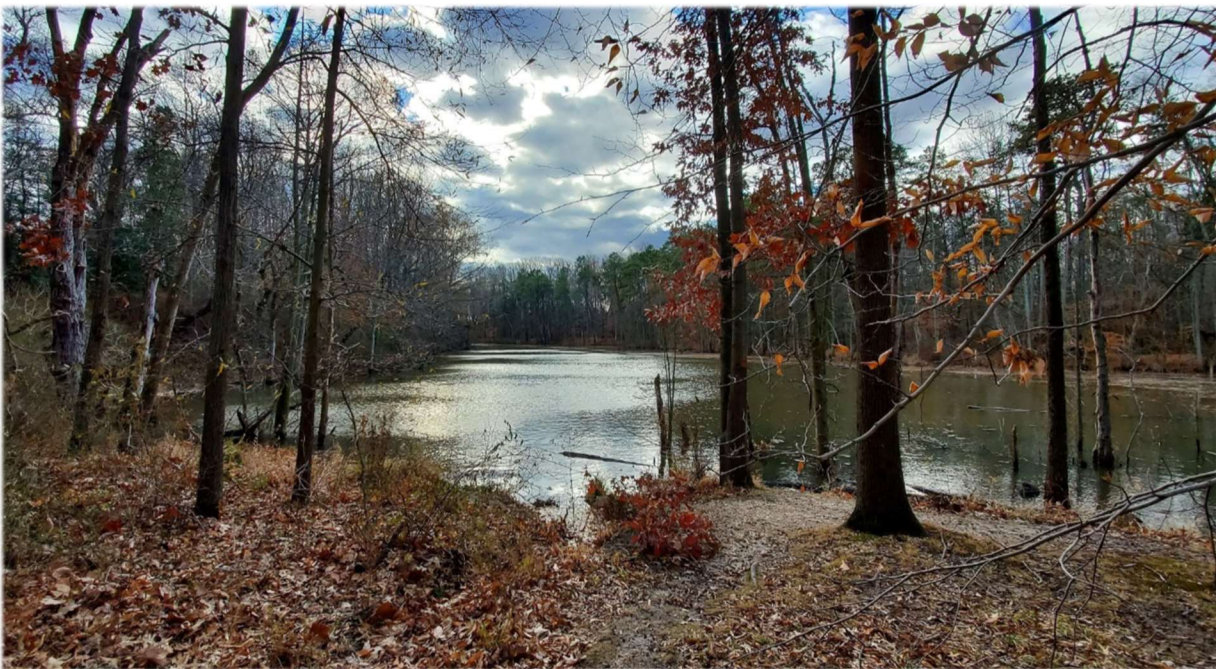




MANTUA TOWNSHIP HISTORICAL COMMISSION BULLETIN

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Views of Emerald Lake at Ceres Park – Home of Marley Bones

MARLY BONES: MANTUA TOWNSHIP AND THE MAKING OF THE DINOSAUR

In the second half of the 1800s, mining greensand marl was a major industry in Mantua Township. The valleys of the Chestnut Branch and the Mantua Creek cut through a thin underground belt of marl extending across new Jersey from Salem to Sandy Hook, exposing the valuable material. Greensand marl had been shown to be an exceptionally useful fertilizer, capable of transforming the sandy soils of southern Jersey into productive farmland. The West Jersey Marl and Transportation Company, by virtue of its exclusive contract with the West Jersey Railroad, turned the sale and shipping of marl big business. Operating mines out of what is now Ceres Park, and later, the current Edelman Fossil Park, they sold and shipped more marl than anyone. But marl was not all they found. Today, long after the impact of marl on agriculture has faded into history, the legacy of fossil remains from Mantua Township can be seen in the development of the science of paleontology itself.

Marly Bones

An excerpt from *Ceres Park: How Marl, Machines and Moxie Made the Garden State*

By Tom Downing

Kids Love Dinosaurs

It was a hot and sunny day in the summer of 1973. Two 12-year-old schoolmates—Tom and Mike—were exploring a bluff along the east side of the Chestnut Branch in Mantua Township. They were looking for marl.

From a chemical or agricultural standpoint, the boys knew nothing about marl, but years of playing along the creek at the end of their street had taught them where to find it, how it looked, felt, and smelled—even what it tasted like. They had also learned that marl contained fossils—and today, as usual, they were on a fossil hunt.

Miss Genung, the seventy-year-old librarian at the Sewell Elementary School, was a mentor to the boys. They would bring her their finds and look on as she identified them—belemnites, ammonites, and more—showing them artist's conceptions of the original animals, tiny creatures swimming or scuttling along the floor of a shallow sea. Miss Genung seemed awesomely wise, and she paid for the examples they brought her. Her currency was foreign postage stamps for their stamp collections.

On this day, the boys were edging along an unexplored cliff—not only new to them, but itself new, or at least newly-arranged. The county had recently installed a sewer pipe under the creek

bottoms, and in the process had turned the hill upside-down and topped it off with new fill.

Having slid/fallen to the foot of the bluff, the boys found themselves on a narrow strip of dirt at the edge of the creek—more of a foothold than a ledge. They could see no easy way back to the top. Looking around for ideas, Tom made the discovery of his young life.

Tom had always loved dinosaurs. The first toy he could remember was an inflatable ride-on



1. The author with his favorite book, circa 1968.

brontosaurus, green, with the Sinclair gas station logo on its side. When he outgrew the miniature plastic sauropods he got for his sixth birthday, he turned to books about dinosaurs. One of these began with the story of workmen in a pit finding the bones of the first dinosaur discovered in America. The pit had been in Haddonfield, just a few miles away.

Belemnites and ammonites were well and good, but to find a dinosaur—that would be something!

So it was with tremendous excitement that Tom spotted a dinosaur skull resting on the floor of the creek, ten feet away, half buried in mud. Dappled sunlight streaming through the canopy of trees overhead lit the find even through the murky water. Two large holes were the eye sockets. From the fossil's shape, it belonged to a carnivore—not as large as a tyrannosaur, perhaps an allosaur of some sort. His pulse raced, and into his mind flashed, for a moment, a photo of this skull on the cover of *National Geographic*.

Tom yelled to Mike, and together they peered toward the skull. How could they retrieve it? Typically, pre-teen, they weighed the tradeoff between paleontological glory and getting in trouble for coming home covered with mud. Maybe they could fish it out with something.

Mike saw a discarded metal pole jutting from the dirt in the cliff. Together they pulled it out, heavy, with pieces of concrete still clinging to one end. Tom stacked two nearby cinder blocks (this was not the most pristine of creeks) for a fulcrum. Mike, taller and stronger, took the heavier end of the pipe. Tom threaded the pipe through one of the skull's eye holes, then went to help his friend lever it up and out.

Their plan worked! Almost surprised, the boys felt the heavy skull began to rise. It cleared the surface of the creek and hung triumphantly in full view. For a second there was no sound but the water dripping from their prize: a broken toilet bowl.

The boys displayed that youthful capacity for instantaneous hilarity. Ten minutes later, still trying to catch his breath, a deeply embarrassed Tom assured Mike that he had known all along that it wasn't really a dinosaur. Mike, characteristically good-natured, pretended to believe him—sometimes, that's what friends are for.

The Cope Course

Young Edward Cope¹ would have loved dinosaurs, but they had yet to be discovered. This would change. Laborers digging pits or trenches were sometimes surprised by a

strange fossil bone or tooth, but these finds were mere curiosities—and few and far between. The word “dinosaur” had not yet been coined.

Cope was born near Philadelphia in 1840 to a wealthy Quaker family. He was meant to become either a gentleman farmer, like his father, or a merchant/shipping magnate like his grandfather.²

To stimulate his interest in agriculture, Cope's father carefully taught him about the plants and animals on their comfortable estate. He and his wife took the boy

sides. One came close along side of the vessel. The captain ran and got a harpoon to catch one, but it was too late. They had all swam away.



3. A page from young Edward Cope's notebook describing an encounter with whales during a family voyage to Boston. He had just turned seven.

with them on travels to other cities, and through the woods and fields around Philadelphia. Most often of all, they took him to the Academy of Natural Sciences in Philadelphia.

His parents' plan worked all too well. From the time he could hold a pen Cope wrote about and sketched the natural world about him. He was an indifferent scholar—the classroom was not for him. In a letter home from boarding school, a 13-year-old Cope commented (accurately) on an accompanying report card: “It is not any too good, thee can see.” Biology, botany, the anatomy of animals of any type—these fully engaged him. However, natural science did not



2. Edward Cope, age ten.

steer the young man toward farming—instead, it captured his heart for itself.

Cope delighted in long hours of exploration, observation, collecting, and classifying—work others found tedious. He haunted the Academy of Natural Science Museum, and in the process became well-known to its members. Such were his gifts that Cope, still in his teens, was hired to organize the museum's extensive collection of reptile bones.

At the academy he came under the influence of Joseph Leidy, the brilliant polymath of the academy. How intelligent was he? Leonard Warren, the 20th-century writer, unapologetically titled Leidy's biography *The Last Man Who Knew Everything*.

Leidy had been consulted on the famous 1858 Haddonfield dinosaur find. He had overseen its excavation. He described the creature, controversially yet correctly showing that the beast had walked on two feet. Leidy named it after his friend and fellow academy member, W. P. Foulke, and supervised the assembly of its fossilized bones for display at the museum, where visitors today can still see *Hadrosaurus foulkii*.

Leidy's dinosaur was a major discovery. People had been finding fossilized bones and teeth here and there for decades but were challenged to identify the animal that left them behind. The Haddonfield bones were different. They formed a nearly complete skeleton, making reconstruction of the animal much easier.

Cope helped Leidy put his dinosaur exhibit together. He also visited the Haddonfield marl pit that had contained the bones, and in the process recognized the great potential greensand digs held for fossil discovery. This was an important piece of knowledge.

Fossils became Cope's overriding focus, with good reason. He was approaching adulthood in an exciting time for science. In 1859, Charles Darwin published *Origin of Species*, revolutionizing the way scientists would think about biology. If animals could and did evolve, the record of those changes would be underground. Paleontology, in its infancy, suddenly became much more than hunting in the soil for oddities—it was knocking on the door of the secrets of life itself.

Interpreting the fossil record would be an overwhelming challenge, but that was fine with Cope. It was just the kind of thing he wanted to do. In a letter to his sister, he explained:

I would think rather to explore nature, than spend the time at farming. My near objects in the former are two. 1st, to get at the principles of development and progress of animals (including man) by a thorough demonstration of the same in some one group; 2nd, to get out a manual of compar.—anatomy for school and college use.³

When the Civil War came, Cope—like many a young man of privilege—was sent by his parents to study in Europe. As was typical for him, this took the form of self-guided exploration in the field and in museums. While spending a month in Berlin, Cope met Othniel Marsh, who was also waiting out the war, studying natural history at the local university. Marsh hosted Cope for a few days, and if they did not become close friends, they were congenial acquaintances.

The guest and host were a study in contrasts. Cope was younger by nearly a decade. Born into wealth, he had gone into science over the objections of his father. His academic background was unremarkable; he had no more than an honorary degree from Haverford College, product of his father's generous donations to the institution. He preferred fieldwork to the classroom. Despite his lack of academic training, he was a prolific writer—at 23 years of age he had already published 29 scientific articles.

Marsh, on the other hand, had been born to a humble farming couple. His wealthy uncle, philanthropist George Peabody, encouraged and financed his scientific training. Marsh excelled in school, graduating from Yale before studying in Germany under some of the finest scientific minds of the day. By the time he met Cope, Marsh had earned two graduate degrees. When he returned from Germany he took a professorship at Yale, becoming the first official academic paleontologist in America.

When Cope returned from Europe to Philadelphia, the Academy of Natural Sciences made him a corresponding secretary. He continued to dedicate himself to reading the record in the rocks. Professor George Cook helped by bringing him interesting fossils his geological survey of New Jersey had uncovered. Cope relocated to Haddonfield to be closer to the promising marl pits of West Jersey. Of

particular interest to him was the newest, biggest operation: the pits of the West Jersey Marl and Transportation Company.

Cope went to Marlboro, as the company had named its operations, and explored the excavation. Before he left, he arranged with Superintendent Voorhies to save aside any unusual fossils the workmen uncovered. He would pay the superintendent for any he found useful. The arrangement pleased Voorhies and resulted in Cope's first major discovery. It was a bit of dinosaur-hunting history.

Leapin' Lizards

In the early 1800s a fossilized portion of lower jaw containing a dagger-like tooth had been discovered in England. What kind of creature had left it behind? There was not much to go on—only the partial jaw, and a handful of vertebrae and other odd bones from scattered sites.

Once the Napoleonic Wars were over (in 1818) France's Georges Cuvier—the world's foremost authority on bones—came to London to team with British paleontologists to study these fossils. Having done so, they envisioned a giant iguana-like lizard dragging its belly across the prehistoric landscape.



4. An 1854 drawing of *Megalosaurus* by Richard Owens. Published in "Geology and Inhabitants of the Ancient World," the figure includes the fossil bones used to guide the paleontologist's recreation.

By Cope's Day, the creature had been dubbed *Megalosaurus bucklandii*. With no skeleton for a guide, the popular concept now had the animal off its belly, but solidly on all fours—sort of a cross between a crocodile and a hippopotamus. Sculptures of the creature had been commissioned for London's Crystal Palace exhibition in 1854. These statues are still on display in that city for the visitor to enjoy, as Cope almost certainly did during the London portion of his visit to Europe.

The popular concept of the predator dinosaur was about to change. In 1866, on a return trip to

Marlboro, Cope found the workers had set aside for him an interesting cache of fossil bones that included a 6-inch claw. Taking the specimens back to the academy, he began to piece them together. The result was something special: a largely complete dinosaur skeleton, only the second ever discovered.

Cope exhibited his find at an Academy meeting the following year. Unlike the first dinosaur—Leidy's vegetarian *Hadrosaurus*—Cope's was a clawed, sharp-toothed predator. But what really fascinated him was its legs—its hind legs, to be specific. This creature, he thought, was born not to crawl on four legs, or even shuffle on two, but to leap.

Cope named his discovery *Laelaps aquilunguis*. *Laelaps* was the name of a never-failing hunting dog from Greek mythology; *aquilunguis* meant the creature had eagle-like talons. In 1868 his published description of the bipedal meat-eater ran through the

On the Discovery of the Remains of a gigantic Dinosaur in the Cretaceous Beds of New Jersey. By E. D. COPE.

Prof. Cope exhibited the remains of a gigantic extinct Dinosaur, from the Cretaceous Greensand of New Jersey. The bones were portions of the under jaw with teeth, portions of the scapular arch, including supposed clavicles, two humeri, left femur, and right tibia and fibula, with numerous phalanges, lumbar, sacral, and caudal vertebrae, and numerous other elements in a fragmentary condition.

The animal was found by the workmen under the direction of J. C. Voorhies, Superintendent of the West Jersey Marl Company's pits, about two miles south of Barnesboro, Gloucester county, N. J.

The bones were taken from about twenty feet below the surface, in the top of the "chocolate" bed, which immediately underlies the green stratum which is of such value as a manure.

5. Excerpt from the *Annals of the Academy of Natural Sciences* describing Cope's 1867 discovery of *Laelaps aquilunguis*.

small but growing paleontological community like electricity.

Skullduggery

One rainy March day along Mantua Township's Chestnut Branch, nearly one hundred years before the toilet bowl incident and a mile or so upstream, two adult fossil hunters—Edward Cope and Othniel Marsh—stood with Superintendent Voorhies, looking down into the now-enormous pit of the West Jersey Marl and Transportation Company. Marsh, who lived in Connecticut, was intrigued with the younger scientist's discoveries—particularly *Laelaps*—and had invited himself to West Jersey for a tour of Cope's favorite hunting grounds. Cope graciously hosted him, little dreaming that he was setting a match to a fuse.

The two scientists had, as noted earlier, different backgrounds. But they had a couple of things in common. For one, they were the pioneer paleontologists—the first Americans to dedicate their careers to the fossil record. As they observed the busy activity below, they saw not a marl pit, but a research site.

Secondly, these men had large egos. Had they been able to work together, Cope and Marsh might have made a formidable team. Both were brilliant, and the strengths of each complemented the weaknesses of the others. But both were driven to dominate.

With railroads sprouting up in so many places it was becoming easier to get around New Jersey. Marsh almost certainly came to Cope's residence on the Camden & Amboy, switching to the Camden & Atlantic to reach Haddonfield. From there the pair would have had an easy trip to and from Marlboro on the West Jersey Railroad.

A week or so into their tour Cope took Marsh to show him the Pemberton Marl Company's operations, no doubt via the Camden & Burlington line. He took the occasion to send a letter to his family:

March 17, 1868: My friend, Prof. Marsh, of Yale College [and I] ...have been off a little over a week and have had good success altogether, though the weather has been very bad.... Prof. Marsh has studied and traveled in Europe for three years, and is very familiar with their invertebrate fossils.⁴

At length Marsh thanked Cope for his hospitality and told him it was time he returned to Yale. The two separated. If this happened in Pemberton—which makes sense, it being the furthest northeast of the tour—Marsh would have departed on the brand-new Pemberton & Hightstown Railroad, while Cope would have left town on the Camden & Burlington. The lines used different facilities, so Cope would not have been at the station to see Marsh off—or rather, to see that Marsh did not get on the train for home.

A Grain of Gunpowder

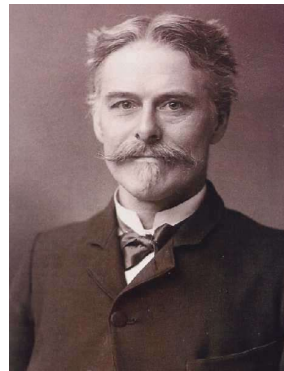
Ten months later, on a cold January Tuesday, thirty members of the Academy of Natural Sciences of Philadelphia gathered for their first weekly meeting of 1870. Two presenters took the bulk of the evening. The first, Dr. Leidy, spoke on a curious fossil found

in Colorado. Following this, the Academy's Proceedings records:

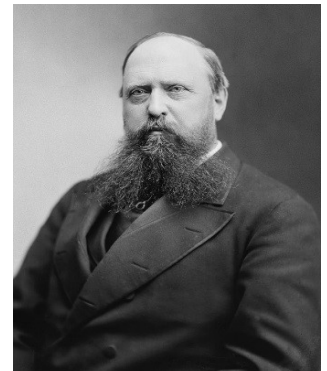
Prof. O. C. Marsh, of Yale College, exhibited a number of vertebrae of a new Dinosaurian from the cretaceous green sand near Barnsboro, N. J.⁵

How had Marsh obtained fossils from Barnsboro?

When Marsh had taken leave of Cope the previous March following their joint tour, he had not gone directly back to Connecticut. Instead, he surreptitiously retraced their route, re-visiting the largest marl operations. This included a trip back to Marlboro, and a private conversation with



7. Edward Drinker Cope.



8. Othniel Charles Marsh.

Superintendent Voorhies. As at the other locations, Marsh arranged with him to send any interesting new fossils on to him at Yale without notifying Cope.

Cope knew nothing of this until Marsh's Academy presentation. He was furious. He was careful not let his feelings show in public, but his closest friends knew he felt betrayed and misused. For Cope, Marsh was now a competitor rather than a colleague.

This did not trouble Marsh, who had no desire to be Cope's friend. The falling out began a struggle between the two that intensified amazingly and lasted until both men were dead—beyond that, actually, as their protégés kept the battle alive. It is still remembered in scientific circles as the "Bone Wars."

Personality differences widened the gap between Cope and Marsh. Leidy, senior to both and perhaps the only scholar who could have influenced the two to work together civilly, wanted no part of the argument. Henry Osborn, a Cope disciple who went on to found the department of Paleontology at Columbia University, knew all three men well. He described the relationship dynamics between Leidy, Cope, and Marsh:

Whereas Leidy was a man of peace, Cope was what might be called a militant paleontologist; whereas Leidy's motto was peace at any price, Cope's was war whatever it cost.

...[T]he famous rivalry...existed not between Leidy and either of the others, because it was impossible to quarrel with Leidy, but between Cope, the descendant of a Quaker family, and Marsh the nephew of a great philanthropist.⁶

Cope, energetic, impetuous, and domineering—not to say a prima donna—was difficult to work with. From time to time, as he rushed to analyze the steady stream of fossils that came to his desk, he would make an error. Such mistakes only made him harder to work with. Another colleague remembered:

Cope's contributions to science, his paleontological work especially, lent brilliancy to the Proceedings and Journal and as time progressed entitled him to be regarded as the greatest naturalist born on American soil. In his relations to the administrative affairs of the Academy, he was ever a storm center, absolutely a law unto himself..⁷

Osborn remembered Marsh for his sense for opportunity:

Marsh, with less breadth and less ability [than Cope], nevertheless was a palaeontologist of a very high order and had a genius for appreciating what might be called the most important thing in science. He always knew where to explore, where to seek the transition stages, and he never lost the opportunity to point out at the earliest possible moment the most significant fact to be discovered and disseminated.⁸

Marsh, cautious, thorough, and calculating—not to say a conniver—also had a gift for recognizing chinks in his rival's armor. He did not hesitate to exploit them.

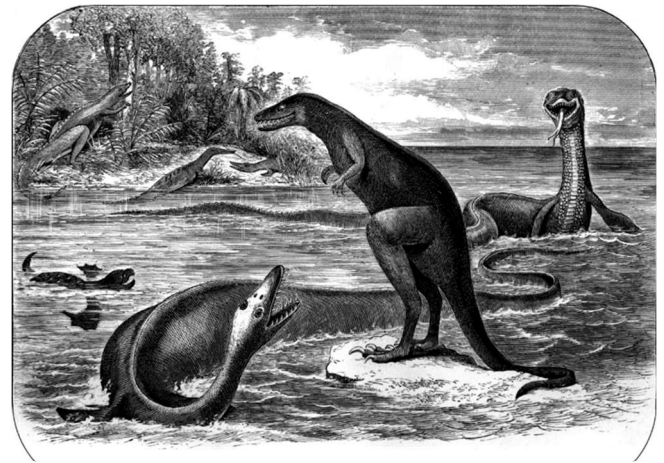
For example, consider Cope's first big find: *Laelaps aquilunguis* from the Ceres Park pit. Marsh researched the natural history literature and found that the *Laelaps* name was already used to describe a kind of flea. Rather than consult Cope about this, Marsh proceeded to rename the dinosaur himself. Its official name became *Dryptosaurus aquilunguis* and

remains so today. The slight grated on Cope, as Marsh had known it would.

A further example is the case of the backwards dinosaur. This incident is fairly well known, though its true details have been changed—and changed again—obscured by time, and by design.

The United States Government had been so impressed with George Cook's geological survey of New Jersey that it commissioned a similar work to accompany the construction of the cross-continental Union Pacific Railroad. Joseph LeConte, a scientist acquainted with Cope, was part of the survey team.

In 1867 an Army surgeon stationed in Kansas with troops guarding an extension of the railroad brought to LeConte three vertebrae from the nearly intact



2. An 1869 drawing by Cope showing two of his earliest discoveries confronting each other: *Laelaps aquilunguis* (standing), and *Elasmosaurus platyurus* (front left) complete with erroneous short neck and long tail. A *Mosasaurus* and *Hadrosaurus* are in the background.

skeleton of "an extinct monster" he had found while scouting the territory. Returning to Philadelphia, LeConte brought two of the fossils to Cope for identification.

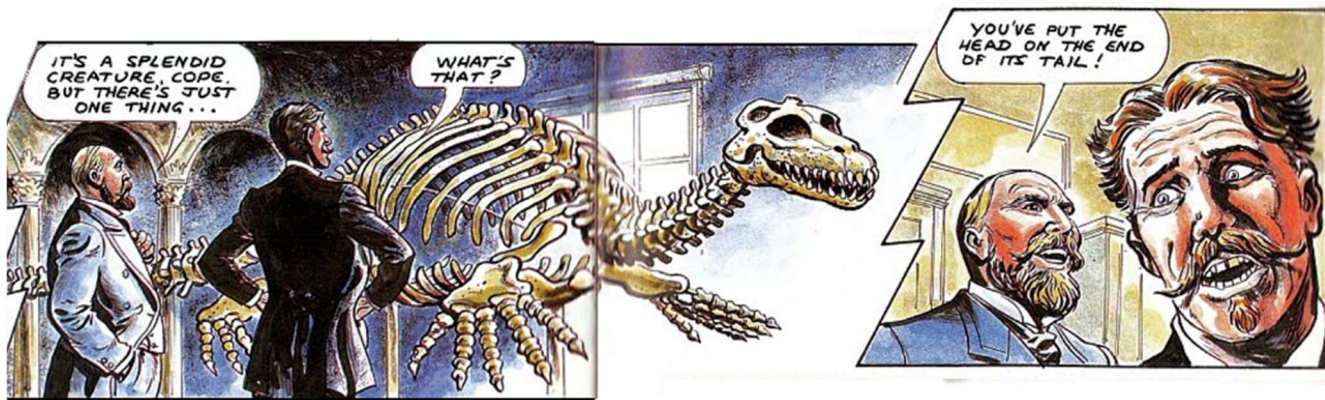
Cope was interested right away. Kansas was virgin territory for fossil exploration—this was the first big find in the state. The bones seemed to belong to a new, larger species of Plesiosaur—a sea-dinosaur well known to European paleontologists but whose intact remains had never been found in America.

By 1868 Cope had purchased 800 pounds of the creature's fossilized bones and paid for them to be delivered—by wagon, and then by rail—to the Academy in Philadelphia. Piecing them together, he

found the creature to be unique; it was over thirty feet long, with a short neck and an extremely long tail.

Cope called the discovery *Elasmosaurus platyurus* and described it to the Academy at a weekly meeting. By the end of 1869 he had authorized printer's proofs for an article in the prestigious *Transactions of the American Philosophical Society*, complete with illustrations.

As the story goes, one evening in 1870 Cope was showing Academy members the creature's reassembled skeleton when Joseph Leidy spoke up: were not the vertebrae reversed? Should not the skull be on the other end of the spine? With a shock, Cope realized that Leidy was right. Once pointed out, the mistake was obvious: the head was where the tail should have been! *Elasmosaurus* had actually been a short-tailed dinosaur with an extremely long neck.



3. Marsh's version of the backwards dinosaur incident, though inaccurate, survives in popular culture. This example is from "History in Pictures" by Patrick Williams in the early 1990s comic book series "Dinosaurs!"

Jane Davidson, an expert on Cope and early American paleontology, feels something is wrong with this story. She points out that Leidy would have had plenty of opportunity to observe Cope's recreation of *Elasmosaurus* before he displayed it to the other Academy members. Was Cope really surprised by Leidy's observation? Had the two previously disagreed on this point? It seems unusual that Cope would have made such a careless error.

Whether careless error or stubborn misapprehension, it is clear that Cope was mortified by the situation. He immediately began an ambitious project⁹ to buy up every copy of *Transactions*—which had just gone into distribution—and finance a reprint of the entire issue with his illustrations corrected.

All this was done—at great expense—but it made little difference. Cope's attempts to hide his mistake drew attention to the story—it made an irresistible anecdote. To make matter worse, Marsh found an uncorrected version of Cope's article and used it to tweak his adversary.

Not long after this Cope and Marsh clashed over a cache of mammal fossils in Wyoming. Their teams of collectors actually took pot-shots with rifles on each other's encampments. Sensational newspaper coverage catapulted the Bone Wars onto the public stage. Inquiring minds wanted to know how the bitter feud started.

For Cope, the war had begun with the trip he and Marsh had taken to what is now Ceres Park—the West Jersey marl pit at Marlboro. He felt Marsh had repaid his friendliness with treachery. Cope shared

these feelings with friends, but in public kept quiet about it and tried to dodge the question—after all, Marsh had not technically done anything wrong.

Marsh explained the feud by telling his own version of the *Elasmosaurus* story. He put himself in Leidy's place that night at the Academy; according to him, he had been the one to notice the dinosaur was backwards:

When I informed Professor Cope of it, his wounded vanity received a shock from which it has never recovered, and he has ever since been my bitter enemy.¹⁰

Marsh's account of how the Bone Wars began made for great press, and the public has remembered his version of the story.

Marsh's career flourished in the 1870s and 1880s. He wrote relatively few articles, and—compared to the energetic Cope—was an armchair paleontologist. But he was bright, credentialled, an outstanding organizer, a networker—and unlike Cope, he knew how to play politics. Through personal connections Marsh was given the post of paleontologist of the U. S. Geological Survey.

Once in this position, Marsh put a stop to any additional federal funding for Cope. But that was not enough. He publicly pushed a narrative that Cope had acquired most of his enormous fossil collection with grant money, and that the fossils therefore belonged to the government.

The accusation was false but damaging. Frustrated, Cope broke silence. He contacted a newspaper reporter and talked about his rival: a scathing tale of official malfeasance, and of opportunities denied himself due to Marsh's corrupt influence. This set off a two-week battle in the press. Cope had a measure of revenge when, in the end, it was Marsh who was investigated, and whose collection was partially seized by the government.

Cope continued to make trip after trip into the field, working for state projects or other efforts as he could find opportunity. He discovered hundreds of species and published dozens of scholarly papers (to this day, no one has come close to publishing as many papers as Cope did). But financially, things got really tough. Money had never concerned him, due to his wealthy background, and when his father passed, he inherited a sizeable fortune. However, Cope's naïveté with finances led to a series of disastrous investments.

In 1890 Cope turned fifty. He had lost everything but his collections. He and his wife separated, and Cope moved into a three-story Philadelphia house that doubled as a research laboratory and warehouse for his fossils. He slept on a cot among the bones.

How should we view the Bone Wars? They were fraught with emotion. Leidy left paleontology, at least in part, to avoid having to take sides. Had the competition checked the progress of science, or spurred it on?

Cope's friend Osborn saw the two scientists as mutual foils, bringing out the best in each other—or at least, in Cope:

This rivalry was tonic to Cope and although in his eagerness to publish his discoveries and theories before Marsh could produce similar material he made careless mistakes, still 'the scowl of his foe' (Marsh) remained, as in the Celtic poem, 'the sun which caused him to grow.'¹¹

And for the greater good? The Bone Wars eventually cost both men their fortunes, and in the case of Cope at least, probably his life. But thanks to the conflict thousands upon thousands of fossils made their way from the plains and mountains of the West to the Academy in Philadelphia, the Peabody Museum in Connecticut, and the Smithsonian Institute in the nation's capital. Their analysis built American paleontology, which in turn drove much of today's scientific understanding of what life is and how it works.

Why Kids Love Dinosaurs

The financial accomplishments of the Camden & Amboy's "Joint Companies" in New Jersey contributed to a railroad-building frenzy in the decades after the Civil War. Its leaders built a railroad powerhouse on the Philadelphia-New York monopoly. Its exclusivity expired in 1869, but they had enjoyed a profitable thirty-year run. Imitators had watched and learned; the C & A had been the first railroad juggernaut, but it would not be the last.

The same year the Camden & Amboy finally lost its monopoly power, a young Connecticut banker named J. P. Morgan acquired his first railroad line. His father J. S. Morgan (banking partner of George Peabody, Othniel Marsh's patron uncle) had given him a good start in the world of finance, and now he saw opportunity: the railroad industry was overbuilding. He picked up useful lines at a discount years later when the railroad bubble burst. From these he created a 24-company railroad portfolio that became the cornerstone of his own empire.

Also in 1869, Morgan joined with nineteen other philanthropists to create the American Museum of Natural History in Manhattan's Upper West Side. Morgan would serve the institution as treasurer for many years, and this led to a coincidental, background connection that would change the young science of paleontology—not what it was, but how it looked.

Morgan had a personal secretary/right-hand man named George Knight. Knight had a young son named Charles. Charles Knight loved animals. He would have loved dinosaurs, but although they had been discovered, they hadn't been invented yet. This would change. For now, they lived mainly in the annals of academia.

Knight was introduced to art at a young age by his stepmother, herself an artist, and trained at the Froebel Academy and Brooklyn Collegiate and Polytechnic Institute. He liked to sketch animals at the Central Park Zoo. He dreamed of making a career out of painting animals, though his poor eyesight (worsening as he got older) made him worry he might not get the chance.

With his father's special connection to treasurer Morgan, Knight was able to visit the American Museum of Natural History on weekends, when it was closed to the public. He hung about the animal exhibits, and the back rooms, too, where the taxidermists created the displays. Watching them, he learned about the skeletal and muscular structure of all types of creatures.

Knight freelanced in his early twenties. Along the way, he was invited to paint a prehistoric animal for a museum paleontologist. The result delighted the scientist—it seemed to bring the creature into being. Perhaps, Knight thought, this was his niche: creating art to bring prehistory to life.



4. Charles R. Knight working on one of his creations. To enhance the realism of his paintings, he would first sculpt his subjects, then pose them in natural light to serve as models.

At about this time Henry Osborn, whom Edward Cope had mentored, was given the task of organizing the new museum's department of vertebrate paleontology. Recognizing Knight's talent, Osborn

asked him to illustrate one of his publications. This led to similar assignments.

Knight wanted to understand prehistoric creatures better. He talked with paleontologists and had them explain their fossils to him. He went to Europe to examine ancient cave paintings and returned deeply impressed. In 1896, Osborn arranged for Knight to go to Philadelphia and spend some time with Edward Cope.

Knight arrived at 2102 Pine Street, from the outside a brick house like any other in Philadelphia. However, he recalled, once inside, everything was different:

Never have I seen such a curious place—just the kind that Dickens would have loved. Piles of pamphlets rose from floor to ceiling in every narrow hallway, leaving just room to squeeze by them and no more. At the right as I entered, I looked into the front parlor. Shuttered with inside blinds, the floor was completely hidden by the massive bones of some vast creature, probably a dinosaur....

The second floor, to which I was promptly conducted, was reached by a narrow stair, the wall side of which carried small shelves holding pickled snakes and other reptiles in bottles. The back room on this floor...was one of the most singular places I have ever seen. It, too, was littered with various objects from end to end, all piled helter-skelter on tables, chairs, and shelves. A human skull grinned at me from the mantle, and a large bronze vulture spread its menacing pinions above a cage containing a live Gila monster.

Bones, recent and fossil, were everywhere, all dusty, and all in apparently inextricable confusion. But Cope himself, the presiding genius among all this scientific chaos, met me with a genial and charming smile, made me sit down and talked, as only Cope could talk, about the things I came to discuss.¹³

Knight had come to discuss a vanished world. What was it like? How did its inhabitants live and interact? What fleshy features had covered their bulky bones? No human had ever visited that pre-historic realm—but Cope had seen it in his mind's eye, and he was the perfect guide. Knight continued:

I was given a drawing table in the bay window (the only free space in the room) and there every day for the ensuing two weeks I listened with great attention to the greatest conversationalist to ever grace the service of Paleontology. With

floor parlor; when he could not, he dictated from his cot among the bones. He died three weeks after Knight left.

Is it too much to say that Knight—with key help from



5. "Leaping Laelaps," a depiction of Cope's discovery, by Charles R. Knight, 1897. Laelaps (officially *Dryptosaurus aquilunguis*) was discovered in Mantua Township at what is now Ceres Park and Nature Preserve. Knight's use of Cope's name for the dinosaur rather than Marsh's was no doubt a tribute. Nobody seems to mind.

matchless charm this brilliant mind presented the difficult subject to me.

He was a tyro in the field. Under the spell of his facile tongue new vistas of the life of the past opened before me in a way I had never dreamed of, and Cope drew pictures for me...Under his expert guidance I felt that I had stepped back into an ancient world.¹⁴

Knight had arrived just in time to visit that ancient world. Neither he—nor Osborn, who arranged the meeting—had known it, but Cope was dying. His health had never been the best, but his energy had been abundant. Now 57 years old, burned out by the frenetic pace, he was finding it hard to maintain his strength. When he could, he held court in the second-

Cope—invented the North American cultural phenomenon that is the dinosaur? Paleontologists' previous attempts to illustrate the prehistoric world had yielded results that were somehow lifeless—these were scientists, not artists. As a result, the public saw dinosaurs as vaguely cow-like, lumbering creatures, who—although possessed of tooth and claw—were about as menacing as mannikins.

Knight's dinosaur paintings would shift that perception in a hurry. For his first, he chose Cope's first—the predator found thirty years earlier at Ceres Park. He called it "Leaping Laelaps." The work electrified the public. Knight was on his way to a long and successful career as the Rembrandt of prehistory, and dinosaurs were on their way to becoming really, really cool.

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THE CHAIRMAN'S MESSAGE

History at its best is history that connects you with your family's past, your community's past, and your country's past. We strive to make it interesting by publishing a quarterly bulletin that is filled with stories, facts, and research that paints a clearer picture of Mantua Township's growth, starting at its beginning. Over the last several months we have conducted activities that allow children and adults to learn about how life was many years ago in our area. This past Spring, we held our annual J. Mason Tomlin School 5th Grade Union Center Museum and Graveyard tour, and Essay Contest. This allowed us to interact with over 140 students. This is the perfect age for planting the seeds of curiosity and interest in the people, the places, the artifacts, and the historic events from long ago.

We recently had the pleasure of spending an afternoon with a local Cub Scout troop that included a museum and graveyard tour. We also took our show on the road to the United Methodist Communities in Pitman to deliver our "History of Mantua Township" presentation to the residents and their family members.

Both young and old have the desire to learn about the past. Our seniors want to share their experiences and stories so that we can carry them on for others to hear and understand in the future.

It is extremely important that we take the time to participate in history orientated programs and to visit the museums and other historic locations that surround us. We were able to participate in the South Jersey History Fair the first weekend of June. This was a wonderful event that featured many of the historical societies and groups throughout South Jersey. This was our third year of attending this event, and it would be nice to say that we will continue doing so for many years ahead. However, due to a lack of public interest and poor attendance, it has been decided by the sponsors to take a pause.

I encourage you to take interest in your town's history. Take the time to see and touch the historic places. Do this with your children. Create your own history as you go.



RECENT NEWS

On April 9th and 10th, 2024, The Mantua Township Historical Commission hosted seven 5th grade classes from J. Mason Tomlin Elementary School with a tour of the MTHC museum and Union Graveyard Tour. Over 140 students and their teachers participated in this event.



MTHC member Tom Downing sitting at the desk in the museum



MTHC members Carolyn Harris, Secretary Debbie Gellenthin, and Kathy MacGregor in the museum



MTHC Vice Chairman, Herb Hood, giving students a history lesson at the gravesite of Mary Pancoast

Each student had the choice of writing about a person, place, thing, or event associated with the history of Mantua Township. Their teachers chose the top three for their classes and those were sent to the MTHC for final judging.



The winners were: First place - Colin Keller, Second place - Vera Bailey, and Third place - Kayla Duffy.

On Tuesday, April 24th, 2024, the Mantua Township Historical Commission hosted a meeting of the Gloucester County Round-table group at the Union Center to discuss ideas for our nation's celebration of its 250th birthday in 2026.

On May 11th, 2024, the Mantua Township Historical Commission hosted a visit to the Union Center to tour the museum and Union Graveyard by Cub Scout Pack 7045 of Mantua, NJ, Christopher Gorman, Den Leader, and family members of the scouts.



Chairman Jeff Gellenthin explaining and demonstrating a headstone rubbing to the scouts



Vice Chairman Herb Hood telling the story of Corporal Samuel J. Dilks from the Civil War

On Tuesday, May 22nd, 2024, the Mantua Township Historical Commission participated in the J. Mason Tomlin Elementary School's Multi-Cultural Event.



MTHC's display table which explored many aspects of culture in Mantua Township's history including music, school fashions, immigration, Irish culture, Native-American culture, Halloween, and Christmas.



MTHC members, Kathy MacGregor and Herb Hood talking to students and parents

On Wednesday, May 29th, 2024, the Mantua Township Historical Commission presented a slide program to the seniors at the United Methodist Communities in Pitman. The slide presentation and accompanying oral presentation was on the history of Mantua Township. A special thank you to Adrianna Roberts, a sixth-grade student at J. Mason Tomlin Elementary School for her help with the creation of the slide presentation.



Chairman Jeff Gellenthin on the left and Vice Chairman Herb Hood on the right, talking about the history of Mantua Township with the slide presentation in the middle

THANK YOU

Mayor Robert Zimmerman and the Mantua Township Committee for their continued support.

J. Mason Tomlin School LEAP/G&T students and teacher, Kiersten Chinnock for promoting a Chick-fil-A fundraiser. We are grateful for your efforts and dedication toward community service.

RECENT DONATIONS

Ralph Richards – Barnsboro – Sewell Woman’s Christian Temperance Union meeting minutes 1935-36

Walter Taggart – Local community memorabilia

Douglas Rishel - Local family and community memorabilia

CONTACT INFORMATION

Mantua Township Historic Commission

Location: 145 Mantua Boulevard

Mantua, New Jersey 08051

Mailing address: 401 Main Street

Mantua, New Jersey 08051

The museum is open every Saturday
from 10 AM to Noon or by appointment

856-630-9704

mthc1977@gmail.com

**Our mission is to preserve and share the rich
history of Mantua Township**

Facebook page:

[www.facebook.com/MantuaTownshipHistoricalCo
mmission](http://www.facebook.com/MantuaTownshipHistoricalCommission)

MEMBERS

Jeff Gellenthin – Chairman

Herb Hood – Vice Chairman

Debbie Gellenthin – Secretary

Kathy MacGregor

Carolyn Harris

Tom Downing

Carolyn Olsen

Art Olsen

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Herb Hood

Debbie Gellenthin

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The Mantua Township Historical Commission is always accepting donations of pictures, documents and stories concerning the Township’s history.