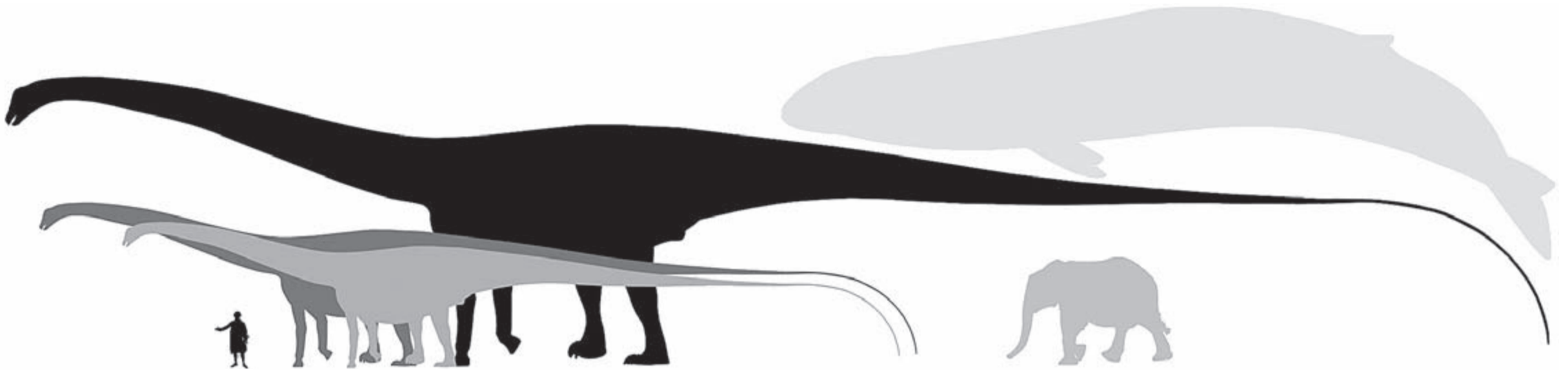


# FIRST DRAFT



JOHN FOSTER AND CARY WOODRUFF/Special to the Sentinel

This scaled drawing shows how the largest version of Amphicoelias fragillimus (in black) compared in size with Supersaurus (dark gray), a Diplodocus (light gray), a blue whale, an elephant and George Washington, who was 6-feet, 2-inches tall.

## Cope's creature sparks debate almost 140 years after discovery

Twice in the past century, western Colorado laid claim to having the largest dinosaur ever discovered. Brachiosaurus, first discovered in 1900 by Elmer Riggs at what's now called Riggs' Hill on the Redlands, was for decades considered the largest species of land animal to roam the Earth. Supersaurus, found in 1979 near Delta, was even longer. It was listed as the largest creature for almost a decade, until an even bigger dinosaur was found in Argentina.



BOB SILBERNAGEL

But they were only the largest if you include Amphicoelias fragillimus, which was at least 50 percent larger than any other dinosaur. But Amphicoelias fragillimus is usually omitted from dinosaur discussions because of questions surrounding its discovery and description.

It all began with a friend of famed 19th century paleontologist Edward Cope finding part of a single dinosaur vertebra near Cañon City in 1877. Cope received the specimen, measured the piece of vertebra at nearly 5 feet long and concluded it came from an incredibly large creature he called Amphicoelias fragillimus, a giant relative of the Diplodocus.

The vertebra was reportedly transported to Cope's collection in Philadelphia, and eventually to the American Museum of Natural History in New York. But when officials at the mu-

seum began cataloging Cope's collection in the 1920s, they could not find the vertebra, even though it was listed on the shipping report.

Although scientists don't dispute that Cope made an important discovery, there is no specimen to re-examine. Consequently, the story of Amphicoelias fragillimus is a mystery that likely will never be satisfactorily solved.

Last week, the website fivethirtyeight.com published a lengthy article by David Goldenberg titled, "The Biggest Dinosaur in History May Never Have Existed."

Goldenberg visited the Cañon City site of Cope's discovery. He talked with several people, including Ken Carpenter, formerly a paleontologist with the Denver Museum of Nature and Science and now with Utah State University. Carpenter spent 20 years scouring the Cañon City site for additional fossil remains of Amphicoelias, with no success. He published a paper in 2006 that estimated the length of the full Amphicoelias vertebra, if it were intact, at more than 8 feet.

Goldenberg also talked to Cary Woodruff of Montana State University in Bozeman, who last year published a paper about Amphicoelias fragillimus with John Foster. Formerly the paleontologist for the Museum of Western Colorado, Foster is

now the director of the Moab Museum in Utah, and I called him there.

Cope's paper on the find recorded the length of the partial vertebra at 1,500 millimeters — roughly 5 feet. Others have used his figures to project a dinosaur almost 200 feet long and weighing more than 100 tons.

But Foster and Woodruff think Cope — or perhaps a typesetter — may have transposed numbers. The partial vertebrae may have been 1,050 millimeters instead of 1,500. That would mean a dinosaur only 70 percent as large. Even so, at 133 feet long, it would be as large as any dinosaur found to date.

"It's speculative," Foster said. "but there's a lot of guesswork with all of this because no specimen is available."

Foster said he and Woodruff wrote about Amphicoelias as a tangent to other studies. "It's a small contribution to the whole question of how big can a land animal get," he said.

So, what happened to the missing vertebra? Cope said it was extremely fragile. It may have been severely damaged during shipping and therefore was discarded when it arrived, Foster said.

There are other mysteries related to the creature:

■ Why did Cope give so little attention to his huge find? He wrote prolifically and was not bashful about touting his accomplishments.

"That's what I find odd," Foster said. "Even when Cope

was talking about trends in (dinosaur) body size he didn't mention it."

It's also strange that Cope's long-time rival, O.C. Marsh, never challenged him about it, Foster noted.

■ Why haven't more fossils of the creature been found? It was discovered in the Morrison Formation, where many dinosaur discoveries have been made. But with 140 years of digging throughout the formation and many years of re-exploring the Cañon City site, no similar fossils have been unearthed.

■ Why the gap between Amphicoelias fragillimus and the next largest dinosaurs? Often, intermediate species are found between the very large and smaller species. But that's not the case with the larger version of Amphicoelias fragillimus.

■ Could such a gigantic species actually have existed? Based on Cope's measurements, Amphicoelias fragillimus may have simply been too large to survive on available resources. And its bones and nervous system may not have supported such a supposed size.

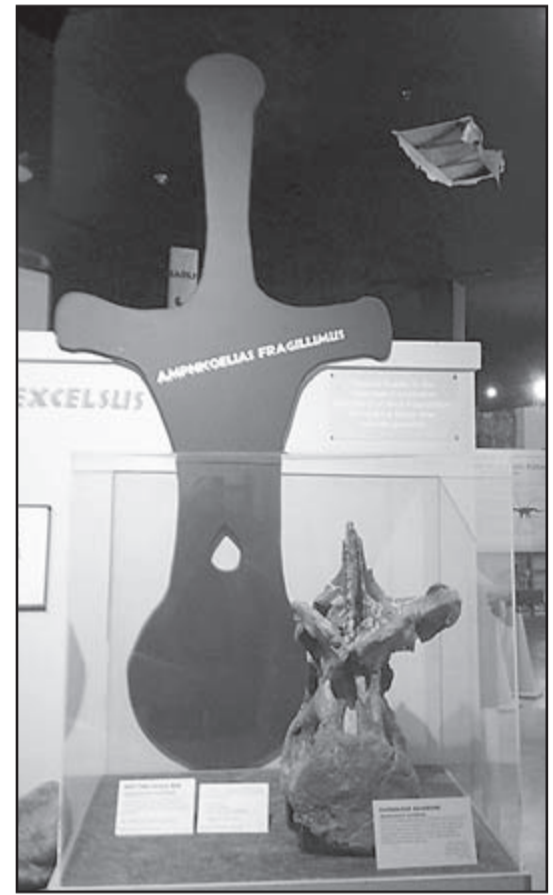
Recent rankings I found placed Supersaurus as the third-largest dinosaur based on length, while Brachiosaurus is No. 5 based on body mass. But all that changes if Amphicoelias fragillimus is still lumbering around the paleontological picture.

However, even with the unsolved mysteries, the story of Cope's creature is import-

ant to modern scientists, said Julia McHugh, the current curator of paleontology at the Museums of Western Colorado. "It's a great teaching tool on the fragile nature of the fossil record and a very real example that not everything in science has been solved. There are still mysteries to investigate and new discoveries to be made." Information for this column

came from John Foster and Cary Woodruff and their paper, "The fragile legacy of Amphicoelias fragillimus," online at voluminajurassica.org, Volume 12, No. 2; from Julia McHugh; and from David Goldenberg's article at fivethirtyeight.com.

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A Dinosaur Journey exhibit displays the projected size of Cope's Amphicoelias fragillimus vertebra, if his recorded measurement was correct, compared with the vertebra of an 80-foot-long Apatosaurus recovered from Rabbit Valley.

BOB SILBERNAGEL/Special to the Sentinel

### 2016 THIS WEEK IN THE LEGISLATURE

This is the first full week of the 2016 session and, as is normal with most legislative sessions, not much is happening. Committees will begin to meet, but most are getting briefings on various happenings in state government.

■ **Today:** Legislature closed to honor Martin Luther King Jr. Day.

■ **Tuesday:** For the past two months, the Joint Budget Committee has been in the process of hearing from various state agencies as it starts to draft next year's spending plan. Up this day: Departments of Law, Local Affairs and Natural Resources.

■ **Wednesday:** The House Transportation & Energy Committee will hear HB1029, which would allow kei vehicles on roads. Kei vehicles are tiny cars, vans or trucks that are much smaller and less powerful than regular vehicles.

■ **Thursday:** The House Transportation

& Energy Committee will debate HB1060, a measure that would require the Colorado Department of Transportation to erect a permanent roadside memorial for a Colorado State Patrol officer who died on a highway while in the line of duty.

■ **Next week:** The House Education Committee will hear HB1002, a bill that would expand the state's Parental Involvement in K-12 Education Act, which gave workers unpaid time off from their jobs to attend school activities of their children.

Scheduled committee hearings are subject to change. All floor action and committees can be watched or heard on the Legislature's website at www.leg.state.co.us. Check that website to see which measures are available for remote testimony, and how to register to speak.

— Charles Ashby

## Utah police officer, suspect dead in exchange of gunfire

By THE ASSOCIATED PRESS

SALT LAKE CITY — A Utah police officer was killed Sunday after he was shot by a suspect who was later killed by police.

Salt Lake County Sheriff Jim Winder said Unified police officer Douglas Barney was shot in the head shortly before 10 a.m. in the suburb of Holladay. He was taken to a hospital where he died of his injuries a few hours later.

According to Winder, Barney was helping to search for 31-year-old Cory Lee Henderson and a woman. Witnesses said both were riding in a BMW that became involved in a traffic accident with another vehicle. Police said occupants in the other car were seriously injured while Henderson and the woman fled. Shortly after Barney was shot,

responding officers encountered Henderson who was on foot. Winder said gunfire erupted with Henderson and police exchanging multiple rounds. Officer Jon Richey suffered three gunshot wounds, including one in the torso. Henderson died at the scene.

Winder said Richey was conscious and alert when he saw him in the hospital. He has since undergone surgery and his condition was improving.

The woman seen with Henderson was still at large and remained a person of interest, police said. Winder described her as white and blonde. According to witnesses, she stumbled and fell as she was walking away so she might be injured.

## BLOTTER COMPILED BY SENTINEL STAFF

### SWAT team nabs suspect

An incident involving the Grand Junction Police Department SWAT team ended Saturday night with the arrest of Donald Quint, 43, on suspicion of two counts of resisting arrest, two counts of second-degree assault on a police officer, vehicular eluding, failing to drive in a single lane, reckless endangerment and driving under revocation, according to the Mesa County Sheriff's Office.

Quint was arrested at 2910 Jon Hall Drive after he was reportedly pulled over on a traffic stop, then fled from authorities before he barricaded himself in a home at 2910

Jon Hall Drive.

Deputy Amanda Erkman said Sunday she did not know if the home was Quint's.

The SWAT team eventually went into the home to arrest Quint, who also was wanted by the police department on a no-bond warrant for assault, she added.

### Indecent exposure alleged

Christopher Martinez, 31, was arrested and released on a summons Friday on suspicion of indecent exposure after he reportedly took his clothes off in the middle of the 400 block of Rood Avenue, according to a copy of his summons from the Grand Junc-

tion Police Department.

Shortly after 2 a.m., officers saw Martinez standing in the middle of the street in his underwear, arguing with friends who were trying to get him into a car to go home.

Officers advised Martinez to go home with his friends. Instead, he took off his underwear. He was reportedly intoxicated.

According to the Mesa County Sheriff's Office:

■ A witness reported Friday night that Travis O'Neil, 36, was allegedly riding a 4-wheeler recklessly near the intersection of 29 Road and Dawn Drive. He was contacted and found to have a revoked license for prior DUI offenses. O'Neil was warned.

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How to reach us: 242-5050. Business hours are 8 a.m. to 5 p.m. Monday through Friday, excluding holidays. Circulation phones are open 7 a.m. to 11:30 a.m. on weekends.

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The Daily Sentinel (ISSN 1445-8962)  
Published every morning at 734 S. Seventh Street, Grand Junction, CO 81501.  
Periodical Postage paid at Grand Junction, CO.  
Carrier home delivery prices: 13 weeks - \$45.89, 26 weeks - \$86.84, 52 weeks - \$150.80.  
Weekend delivery packages: Wednesday thru Sunday - \$140.40, Friday thru Sunday - \$93.60,  
Saturday & Sunday - \$59.80, Sunday only - \$59.80.  
Weekend delivery includes the following date in 2016: Nov 24.  
Single Copy: \$1.00 daily and \$2.00 Sunday.  
Mail (USPS): \$5.00 per week, \$260.00 per year. \*POSTMASTER: Send address changes to The Daily Sentinel, P.O. Box 668, Grand Junction, CO 81502.\*

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Dear Dare to Care customers, I very much appreciate all of you and hope you all join our DTC family. But due to the business climate in America driving up costs we **MUST** change. So... On April 1st, Dare to Care Auto Repair **WILL** shut down to the public and become the FIRST 'Members Only' Auto Repair Club. The benefits of a club are untouchable for our Members. You are welcome to sign up anytime **BEFORE** March 31, 2016 (benefits start 4-1-2016). All Members who signed up last March will simply renew this March. If you choose to attend other shops, I want to say "Thank You" once again for your past business. Mike Bambino  
**DON'T miss our video on daretocaregi.com**  
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**2016 WINTER SENIOR edition**  
All Daily Sentinel Senior Editions also publish in the Magazine Gallery of GJSentinel.com.  
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The Daily Sentinel's Winter **Senior Edition** will be concentrating on fitness of all sorts. Not only will there be the latest information on how the 50+ crowd can stay in shape and love it, but also financial and new career direction fitness. This is information that will be appreciated and read by 51% of Mesa County adults aged 50+. That's about 38,000 people!

The Daily Sentinel's Winter **Senior Edition** is a fun, uplifting and dynamic way to reach adults in Western Colorado. Your Daily Sentinel Advertising Representative will be contacting you soon or call 256-4289 to reserve your space today.

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