

= Bone Sharps , Cowboys , and Thunder Lizards =

Bone Sharps , Cowboys , and Thunder Lizards : A Tale of Edward Drinker Cope , Othniel Charles Marsh , and the Gilded Age of Paleontology ( 2005 ) is a graphic novel written by Jim Ottaviani and illustrated by the company Big Time Attic . The book tells a slightly fictionalized account of the Bone Wars , a period of intense excavation , speculation , and rivalry which led to a greater understanding of dinosaurs in the western United States . This novel is the first semi @-@ fictional work written by Ottaviani ; previously , he had taken no creative license with the characters he depicted , portraying them strictly according to historical sources .

Bone Sharps follows the two scientists Edward Drinker Cope and Othniel Marsh as they engage in an intense rivalry for prestige . Ottaviani has Cope and Marsh interact and meet many important figures of the Gilded Age , from P. T. Barnum to U.S. Grant , as the two scientists pursue their hotheaded and sometimes illegal acquisitions of fossils . Unlike in his previous books , " the scientists are the bad guys this time " . Upon release , the novel received praise from critics for its exceptional historical content , although some reviewers wished more fiction had been woven into the story .

= = Background = =

Author Jim Ottaviani was drawn to the subject of paleontologists Edward Drinker Cope and Othniel Charles Marsh after reading a book about the Bone Wars while working at the University of Michigan Library in Ann Arbor . Ottaviani had previously written books and comics on scientific figures , but had never written a work of historical fiction . While Ottaviani was putting his ideas together , he met Zander Cannon at the 2004 San Diego Comic Convention . Cannon and associates were forming a new production studio , " Big Time Attic " ; Ottaviani mentioned he had a proposal he wanted to show them . Referring to Big Time Attic , Ottaviani stated in an interview that " A newly formed studio taking on a 160 @-@ page graphic novel is ambitious " and that he was lucky to have had the book published . Even the format ? the book is wider than it is tall ? was a departure for Ottaviani , but he explained that since the story was talking about " wide expanses of territory " and the American West , the artists at Big Time Attic wanted a more non @-@ traditional landscape page design .

= = Plot summary = =

The novel is broken into three sections , with each titled after a portion of the novel 's title : " Bone Sharps " , " Cowboys " , and " Thunder Lizards . " The narrative is not continuous ; there are significant gaps of time between each section , roughly spanning the years 1869 to .

The novel begins with Othniel Charles Marsh on a steam train between New York City and New Haven , where he first meets the showman Phineas T. Barnum . While showing Marsh the Cardiff Giant ( or rather a copy of it ) , which he cheerfully admits is a fraud when Marsh points this out , he refers with irritation about a " little cuss " of a professor who outbid him for some Mexican antiquities . An angry Marsh reveals he is that " little cuss " and he fully intends to write an article exposing the Giant as a fraud before Barnum can advertise it .

In Philadelphia , Henry Fairfield Osborn is introducing artist Charles R. Knight to Edward Drinker Cope , a paleontologist whose entire house is filled with bones and specimens . Cope is commissioning a painting , something to " catch the spirit " of the sea creature Elasmosaurus ( but has unwittingly mistaken its neck for a tail ) . Cope then leaves for the West , as the official scientist for the U.S. Geological Survey ( USGS ) . On the way , he meets Othniel Charles Marsh , a fellow paleontologist , and shows him his dig site at a marl pit in New Jersey ; after Cope leaves , Marsh talks to the owner of the land and pays him off to gain exclusive digging rights . At Fort Bridger , Wyoming , Cope meets Sam Smith , a helper to the USGS . During excavations , Cope finds some of the richest bone veins ever . Sending back carloads of dinosaur bones east by train , Cope encounters Marsh , who is heading out west as well . Marsh travels in style , lounging in coach while

the rest of his team travels third class ? Marsh even berates them for playing cards , saying it is " low class " and that Yale graduates should look more presentable . At Fort McPherson , Nebraska , Marsh meets " Buffalo " Bill Cody , who serves as their guide , along with the Native American Indian tribe . Marsh discovers many new fossils , and promises to Chief Red Cloud that he will talk to the President of the United States about the situation of the Native Americans ? they have been given spoiled food in exchange for their land . Back East , Knight has finished his reconstruction of Elasmosaurus . He and Knight return to the marl pits of New Jersey , but are forced away . Cope becomes furious and storms away when he learns Marsh has bought the digging rights and published a paper revealing his interpretation of Elasmosaurus flawed .

Some time later , John Bell Hatcher is backing out of paying his share of a card game by drawing his revolver . He has taken to gambling , as Marsh , who employs him as a bone hunter , is not providing him with enough funds . Marsh lobbies the Bureau of Indian Affairs on behalf of Red Cloud , but also visits with the Geological Survey , insinuating that he would be a better leader of the USGS than Cope . After learning about Sam Smith 's attempted sabotage of Cope and once again receiving no payment from Marsh , Hatcher leaves his employ . Marsh , now representing the survey , heads west with wealthy businessmen , scoffing at the financial misfortunes of Cope , whose investments have failed .

Cope travels with Knight to Europe ; Knight with the intention of visiting Paris zoos , Cope with the intent of selling off much of his bone collection . Cope has also spent much of his money buying The American Naturalist , a paper in which he plans to attack Marsh 's dealings . Hatcher arrives in New York to talk about the find Laelaps ; in his speech , he subtly hints at the folly of Marsh 's elitism and backstabbing , as well as Cope 's collecting obsession .

Later , Marsh is attending a conference on telephony hosted by Alexander Graham Bell ; it is here he learns that his USGS expense tab ( to which he had been charging drinks ) has been withdrawn , his publication has been suspended , and the fossils he found as part of the USGS are to be returned to the Survey . His colleagues now shun him , the Bone War feud having alienated them , and he is forced to go to Barnum to try to obtain a loan , with the very Mexican antiquities he 'd outbid Barnum on before as collateral .

Osborn and Knight arrive at Cope 's residence to find the paleontologist has died of illness . The funeral is markedly pitiful , with only a few Quakers and the two friends in attendance . Cope has bequeathed his remains to science , and requested to have his bones considered for the Homo sapiens lectotype . Back at Marsh 's " wigwam " , Marsh 's , Chief Red Cloud , examines Marsh 's luxuries . Red Cloud 's interest is piqued by a long tusk from a Mastodon , which the Shawnee call Yakwawi 'ak . The Shawnee have an ancient legend , which Marsh relates . At one time there were giant men proportionate to the mastodons . However , when the great men grew few , the Great Spirit decided to destroy the Yakwawi 'ak himself . All but one bull was killed ; this last mastodon fled north , where he remains to modern times . In exchange for the loss of the Mastodon , the Great Spirit created the cranberry , a bitter reminder of the blood spilled . Chief Red Cloud remarks that it is a true story , but Marsh rebukes him , saying that science tells modern man that his ancestors were smaller , not larger , than him . Red Cloud , on his way out , responds , " It is not a story about science . It is about men . "

Knight and his wife , many years later , are taking their granddaughter Rhoda to the American Museum of Natural History . Knight , well @-@ known to the staff , is visiting the closed @-@ off areas to have a look at the new mammoth specimens : the girl , however , is eager to see more of her grandfather 's paintings . During this , the staff are finally getting round to sorting out Marsh 's long @-@ neglected collection of fossils . Two of the workers discover Knight 's Leaping Laelaps has been accidentally left in the storeroom yesterday . The painting is taken back downstairs while the workmen unknowingly leave Cope 's skeleton and Marsh 's parts behind : " The rest of this stuff is stayin ' put for who knows how long , but we don 't want that to get buried . "

= = Characters = =

Edward Drinker Cope ? An American paleontologist , Cope spent nearly all his money in attacking

Marsh and financing further digs for bones out west ; he dies destitute .

Othniel Charles Marsh ? Rival to Cope , Marsh was a Yale @-@ educated scholar who disdained what he called " the publicization of science " . His sizable fortune granted him favor and status in politics and society . By the end of Bone Sharps , Marsh is seen to have lost face with the science world at large for his excessive means to acquire fossils ; nonetheless , he " defeated " Cope by discovering more new species of dinosaur such as Apatosaurus , Stegosaurus , Allosaurus and Triceratops .

Charles R. Knight ? A famous painter of the twentieth century who created numerous paleontological pieces ( the dinosaurs on the cover are based on Knight 's painting Leaping Laelaps ) . Ottaviani introduces Knight to Cope earlier than historically recorded .

P.T. Barnum ? American showman , famous for his hoaxes and for founding the Ringling Brothers and Barnum and Bailey Circus later in life . Barnum 's Cardiff Giant is exposed as a fraud by Marsh , who later comes to the entertainer begging for money .

Henry Fairfield Osborn ? paleontologist and geologist , Osborn joined the US Geological Survey in 1890 , and on one fossil @-@ hunting trip to the West met Cope . He described numerous well @-@ known dinosaur genera , including Ornitholestes , Tyrannosaurus , and Velociraptor .

Bill Cody ? Commonly known as " Buffalo Bill " , this western showman makes a brief appearance in Part II .

Ulysses S Grant ? 18th President of the United States , Marsh uses his connections to lobby directly to Grant .

= = Factual accuracy = =

While the majority of Bone Sharps is true and all of it is based on history , the author acknowledged several differences between real events and certain artistic license taken . One instance of Ottaviani using creative license was to transport artist Charles R. Knight into the story earlier than was originally intended in early drafts . In real life , Knight did not meet Cope until only a few years before Cope 's death ; In addition , Knight 's autobiography states that it was reporter William Hosea Ballou who introduced the two , not Osborn . There is also no evidence Marsh and Knight ever met . On Knight 's role in the story , Ottaviani wrote :

As I was reading about Cope and Marsh , I ran across Knight as something of a bit player in their lives . As I got further into the Cope and Marsh story , and I liked the two less and less as people ? which is different from liking them as characters , of course ? I wanted to have a character in the book for the readers to root for , and neither of the scientists could fill that role . When I found out that Knight had met Cope just before Cope died , I became convinced that he was the character I needed .

After Knight 's granddaughter forwarded him a copy of Knight 's autobiographical manuscript , Ottaviani made Knight 's role more prominent . Ottaviani 's interest in Knight eventually led to his company G.T. Labs publishing Knight 's autobiography , with notes by Ottaviani and forewords by Ray Bradbury and Ray Harryhausen . Other character relationships were fictionalized as well ; editor James Gordon Bennet , Jr. never lobbied with Cope , and never exposed Marsh 's will . Cope 's bones also never made it to New York .

Some conversations , due to their private nature , were fictionalized ; Ottaviani makes up Marsh 's lobby to Congress and what happened during his meeting with President Grant , and P.T. Barnum never told off Marsh the way he did in the novel . Ottaviani also wove the story Marsh tells about the Mastodon from several different versions of the legend .

A key plot point is fabricated for the purposes of dramatic irony : in the book , Marsh has his agent Sam Smith leave a Camarasaurus skull for Cope to find and mistakenly put on the wrong dinosaur . Instead , Hatcher finds it ; Smith tries to keep an unwitting Marsh from getting it , but due to Marsh 's obnoxious manner he lets him after all . As a result , Marsh mistakenly classifies the ( non @-@ existent ) Brontosaurus . Ottaviani admits in the book he invented this , as " the literary tradition of hoisting someone up by his own petard was too good to pass up " .

= = Reception = =

The book was generally well @-@ received upon release . Comic book letterer Todd Klein recommended the book to his readers , stating that the novel was able to convey the depths of Cope and Marsh 's rivalry and " we can only wonder how much more could have been accomplished if [ Cope and Marsh ] had only been willing to team up instead " . Klein 's complaints focused on the somewhat stiff art and the difficulty in telling some characters apart , but said these shortcomings did not affect the flow and reading . Johanna Carlson of ComicsWorthReading.com found Bone Sharps 's central message , " the question of whether promotion is a necessary evil ( to gather funds through attention ) or a base desire of those with the wrong motivations " , still relevant to today 's society ; Carlson also lauded the flow of the novel and some of the intricate details in the story and setting . Other reviewers praised Ottaviani 's inclusion of notable historical figures , and the educational yet entertaining feel of the work .

In addition to minor issues with the art , some reviewers , including Entertainment Weekly 's Tom Russo , felt that more fiction could have been used in the mostly non @-@ fiction writing . Due to the historical background of the book , Bone Sharps has been used in schools , as part of a study testing the effects of using comic books to educate young children . Since the release of the graphic novel , Ottaviani has published other slightly fictionalized historical stories , including Levitation : Physics and Psychology in the Service of Deception and Wire Mothers : Harry Harlow and the Science of Love .