



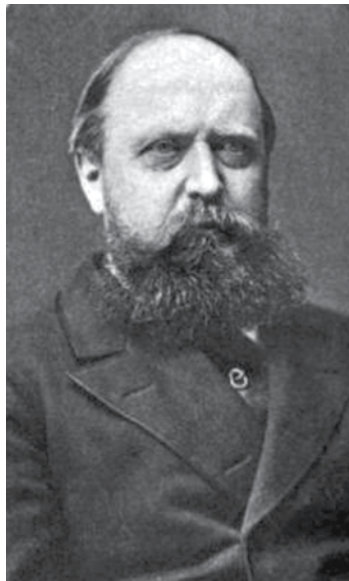
Read the article. Then answer the questions that follow.

The Bone Wars

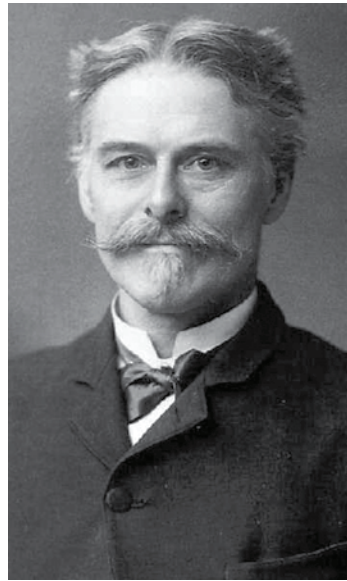
by J. R. Hill

1 If you've spent any time in grocery checkout lines, you've probably seen magazines with pictures of celebrities behaving badly toward each other. You might believe that scientists would be above that sort of thing, but you'd be wrong. About 150 years ago, two scientists started a nasty feud that lasted for decades—and brought to light some of the most spectacular creatures that ever walked the earth.

2 Edward Cope and Othniel Marsh were paleontologists—scientists who study extinct life-forms, including dinosaurs. They met in 1864, when their careers were starting. Paleontology was a young science in the United States, and only a few dinosaurs had been discovered in North America.



Othniel Marsh



Edward Cope

3 Cope and Marsh were friendly at first, but their relationship quickly soured. In 1868, Cope and a team of hired men were digging up dinosaurs in New Jersey. Marsh journeyed there and stayed with Cope for a few weeks. Things seemed to go well, but after Marsh left, Cope learned that his guest and the team foreman had made a deal. In exchange for money, the foreman would send new fossils to Marsh instead of Cope. Marsh had fired the first shot in what scientists would come to call the “Bone Wars.”

4 The war heated up fast. In 1869, Cope wrote an article describing a newly found extinct sea reptile he named *Elasmosaurus*. Cope included a drawing of the creature's skeleton. Another scientist soon pointed out that Cope had mistakenly stuck the beast's skull on its tail. Cope was humiliated, and Marsh crowed about the blunder to anyone who would listen. Shortly after, each man began publishing a string of scientific articles viciously attacking the other's ideas.



5 Cope and Marsh's thirst to outdo each other spilled into their fieldwork. Throughout the 1870s and 1880s, they led and sent teams into lawless regions of the western United States to hunt for dinosaur bones. The teams were told to slow and disrupt each other's work through bribery, stealing, and rock-throwing. The teams even used dynamite to blow up cliffs and bury fossils to keep discoveries from falling into each other's hands. To this day, scientists wonder what fantastic discoveries lay beneath tons of rubble.

6 In addition to sabotage, Cope and Marsh forced their teams to dig up and transport bones quickly. Such speed damaged many specimens, but each man wanted the credit of making the first discoveries of new species. Because they published their findings as quickly as possible, they made many mistakes. Marsh, for example, accidentally stuck the head of one dinosaur (*Camarasaurus*) on to the neck of another dinosaur (*Apatosaurus*) and thought he had discovered a new dinosaur—*Brontosaurus*. Unlike Cope's mistake with *Elasmosaurus*, paleontologists didn't discover and undo Marsh's *Brontosaurus* blunder for nearly 100 years.

7 Until the mid-1880s, only scientists knew about Cope and Marsh's fight. But when Cope ratted out Marsh to the *New York Herald*, their battle spilled out into the world at large. Cope and Marsh assaulted each other through letters published in the newspaper. For a time, they were as famous as any celebrities of today. And even when the public eventually stopped caring, the feud didn't cease. The two men of science took swipes at each other until Cope's death in 1897. Even in death, Cope kept up the attack. He donated his skull to science and asked that his brain size be compared with Marsh's. (Scientists of that time believed that a person with a large brain was smarter than a person with a small one.) For whatever reason, Marsh did not accept Cope's challenge.

8 The Bone Wars have a mixed legacy. On the one hand, American paleontology got a bad reputation from Cope and Marsh's cutthroat behavior. And the mistakes they made in their rush for glory slowed the progress of paleontology for many years. But the Bone Wars also produced a mountain of raw material. Cope and Marsh discovered more than 130 dinosaur species. Their teams dug up so many bones that scientists are still learning new things about them. And many of their most famous discoveries, including *Stegosaurus*, *Allosaurus*, *Diplodocus*, and *Triceratops*, fire the imaginations of children (and more than a few adults) worldwide. Perhaps paleontology would have been worse off had the two men actually gotten along.





Answer the questions. Mark your answers to questions 1–7 on the Answer Form to the right.

Answer Form

1A (A) (B) (C) (D) 4 (A) (B) (C) (D)

1B (A) (B) (C) (D) 5 (A) (B) (C) (D)

2 (A) (B) (C) (D) 6 (A) (B) (C) (D)

3 (A) (B) (C) (D) 7 (A) (B) (C) (D)

**Number
Correct**

8

1

Answer Parts A and B below.

Part A

The article says that paleontology was a young science in the United States in the mid-1800s. How knowledgeable about the field were paleontologists of the time?

- A** They were more informed than those in other nations.
- B** They were the greatest experts of the field at the time.
- C** They were not very knowledgeable about their field.
- D** They were just as knowledgeable as any other scientists.

Part B

Which detail from the article **best** supports the answer to Part A?

- A** "Another scientist soon pointed out that Cope had mistakenly stuck the beast's skull on its tail."
- B** "Cope was humiliated, and Marsh crowed about the blunder to anyone who would listen."
- C** "Because they published their findings as quickly as possible, they made many mistakes."
- D** "Unlike Cope's mistake with *Elasmosaurus*, paleontologists didn't discover and undo Marsh's *Brontosaurus* blunder for nearly 100 years."

2

Marsh and Cope had a stormy relationship. Which event was the **most** important influence on this relationship?

- A** Marsh paid Cope's team foreman to send new fossils to him.
- B** Marsh claimed he was the first to discover a mistake by Cope.
- C** Groups of their workers threw rocks at each other.
- D** Cope and Marsh attacked each other in the newspapers.



- 3** Which sentence **best** describes how the two paleontologists influenced each other?
- A** Cope and Marsh would do almost anything to become public celebrities.
 - B** The competition between Cope and Marsh pushed each man to make amazing discoveries.
 - C** Cope and Marsh's mistakes destroyed their credibility as paleontologists.
 - D** Cope and Marsh would have discovered even more dinosaur bones if they had worked together.
- 4** Each man thought he was better in his field than the other. Which evidence from the text **best** supports the inference that Cope also thought he was smarter than Marsh?
- A** Cope told the *New York Herald* about Marsh's actions.
 - B** Cope described a newly found extinct sea reptile he named *Elasmosaurus*.
 - C** Cope wanted his brain size to be compared with Marsh's after death.
 - D** Cope published scientific articles viciously attacking Marsh's ideas.
- 5** A good summary includes only important details. Which of the following details is **not** important enough to include in a summary of the article?
- A** The rivalry between Cope and Marsh affected their fieldwork.
 - B** Cope and Marsh brought to light some amazing discoveries.
 - C** Each man's rush to claim glory caused mistakes to be made.
 - D** The men gained fame due to their letters in the *New York Herald*.



6

The last paragraph says that the Bone Wars have a mixed legacy. How does the author develop this idea?

- A** by concentrating on the mistakes that Cope and Marsh made
- B** by presenting the pros and cons of Cope and Marsh's rivalry
- C** by giving the causes and effects of Cope and Marsh's rivalry
- D** by stating in sequence events detailing Cope and Marsh's rivalry

7

Which of the following lists only the **main topics** of "The Bone Wars" in the correct order?

- A** Cope and Marsh meet in 1864.
Their feud begins in 1868.
Cope publishes a mistake in 1869.
The feud moves into fieldwork during the 1870s and 1880s.
Cope dies in 1897, leaving Marsh the winner of the Bone Wars.
- B** Marsh begins the feud.
The feud is fought through scientific articles.
The fighting turns violent in fieldwork out West.
Cope dies and wants his brain compared with Marsh's.
The Bone Wars both helps and hurts the reputation of paleontology.
- C** The feud turns Cope and Marsh into celebrities.
Marsh secretly tries to hire Cope's foreman.
Cope publishes a mistake in a scientific journal.
Cope and Marsh begin fighting the Bone Wars.
Cope dies, so Marsh wins the Bone Wars.
- D** A feud begins between Cope and Marsh.
Cope and Marsh compete in both articles and fieldwork.
The fight leads to both mistakes and damaged specimens.
The feud goes public and ends only with Cope's death.
The Bone Wars slowed scientific progress but provided valuable fossils.



- 8** The last paragraph of the article states that “American paleontology got a bad reputation from Cope and Marsh’s cutthroat behavior.” Explain why this was true. Cite two pieces of text evidence to support your inference.

- 9** Write a paragraph in which you analyze the positive influence Cope and Marsh’s rivalry had on the field of paleontology, both in their own time and today. Support your analysis with details from the article.



Think about how the author of “The Bone Wars” develops and explains the rivalry between Cope and Marsh over the course of the article. What are three central ideas about the rivalry? How is each idea developed and explained? What details support each one?

- identify three central ideas presented about the rivalry
- explain how the text develops and explains these ideas
- use details from the article in your answer

[illegible]

[illegible]