

Reading Practice Sets

PRACTICE SET 1

THE ORIGINS OF CETACEANS

It should be obvious that cetaceans—whales, porpoises, and dolphins—are mammals. They breathe through lungs, not through gills, and give birth to live young. Their streamlined bodies, the absence of hind legs, and the presence of a fluke¹ and blowhole² cannot disguise their affinities with land-dwelling mammals. However, unlike the cases of sea otters and pinnipeds (seals, sea lions, and walruses, whose limbs are functional both on land and at sea), it is not easy to envision what the first whales looked like. Extinct but already fully marine cetaceans are known from the fossil record. How was the gap between a walking mammal and a swimming whale bridged? Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

Very exciting discoveries have finally allowed scientists to reconstruct the most likely origins of cetaceans. In 1979, a team looking for fossils in northern Pakistan found what proved to be the oldest fossil whale. The fossil was officially named *Pakicetus* in honor of the country where the discovery was made. *Pakicetus* was found embedded in rocks formed from river deposits that were 52 million years old. The river that formed these deposits was actually not far from an ancient ocean known as the Tethys Sea.

The fossil consists of a complete skull of an archaeocete, an extinct group of ancestors of modern cetaceans. Although limited to a skull, the *Pakicetus* fossil provides precious details on the origins of cetaceans. The skull is cetacean-like but its jawbones lack the enlarged space that is filled with fat or oil and used for receiving underwater sound in modern whales. *Pakicetus* probably detected sound through the ear opening as in land mammals. The skull also lacks a blowhole, another cetacean adaptation for diving. Other features, however, show experts that *Pakicetus* is a transitional form between a group of extinct flesh-eating mammals, the mesonychids, and cetaceans. It has been suggested that *Pakicetus* fed on fish in shallow water and was not yet adapted for life in the open ocean. It probably bred and gave birth on land.

Another major discovery was made in Egypt in 1989. Several skeletons of another early whale, *Basilosaurus*, were found in sediments left by the Tethys Sea and now exposed in the Sahara desert. This whale lived around 40 million years ago, 12 million years after *Pakicetus*. Many incomplete skeletons were found but they included, for the first time in an archaeocete, a complete hind leg that features a foot with three tiny toes. Such legs would have been far too small to have supported the 50-foot-long *Basilosaurus* on land. *Basilosaurus* was undoubtedly a fully marine whale with possibly nonfunctional, or vestigial, hind legs.

An even more exciting find was reported in 1994, also from Pakistan. The now extinct whale *Ambulocetus natans* ("the walking whale that swam") lived in the Tethys Sea 49 million years ago. It lived around 3 million years after *Pakicetus* but 9 million years before *Basilosaurus*. The fossil luckily includes a good portion of the hind legs. The legs were strong and ended in long feet very much like those of a modern pinniped. The legs were certainly functional both on land and at sea. The whale retained a tail and lacked a fluke, the major means of

locomotion in modern cetaceans. The structure of the backbone shows, however, that *Ambulocetus* swam like modern whales by moving the rear portion of its body up and down, even though a fluke was missing. The large hind legs were used for propulsion in water. On land, where it probably bred and gave birth, *Ambulocetus* may have moved around very much like a modern sea lion. It was undoubtedly a whale that linked life on land with life at sea.

1. Fluke: The two parts that constitute the large triangular tail of a whale
2. Blowhole: A hole in the top of the head used for breathing

Directions: Now answer the questions.

P
A
R
A
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P
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1

It should be obvious that cetaceans—whales, porpoises, and dolphins—are mammals. They breathe through lungs, not through gills, and give birth to live young. Their streamlined bodies, the absence of hind legs, and the presence of a fluke¹ and blowhole² cannot disguise their affinities with land-dwelling mammals. However, unlike the cases of sea otters and pinnipeds (seals, sea lions, and walruses, whose limbs are functional both on land and at sea), it is not easy to envision what the first whales looked like. Extinct but already fully marine cetaceans are known from the fossil record. How was the gap between a walking mammal and a swimming whale bridged? Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

1. Fluke: The two parts that constitute the large triangular tail of a whale
2. Blowhole: A hole in the top of the head used for breathing

1. Which of the following can be inferred from paragraph 1 about early sea otters?
 - (A) It is not difficult to imagine what they looked like.
 - (B) There were great numbers of them.
 - (C) They lived in the sea only.
 - (D) They did not leave many fossil remains.

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3

The fossil consists of a complete skull of an archaeocete, an extinct group of ancestors of modern cetaceans. Although limited to a skull, the *Pakicetus* fossil provides **precious** details on the origins of cetaceans. The skull is cetacean-like but its jawbones lack the enlarged space that is filled with fat or oil and used for receiving underwater sound in modern whales. *Pakicetus* probably detected sound through the ear opening as in land mammals. The skull also lacks a blowhole, another cetacean adaptation for diving. Other features, however, show experts that *Pakicetus* is a transitional form between a group of extinct flesh-eating mammals, the mesonychids, and cetaceans. It has been suggested that *Pakicetus* fed on fish in shallow water and was not yet adapted for life in the open ocean. **It** probably bred and gave birth on land.

2. The word “**precious**” in the passage is closest in meaning to
 - (A) exact
 - (B) scarce
 - (C) valuable
 - (D) initial
3. *Pakicetus* and modern cetaceans have similar
 - (A) hearing structures
 - (B) adaptations for diving
 - (C) skull shapes
 - (D) breeding locations
4. The word “**It**” in the passage refers to
 - (A) *Pakicetus*
 - (B) fish
 - (C) life
 - (D) ocean

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4

Another major discovery was made in Egypt in 1989. Several skeletons of another early whale, *Basilosaurus*, were found in sediments left by the Tethys Sea and now **exposed** in the Sahara desert. This whale lived around 40 million years ago, 12 million years after *Pakicetus*. Many incomplete skeletons were found but they included, for the first time in an archaeocete, a complete hind leg that features a foot with three tiny toes. Such legs would have been far too small to have supported the 50-foot-long *Basilosaurus* on land. *Basilosaurus* was undoubtedly a fully marine whale with possibly nonfunctional, or vestigial, hind legs.

5. The word “**exposed**” in the passage is closest in meaning to
 - (A) explained
 - (B) visible
 - (C) identified
 - (D) located
6. The hind leg of *Basilosaurus* was a significant find because it showed that *Basilosaurus*
 - (A) lived later than *Ambulocetus natans*
 - (B) lived at the same time as *Pakicetus*
 - (C) was able to swim well
 - (D) could not have walked on land

PARAGRAPH 5

An even more exciting find was reported in 1994, also from Pakistan. The now extinct whale *Ambulocetus natans* ("the walking whale that swam") lived in the Tethys Sea 49 million years ago. It lived around 3 million years after *Pakicetus* but 9 million years before *Basilosaurus*. The fossil **luckily** includes a good portion of the hind legs. The legs were strong and ended in long feet very much like those of a modern pinniped. The legs were certainly functional both on land and at sea. The whale retained a tail and lacked a fluke, the major means of locomotion in modern cetaceans. **The structure of the backbone shows, however, that *Ambulocetus* swam like modern whales by moving the rear portion of its body up and down, even though a fluke was missing.** The large hind legs were used for propulsion in water. On land, where it probably bred and gave birth, *Ambulocetus* may have moved around very much like a modern sea lion. It was undoubtedly a whale that linked life on land with life at sea.

7. Why does the author use the word "luckily" in mentioning that the *Ambulocetus natans* fossil included hind legs?
 - (A) Fossil legs of early whales are a rare find.
 - (B) The legs provided important information about the evolution of cetaceans.
 - (C) The discovery allowed scientists to reconstruct a complete skeleton of the whale.
 - (D) Until that time, only the front legs of early whales had been discovered.
8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - (A) Even though *Ambulocetus* swam by moving its body up and down, it did not have a backbone.
 - (B) The backbone of *Ambulocetus*, which allowed it to swim, provides evidence of its missing fluke.
 - (C) Although *Ambulocetus* had no fluke, its backbone structure shows that it swam like modern whales.
 - (D) By moving the rear parts of their bodies up and down, modern whales swim in a different way from the way *Ambulocetus* swam.

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2

Extinct but already fully marine cetaceans are known from the fossil record. **(A)** How was the gap between a walking mammal and a swimming whale bridged? **(B)** Missing until recently were fossils clearly intermediate, or transitional, between land mammals and cetaceans.

(C) Very exciting discoveries have finally allowed scientists to reconstruct the most likely origins of cetaceans. **(D)** In 1979, a team looking for fossils in northern Pakistan found what proved to be the oldest fossil whale.

9. **Directions:** Look at the part of the passage that is displayed above. The letters **(A)**, **(B)**, **(C)**, and **(D)** indicate where the following sentence could be added.

This is a question that has puzzled scientists for ages.

Where would the sentence best fit?

- Choice A
- Choice B
- Choice C
- Choice D

10. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

This passage discusses fossils that help to explain the likely origins of cetaceans—whales, porpoises, and dolphins.

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Answer Choices

- A Recent discoveries of fossils have helped to show the link between land mammals and cetaceans.
- B The discovery of *Ambulocetus natans* provided evidence for a whale that lived both on land and at sea.
- C The skeleton of *Basilosaurus* was found in what had been the Tethys Sea, an area rich in fossil evidence.
- D *Pakicetus* is the oldest fossil whale yet to be found.
- E Fossils thought to be transitional forms between walking mammals and swimming whales were found.
- F *Ambulocetus*'s hind legs were used for propulsion in the water.

PRACTICE SET 2

DESERT FORMATION

The deserts, which already occupy approximately a fourth of the Earth's land surface, have in recent decades been increasing at an alarming pace. The expansion of desertlike conditions into areas where they did not previously exist is called **desertification**. It has been estimated that an additional one-fourth of the Earth's land surface is threatened by this process.

Desertification is accomplished primarily through the loss of stabilizing natural vegetation and the subsequent accelerated erosion of the soil by wind and water. In some cases the loose soil is blown completely away, leaving a stony surface. In other cases, the finer particles may be removed, while the sand-sized particles are accumulated to form mobile hills or ridges of sand.

Even in the areas that retain a soil cover, the reduction of vegetation typically results in the loss of the soil's ability to absorb substantial quantities of water. The impact of raindrops on the loose soil tends to transfer fine clay particles into the tiniest soil spaces, sealing them and producing a surface that allows very little water penetration. Water absorption is greatly reduced; consequently, runoff is increased, resulting in accelerated erosion rates. The gradual drying of the soil caused by its diminished ability to absorb water results in the further loss of vegetation, so that a cycle of progressive surface deterioration is established.

In some regions, the increase in desert areas is occurring largely as the result of a trend toward drier climatic conditions. Continued gradual global warming has produced an increase in aridity for some areas over the past few thousand years. The process may be accelerated in subsequent decades if global warming resulting from air pollution seriously increases.

There is little doubt, however, that desertification in most areas results primarily from human activities rather than natural processes. The semiarid lands bordering the deserts exist in a delicate ecological balance and are limited in their potential to adjust to increased environmental pressures. Expanding populations are subjecting the land to increasing pressures to provide them with food and fuel. In wet periods, the land may be able to respond to these stresses. During the dry periods that are common phenomena along the desert margins, though, the pressure on the land is often far in excess of its diminished capacity, and desertification results.

Four specific activities have been identified as major contributors to the desertification process: overcultivation, overgrazing, firewood gathering, and overirrigation. The cultivation of crops has expanded into progressively drier regions as population densities have grown. These regions are especially likely to have periods of severe dryness, so that crop failures are common. Since the raising of most crops necessitates the prior removal of the natural vegetation, crop failures leave extensive tracts of land devoid of a plant cover and susceptible to wind and water erosion.

The raising of livestock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and pulverization of the soil. This is usually followed by the drying of the soil and accelerated erosion.

Firewood is the chief fuel used for cooking and heating in many countries. The increased pressures of expanding populations have led to the removal of woody plants so that many cities and towns are surrounded by large areas completely lacking in trees and shrubs. The increasing use of dried animal waste as a substitute fuel has also hurt the soil because this valuable soil conditioner and source of plant nutrients is no longer being returned to the land.

The final major human cause of desertification is soil salinization resulting from over-irrigation. Excess water from irrigation sinks down into the water table. If no drainage system exists, the water table rises, bringing dissolved salts to the surface. The water evaporates and the salts are left behind, creating a white crustal layer that prevents air and water from reaching the underlying soil.

The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process. Once the soil has been removed by erosion, only the passage of centuries or millennia will enable new soil to form. In areas where considerable soil still remains, though, a rigorously enforced program of land protection and cover-crop planting may make it possible to reverse the present deterioration of the surface.

Directions: Now answer the questions.

P
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R
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A
P
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1

The deserts, which already occupy approximately a fourth of the Earth's land surface, have in recent decades been increasing at an alarming pace. The expansion of desertlike conditions into areas where they did not previously exist is called **desertification**. It has been estimated that an additional one-fourth of the Earth's land surface is threatened by this process.

1. The word "threatened" in the passage is closest in meaning to
 - (A) restricted
 - (B) endangered
 - (C) prevented
 - (D) rejected

P
A
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P
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3

Even in the areas that retain a soil cover, the reduction of vegetation typically results in the loss of the soil's ability to absorb substantial quantities of water. The impact of raindrops on the loose soil tends to transfer fine clay particles into the tiniest soil spaces, sealing them and producing a surface that allows very little water penetration. Water absorption is greatly reduced; consequently, runoff is increased, resulting in accelerated erosion rates. The gradual drying of the soil caused by its diminished ability to absorb water results in the further loss of vegetation, so that a cycle of progressive surface deterioration is established.

2. According to paragraph 3, the loss of natural vegetation has which of the following consequences for soil?
 - (A) Increased stony content
 - (B) Reduced water absorption
 - (C) Increased numbers of spaces in the soil
 - (D) Reduced water runoff

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P
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5

There is little doubt, however, that desertification in most areas results primarily from human activities rather than natural processes. The semiarid lands bordering the deserts exist in a **delicate** ecological balance and are limited in their potential to adjust to increased environmental pressures. Expanding populations are subjecting the land to increasing pressures to provide them with food and fuel. In wet periods, the land may be able to respond to these stresses. During the dry periods that are common phenomena along the desert margins, though, the pressure on the land is often far in excess of its diminished capacity, and desertification results.

3. The word “**delicate**” in the passage is closest in meaning to
 - (A) fragile
 - (B) predictable
 - (C) complex
 - (D) valuable
4. According to paragraph 5, in dry periods, border areas have difficulty
 - (A) adjusting to stresses created by settlement
 - (B) retaining their fertility after desertification
 - (C) providing water for irrigating crops
 - (D) attracting populations in search of food and fuel

P
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6

Four specific activities have been identified as major contributors to the desertification process: overcultivation, overgrazing, firewood gathering, and overirrigation. The cultivation of crops has expanded into **progressively** drier regions as population densities have grown. These regions are especially likely to have periods of severe dryness, so that crop failures are common. Since the raising of most crops necessitates the prior removal of the natural vegetation, crop failures leave extensive tracts of land devoid of a plant cover and susceptible to wind and water erosion.

5. The word “**progressively**” in the passage is closest in meaning to
 - (A) openly
 - (B) impressively
 - (C) objectively
 - (D) increasingly
6. According to paragraph 6, which of the following is often associated with raising crops?
 - (A) Lack of proper irrigation techniques
 - (B) Failure to plant crops suited to the particular area
 - (C) Removal of the original vegetation
 - (D) Excessive use of dried animal waste

P
A
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R
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P
H

The final major human cause of desertification is soil salinization resulting from overirrigation. Excess water from irrigation sinks down into the water table. If no drainage system exists, the water table rises, bringing dissolved salts to the surface. The water evaporates and the salts are left behind, creating a white crustal layer that prevents air and water from reaching the underlying soil.

9

7. According to paragraph 9, the ground's absorption of excess water is a factor in desertification because it can
- (A) interfere with the irrigation of land
 - (B) limit the evaporation of water
 - (C) require more absorption of air by the soil
 - (D) bring salts to the surface

P
A
R
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P
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10

The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process. Once the soil has been removed by erosion, only the passage of centuries or millennia will enable new soil to form. In areas where considerable soil still remains, though, a rigorously enforced program of land protection and cover-crop planting may make it possible to reverse the present deterioration of the surface.

8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
- (A) Desertification is a significant problem because it is so hard to reverse and affects large areas of land and great numbers of people.
 - (B) Slowing down the process of desertification is difficult because of population growth that has spread over large areas of land.
 - (C) The spread of deserts is considered a very serious problem that can be solved only if large numbers of people in various countries are involved in the effort.
 - (D) Desertification is extremely hard to reverse unless the population is reduced in the vast areas affected.

(A) The raising of livestock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. (B) The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and pulverization of the soil. (C) This is usually followed by the drying of the soil and accelerated erosion. (D)

9. **Directions:** Look at the part of the passage that is displayed above. The letters (A), (B), (C), and (D) indicate where the following sentence could be added.

This economic reliance on livestock in certain regions makes large tracts of land susceptible to overgrazing.

Where would the sentence best fit?

- (A) Choice A
- (B) Choice B
- (C) Choice C
- (D) Choice D

10. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some answer choices do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Many factors have contributed to the great increase in desertification in recent decades.

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Answer Choices

- [A] Growing human populations and the agricultural demands that come with such growth have upset the ecological balance in some areas and led to the spread of deserts.
- [B] As periods of severe dryness have become more common, failures of a number of different crops have increased.
- [C] Excessive numbers of cattle and the need for firewood for fuel have reduced grasses and trees, leaving the land unprotected and vulnerable.
- [D] Extensive irrigation with poor drainage brings salt to the surface of the soil, a process that reduces water and air absorption.
- [E] Animal dung enriches the soil by providing nutrients for plant growth.
- [F] Grasses are generally the dominant type of natural vegetation in semiarid lands.