



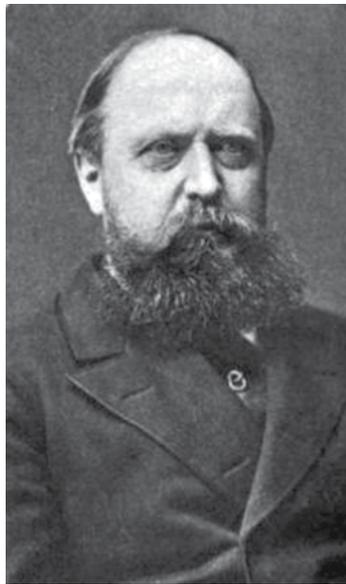
Read the article. Then answer the questions that follow.

The Bone Wars

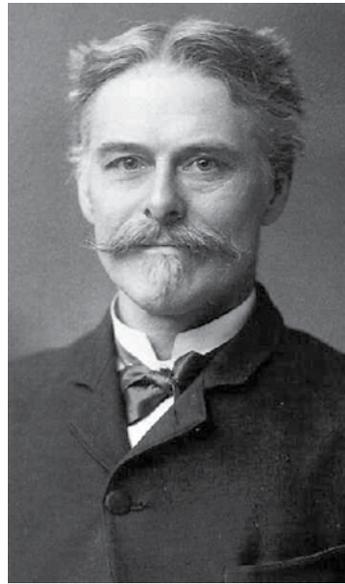
by J. R. Hill

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.

- 1** This question has two parts. Answer Part A, and then Answer Part B.

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** Select the words or phrases that **best** complete the sentence.

Cope and Marsh greatly influenced each other's work. The

competition

 between them led each scientist to

become a celebrity

.

make amazing discoveries



3 Marsh and Cope had a stormy relationship. Fill in the boxes with the correct letter to show what action started the conflict and what action had long-term consequences.

Action that caused the conflict	
Action with consequences for today's paleontologists	

- A** Marsh bribes Cope's employee to betray Cope.
- B** Marsh claims he is the first to discover a mistake by Cope.
- C** Cope and Marsh blow up cliffs to keep each other from discoveries.
- D** Cope and Marsh attack each other in the newspaper.

4 Each man thought he was better in his field than the other. Underline **two** sentences from the paragraphs 6 and 7 that **best** support the inference that Cope also thought he was smarter than Marsh.

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.



5 A good summary includes only important details. Which **two** details are **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*.
- E** Cope asked that his brain size be compared with Marsh's after both men died.

6 This question has two parts. Answer Part A, and then answer Part B.

Part A

Which **best** expresses the author's opinion about the long-term effects of the Bone Wars?

- A** They proved that scientists cannot be celebrities for long.
- B** They were a series of blunders that serve as a cautionary tale.
- C** They produced mostly meaningless discoveries.
- D** They had both positive and negative results.

Part B

Which paragraph from the passage **best** supports the answer in Part A?

- A** paragraph 5
- B** paragraph 6
- C** paragraph 7
- D** paragraph 8



7 The last paragraph of the article states that “American paleontology got a bad reputation from Cope and Marsh’s cutthroat behavior.” Which **two** sentences from the text support this idea?

- A** “Marsh journeyed there and stayed with Cope for a few weeks.”
- B** “The teams even used dynamite to blow up cliffs and bury fossils to keep discoveries from falling into each other’s hands.”
- C** “Because they published their findings as quickly as possible, they made many mistakes.”
- D** “Cope and Marsh discovered more than 130 dinosaur species.”
- E** “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.”

8 Choose the phrases that **best** complete the sentences.

Marsh and Cope found many bones that

cannot be
have yet to be

 identified. Accordingly, the author speculates that if Marsh and Cope had gotten along, they may have been

more productive
less productive

.

