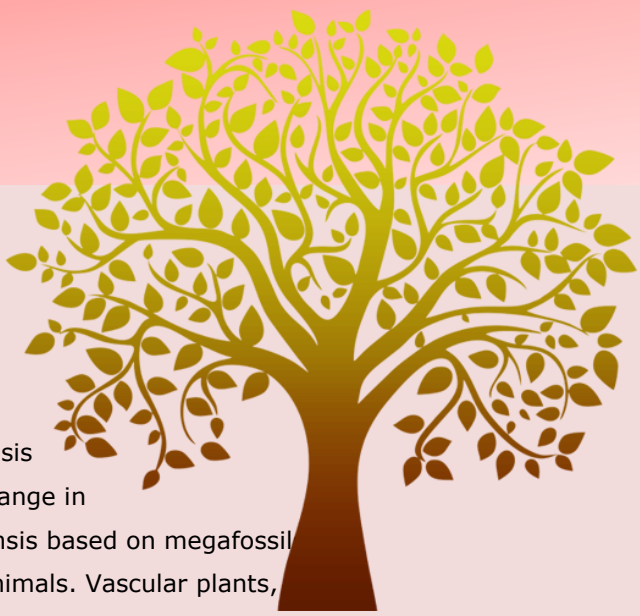
Unit 23

Reading



The Origin of life

Life originated in the early seas less than a billion years after the Earth was formed. Yet another three billion years were to pass before the first plants and animals appeared on the continents. Life's transition from the sea to the land was perhaps as much of an evolutionary challenge as was the genesis of life. What forms of life were able to make such a **drastic** change in lifestyle? **The traditional view** of the first terrestrial organismsis based on megafossil — relatively large specimens of essentially whole plants and animals. Vascular plants, related to modern seed plants and ferns, left the first comprehensive megafossil record. Because of this, it has been commonly assumed that the sequence of terrestrialization reflected the evolution of modern terrestrial ecosystems. In this view, primitive vascular plants first colonized the margins of continental waters, followed by animals that fed on the plants, and lastly by animals that preyed on the plant-eaters. Moreover, the megafossils suggest that terrestrial life appeared and diversified explosively near the boundary between the Silurian and the Devonian periods, a little more than 400 million years ago. Recently, however, paleontologists have been taking a closer look at the sediments below this Silurian-Devonian geological boundary. It turns out that some fossils can be **extracted** from these sediments by putting the rocks in an acid bath. The technique has uncovered new evidence from sediments that were deposited near the shores of the ancient oceans — plant microfossils and microscopic pieces of small animals. In many **instances** the specimens are less than one-tenth of a millimeter in diameter. Although **they** were **entombed** in the rocks for hundreds of millions of years, many of the fossils consist of the organic remains of the organism. These newly discovered fossils have not only revealed the existence of previously unknown organisms, but have also pushed back these dates for the invasion of land by multicellular organisms. Our views about the nature of the early plant and animal communities are now being revised. And with those revisions come new speculations about the first terrestrial life-forms.

1) The word "drastic" is closest in meaning to

a) widespread
b) radical
c) progressive
d) risky

2) According to the theory that the author calls "the traditional view," what was the first form of life to appear on land?

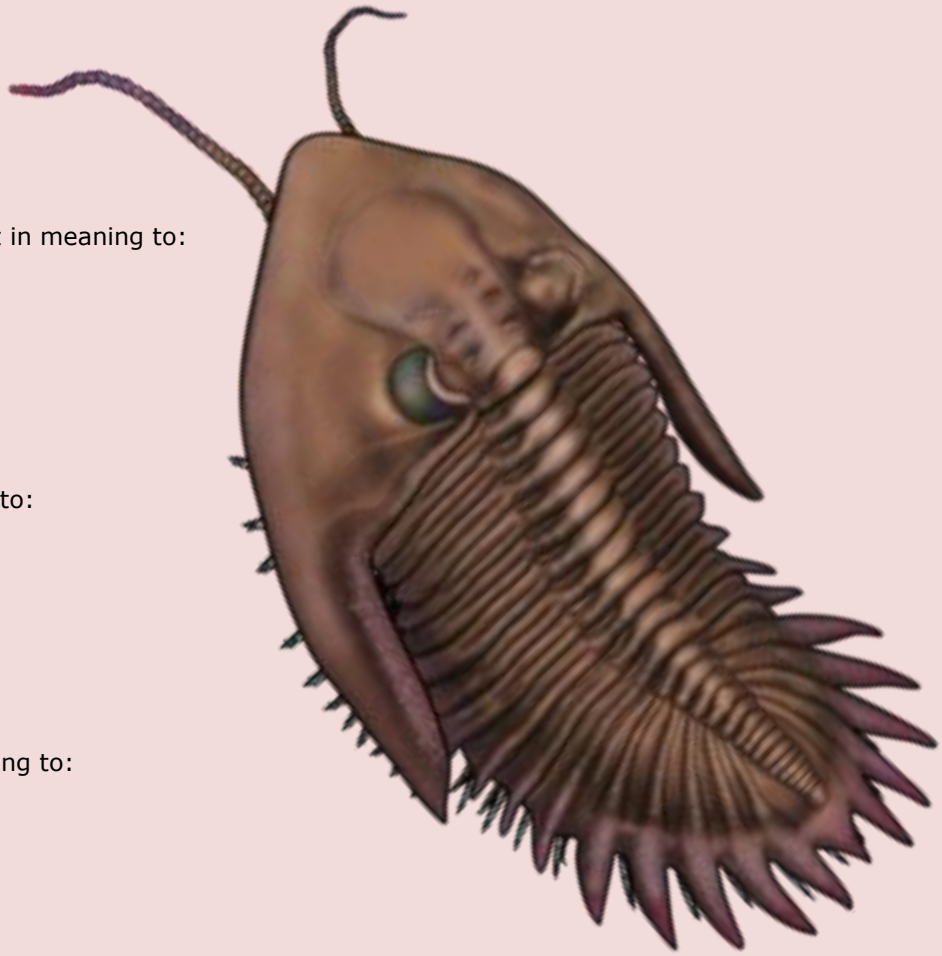
a) Bacteria
b) Meat-eating animals
c) Plant-eating animals
d) Vascular plants

3) According to the passage, what happened about 400 million years ago?

a) Many terrestrial life-forms died out.
b) New life-forms on land developed at a rapid rate.
c) The megafossils were destroyed by floods.
d) Life began to develop in the ancient seas.

4) The word "extracted" is closest in meaning to:

a) located
b) preserved
c) removed
d) studied



6) The word "instances" is closest in meaning to:

a) methods
b) processes
c) cases
d) reasons

7) The word "they" in bold refers to:

a) rocks
b) shores
c) oceans
d) specimens

8) The word "" is closest in meaning to:

a) crushed
b) trapped
c) produced
d) excavated

9) Which of the following resulted from the discovery of microscopic fossils?

a) The time estimate for the first appearance of terrestrial life-forms was revised.
b) Old techniques for analyzing fossils were found to have new uses.
c) The origins of primitive sea life were explained.
d) Assumptions about the locations of ancient seas were changed.

10) With which of the following conclusions would the author probably agree?

a) The evolution of terrestrial life was as complicated as the origin of life itself.
b) The discovery of microfossils supports the traditional view of how terrestrial life evolved.
c) New species have appeared at the same rate over the course of the last 400 million years.
d) The technology used by paleontologists is too primitive to make accurate determinations about ages of fossils.