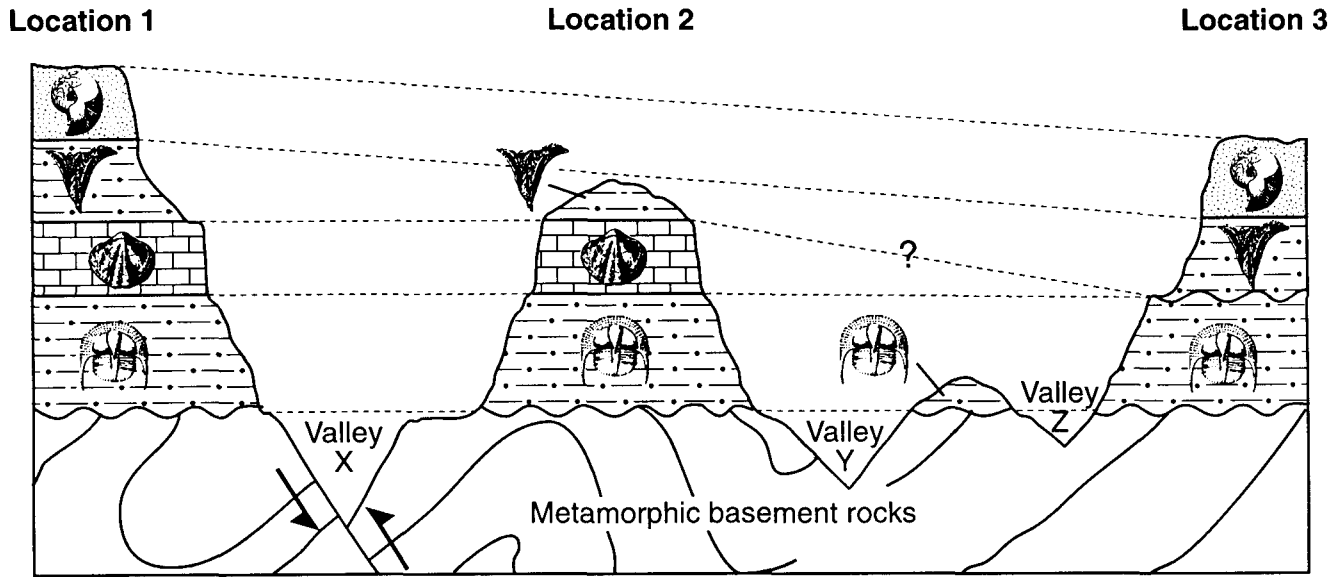






The diagrams below show different geologic cross sections of rock layers in the Earth's crust. Which cross section best shows the relative location of these four types of trilobites if overturning of the rock layers has not occurred?



## Rock Correlation

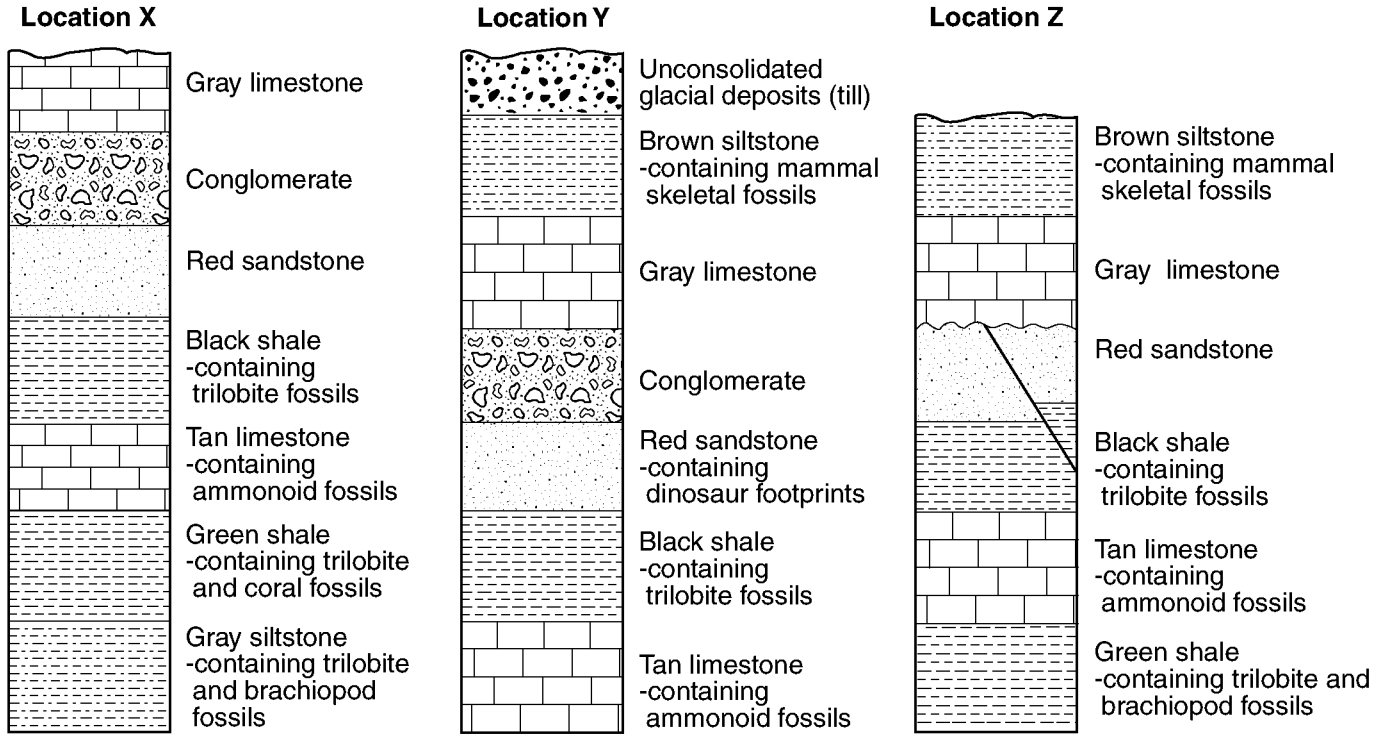
Base your answers to questions 7 through 9 on the geologic cross section below, which shows a view of rock layers at Earth's surface. The dashed lines connect points of the same age. Major fossils contained within each rock layer are shown. The valleys are labeled X, Y, and Z.



7. In which type of environment were the sediments that formed these sedimentary rock layers most likely deposited?
- 1) glacial                      2) mountainous                      3) marine                      4) terrestrial plateau
8. Which fossil would most likely be found in the same siltstone layer as the *Cryptolithus* fossil?
- 1)                       2)                       3)                       4) 
9. In this region, valley X is more deeply eroded than either valley Y or valley Z. The most likely explanation for this occurrence is that the metamorphic rock near X has been
- 1) weakened by faulting                      3) intruded by melted rock  
2) folded by pressure                      4) covered by sedimentary rocks
- 
-

## Rock Correlation

Base your answers to questions **10** through **14** on the cross sections below, which show widely separated outcrops at locations X, Y, and Z.



10. Which rock layer is oldest?
  - 1) gray siltstone
  - 2) green shale
  - 3) tan limestone
  - 4) brown siltstone
  
11. At location Y, the boundary between the red sandstone and the black shale marks the
  - 1) beginning of the Cenozoic Era
  - 2) beginning of the Mesozoic Era
  - 3) end of the Cenozoic Era
  - 4) end of the Mesozoic Era
  
12. An unconformity can be observed at location Z. Which rock layer was most probably removed by erosion during the time represented by the unconformity?
  - 1) conglomerate
  - 2) gray siltstone
  - 3) black shale
  - 4) brown siltstone
  
13. The fossils in the rock formations at location X indicate that this area was often covered by
  - 1) tropical rain forests
  - 2) glacial ice
  - 3) desert sand
  - 4) seawater
  
14. Which rock layer was formed by the compaction and cementation of particles that were all less than 0.0004 centimeter in diameter?
  - 1) red sandstone
  - 2) green shale
  - 3) brown siltstone
  - 4) conglomerate

**Rock Correlation  
Answer Key**

1. 4

2. 4

3. 3

4. 3

5. 2

6. 4

7. 3

8. 4

9. 1

10. 1

11. 2

12. 1

13. 4

14. 2

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