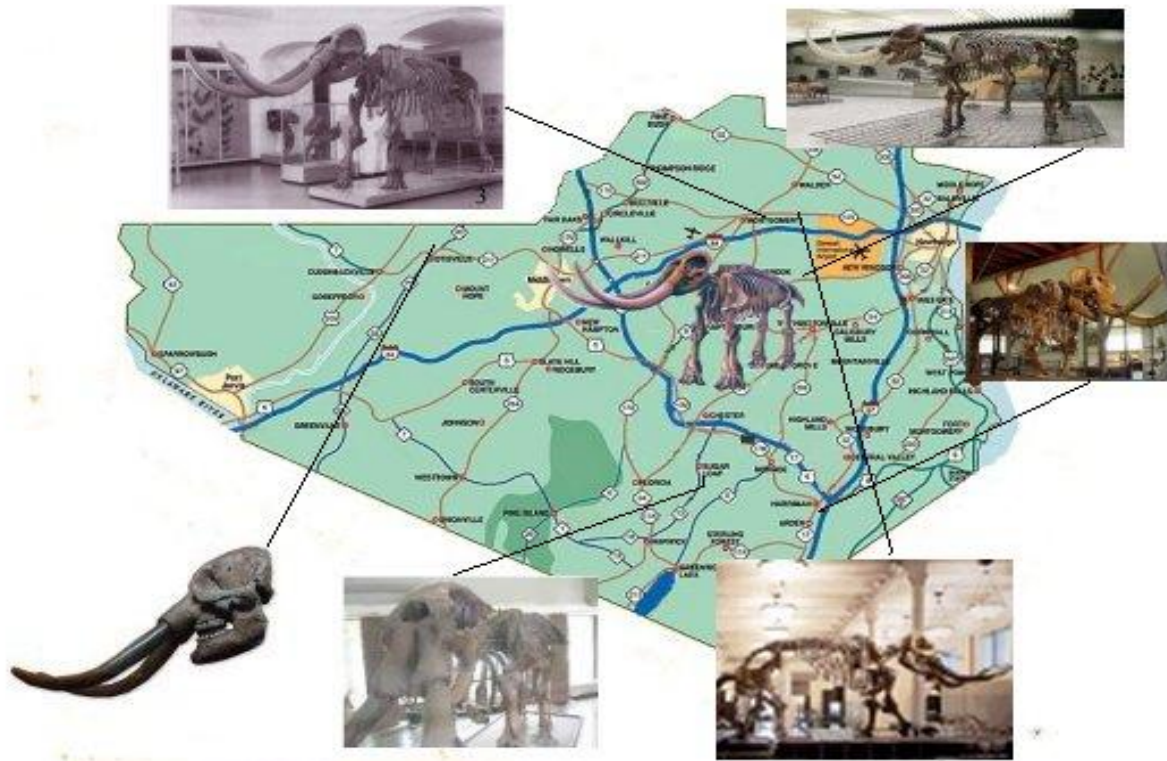


The Mastodons of Orange County New York



pealemuseumofdiscovery.com

A descriptive account of the historical exhumations of mastodons in Orange County, New York where more of these fine creatures has been found than anywhere else in America.



The remains of these remarkable Ice Age mammals were recovered and preserved by extraordinary individuals who contributed greatly to the advancement of science. As this publication illustrates, many of these exhumations were also significant in American History.

By: Joseph Devine

Forward

This essay provides an overview of the mastodons exhumed in Orange County, NY during the previous 200+ years and was inspired by a truly great 1922 publication by the NYS Museum, authored by C. A. Hartnagel and Sherman C. Bishop, which enhanced the previous work of John M. Clarke, Director of the NYS Museum at that time. New maps of Orange County, NY and all of New York State have been generated by the author to document all of the known partial and complete, or nearly complete, mastodon skeletons found during the previous 200+ years. While information about the recent mastodon exhumations came from published sources over the past one hundred years, much of the early, pre-1922, mastodon dig details are derived from the 1922 Museum report. That publication, however, did not address the historical aspects of the mastodon ‘finds’ that occurred over the years, which is really a compelling story. Many of the mastodons skeletons have relocated since the early publication and the author has provided new information in that regard. Mastodons, like other extinct prehistoric mammals, are important to fully understand due to the science they represent and because their remains tell great stories about these wonderful creatures, how they lived and died as well as how their skeletons would impact America, thousands of years after their demise.

The following passage by Orange County’s Samuel Eager back in the year 1846 is of value today. While science has made great progress and discovery relative to possible causes of the extinction of mastodons, no clear evidence yet exists to assign any particular cause to their demise. Whether the mastodon fell to disease, climate or hunting, one can only speculate using the significant contributions of archaeologists and paleontologists who have researched the remains of these great animals.

Samuel Eager’s 1846 Observation

“We cannot, without disrespect to the memory of a lost but giant race, and slighting the wide-spread reputation of old Orange as the mother of the most perfect and magnificent specimens of terrestrial animals, omit to tell of the Mastodon. Contemplating his remains as exhumed from their resting place for unknown ages, we instinctively think of his great power and lordly mastery over the beasts—of his majestic tread as he strode these valleys and hilltops—of his anger when excited to fury—stamping the earth till trembling beneath his feet—snuffing the wind with disdain, and uttering his wrath in tones of thunder,—and the mind quails beneath the oppressive grandeur of the thought, and we feel as if driven along by the violence of a tornado. When the pressure of contemplation has subsided and we recovered from the blast, we move along and ponder on the time when the Mastodon lived,—when and how he died, and the nature of the catastrophe that extinguished the race; and the mind again becomes bewildered and lost in the uncertainty of the cause. Speculation is at fault, and our thoughts wander about among the possible accidents and physical agents which might have worked the sudden or lingering death of this line of terrestrial monarchs.”

Samuel Eager, Orange County’s First Historian in 1846

Note that Samuel Eager was a twelve year old boy back in 1801, 45 years before he wrote those words, and he witnessed the famed 1801 Peale mastodon exhumation near his home in the Town of Montgomery on a daily basis as indicated later in this document.

This essay does not attempt to provide the thorough subsoil details of the exhumations as the 1922 authors had done. The author hopes that this mastodon recovery overview will encourage readers of all ages to learn more about Ice Age mammals in general and about mastodons in particular. Several good books, essays and online references are provided toward the end of this document that discuss the topic of Ice Age mammals, including useful references to related elementary school material. For several of the mastodon exhumations, there are associated historical facts of general interest, which I have provided to complete the story. Enjoy!!

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Mastodont or Mastodon ?

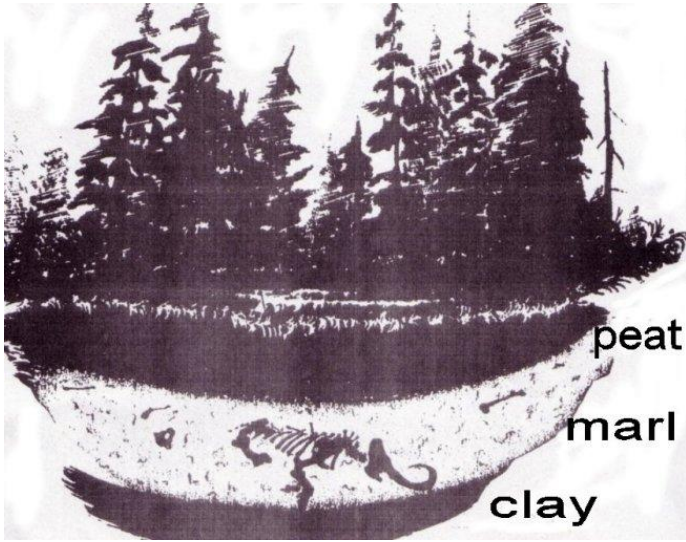
The official name for the animal that we are talking about is the scientific name, *Mammut americanum*. When we refer to it this is what we use. When we are just talking, the American english name is "American mastodon". This would be similar to the scientific name *Mammuthus primigenius* and Woolly mammoth, or *Mammuthus columbii* and the Columbian mammoth. I was taught that when you referred to the teeth specifically, you refer to the teeth of *M. americanum* as being "mastodont", it refers to the shape of the tooth, and not the animal. Now back about 10-15 years there was a growing group of paleontologists that felt the European term for the animal, "Mastodont" was correct and that the name should be "American mastodont" for *Mammut americanum* as Cuvier originally described this animal as "mastodonte", and they started this in the literature, both popular press and in journals. As long as I am here at the museum, we will refer to the critter as an "American mastodon".

Robert S. Feranec, Ph.D., Curator of Vertebrate Paleontology, New York State Museum, April 2, 2009

A Brief Introduction to the Soil of Mastodon Exhumation Sites

NYS Conservationist February 1955 - This article indicates that more mastodons have been found in Orange County than in any other part of the state, and probably all of America. They were huge beasts standing nine to ten feet high at the shoulders and up to twenty-two feet long. Frederic A. Lucas who was curator of the American Museum of Natural History of New York, 1911-1929, considered them contemporary with man and wrote in his ANIMALS OF THE PAST, 1922, "The best preserved specimens come from Ulster and Orange

Counties, New York, for these areas seem to have furnished the animal with the best facilities for getting mired."



In this publication, you will see reference to mastodon bones found in marl. The squishy, sticky, off-white clay-like substance is often found in marshy areas. It formed thousands of years ago when an aquatic plant, chara, extracted calcium carbonate from the lake waters of melting glaciers and stored the chemical in its branches. Dead chara sank to the lake bottom, accumulating and decaying over centuries to form a chalky soil. A more familiar substance, peat, also formed from partially decaying vegetation, but that happened much later, geologically speaking. Dig below a peat deposit, and it's likely you'll hit a layer of marl where many mastodon remains have been found. Generations ago, farmers valued marl as a fertilizer for lime-deficient soils and as a soil conditioner for sandy soils. The lime

in marl cements sand grains together, so the soil can better retain heat and water. When added to clay soils, marl had the opposite effect: soil particles became less cohesive, allowing more air, heat, water and plant roots to penetrate. Farmers would often dig marl out from swampy areas and spread this material on their fields and, in doing so; they would often accidentally find the remains of mastodons. With few exceptions, mastodon skeletons were found in this manner.

Reverend Robert Annan Farm – found in 1780

Discovered at Hamptonburgh/Montgomery Towns

Partial remains of an unknown animal - *Incognitum*

Visited by General George Washington & Dr. Michaelis in 1782

Note: the skeletal recovery at the Reverend Robert Annan farm happened twenty years before a full mastodon was exhumed so the nature of the animal was unknown at the time, except that it was assumed to be quite large.

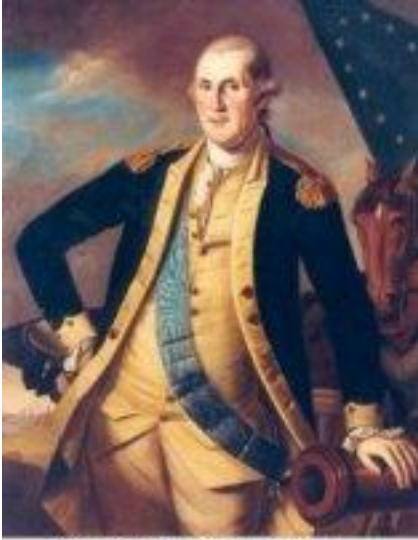
The first pastor of the Little Britain Church was the Reverend Annan (served from 1768 to 1783). He was pastor at the same time of the Neelytown church, and lived west of Neelytown on what is now route 416 in the Town of Hamptonburgh. Several mastodon bones were found on his farm in 1780. This was the first of the Orange County mastodons although no one knew what animal they belonged to at that time.

In later years. Rev. Annan moved to Boston, where he wrote an article dated 1785 and published in the Memoirs of the American Academy of the Arts and Sciences, vol. 2, 1793, with the title "Account of a Large Animal Found near Hudson's River by the Rev. Mr. Robert Annan." He wrote this preface:

‘The following narration was drawn up soon after the discovery therein mentioned was made. But my removal from the State of New York to this town (Boston-ed.) had so deranged my papers, that, for a long time, I was afraid it had been lost. If you think it worthy a place in your curious collections, it is at your service.’ His article says that a young man whom he had employed to drain a swamp on his farm "dugged up the remains of a very surprising animal without taking notice of any thing except the grinders. The bones had become so soft that the spade cut them almost as easily as the clay...and being a stranger to contemplation he took no further notice of the matter... Within a day or two after, I went out to see the work and discovered the grinders. I brought them home, ordered them to be washed; and, placing them in

the order in which I fancied them to have stood in the animals jaw, sat down astonished...I sent for a gentleman in the neighborhood ...He was as much astonished as myself."

In 1782, George Washington was camped in New Windsor, having won the critical battle at Yorktown one year



**George Washington
by Charles Willson Peale**

earlier. He was awaiting word about a possible peace treaty with Great Britain that would take another year to fully conclude. During this period, the British forces were confined to New York City as part of the Yorktown agreement and all forces allied with the British were obliged, on their honor, to obey these orders. These forces included the Hessian Army from Germany, which fought on behalf of the British cause. One Hessian officer, Doctor Christian Friedrich Michaelis, befriended Washington since both gentlemen had shared a particular curiosity, that of the strange animal whose bones had been found at various places in America, most notably at the Big Bone Lick in Kentucky. The animal became known as the *American Incognitum*. Since Dr. Michaelis was a physician and not a military combatant, Washington gave him a pass to travel without escort throughout the land looking for skeletal bones of the *Incognitum*. During this period, Washington became aware of the mysterious bones found at the Annan farm and he traveled from New Windsor to see these marvels for himself and he brought Dr. Michaelis with him. Reverend Annan, who had been a firebrand Patriot of the Revolution preaching revolution throughout the area, received

General Washington and his guest very warmly, referring to Washington as "His Excellency", reflecting the great admiration that American patriots had for the Commander-in-Chief at the time. Washington and Michaelis were astonished at the incredible size of the bones and they speculated at what the animal might look like and whether there might be any of this species in the area. After a short visit, Washington and Michaelis returned to New Windsor with the knowledge that, with discoveries like the one at Reverend Annan's farm, the mystery of the unknown animal would soon be solved. This was of particular interest to George Washington since European gossip had already begun. This gossip began in Britain and held that the American colonies were not really worth fighting for since the land was inferior to Europe with harsh winters and smaller animals, due to the poor landscape and inferior grazing opportunities. Washington and all Americans knew this was not true but they needed to prove that America had animals that were larger than any found in Europe. The *Incognitum* was the obvious choice but only partial bones had been found by 1782. The hope that a full *Incognitum* skeleton would be eventually found was enhanced by the Annan discovery.

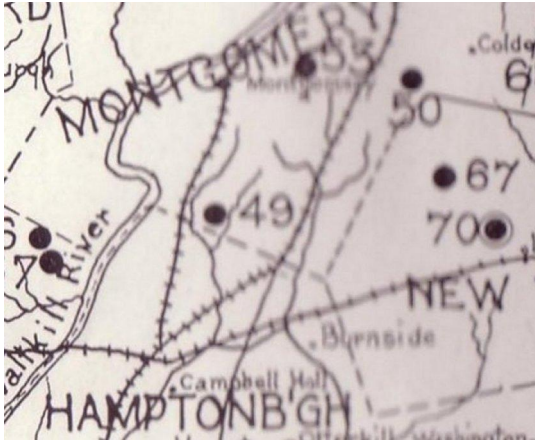
The Reverend concluded his narrative of the mastodon with the devout and rapturous exclamation of the Psalmist, *'Great and marvelous are Thy works, Lord God Almighty!'*"

After the peace treaty with Britain was signed in 1783, Dr. Michaelis again visited the farm of Reverend Annan. The Reverend later wrote:

"Doctor Michaelis, physician general of the Hessian troops, who, with some other gentlemen, came to my house, after the peace, and before New York was evacuated, said he could not think it had been an elephant as being in his opinion much larger. He carried some of the bones to Germany with him. Others were sent to the museum in Philadelphia, kept by Mr. Semittien, and some were destroyed by careless country people whilst I was abroad..."

Dr. Michaelis tried to dig for more bones at the Annan farm that year but heavy rains made this a difficult task and he could not drain enough of the swamp to dig properly. As noted above, the Reverend gave several of the bones to Dr. Michaelis to compensate somewhat for his inability to find more bones at the farm.

That year, Dr. Michaelis also tried to visit a well-known dig site for large bones, the Big Bone Lick in Kentucky, but he was unable to complete the trip due to bad weather one occasion and the threat of river pirates during another attempt. The doctor then inquired about a collection of large bones owned by John Morgan, a physician living in Philadelphia. John Morgan received the collection from his brother, who had accompanied William Croghan during a 1766 visit to Big Bone Lick. However, Mr. Morgan wasn't particularly interested in the collection and it languished in relative obscurity for many years. Doctor Michaelis tried to buy the collection but Morgan balked. He did, however, allow Michaelis to hire Charles Willson Peale, a leading Philadelphia painter and famed portrait artist of the Founding Fathers, to draw illustrations of the specimens. Peale moved the specimens to his studio and while the bones were there, they were marveled at by several of Peale's associates. Michaelis would return to Europe with his illustrations and the bones he received from Reverend Annan, while Peale and many of his countrymen were inspired to learn more about this animal. The experience of painting the huge bones of an unknown animal is believed to have inspired Charles Willson Peale to pursue



science rather than the arts in his later years. Of Peale's sixteen children, the first eight were named after artists like Rembrandt and the latter eight were named for famed scientists like Franklin. We shall learn more about Charles Willson Peale's association with mastodons later in this essay.

One of Reverend Annan's very close neighbors was William Eager whose son, Samuel, to be born six years after the visit by George Washington, would play an important role in the exhumation of the first true mastodon skeleton in 1801, as noted later in this essay. The Annan farm was located in the Town of Hamptonburgh on current Rt 416 near the Lana Lobel Farm. The Eager homestead is located nearby on Eager Road. The actual mastodon dig site was identified by Hartnagel/Bishop as having been just to the north of the Town line in Montgomery where the swamp, still visible today, exists. An aerial inspection of the area suggests that Hartnagel and Bishop might have been correct and that the mastodon was found on that small part of the Annan Farm that extended into the Town of Montgomery. Note Item # 49 in the 1922 map excerpt provided above.

The Marsh Skeleton 1872

Discovered at Otisville, NY
Peabody Museum at Yale University

NY Times Newspaper March 19, 1872 Account follows

“Otisville, Otisville” shouts the trainman from a set of stentorian lungs, opening the door of the Erie Railway passenger coach as the train slows up at a little station high up the slope of the Shawangunk, at the eastern portal of the "Pass of the Mountains." We alighted the platform, and the train proceeded on its way through the deep cleft in the mountain, and the rumbling was lost in the distance as it crept along the dizzy heights of the western slope.”

“Will you please point the way to the swamp where the Mount Hope mastodon was found?” we said to the first man we met, who happened to be the village postmaster. “Certainly; come with me. I am going that way and will show you the place.”

Following his directions, after a walk of about a mile over a rough country road, we came to the place indicated. The swamp has no distinguishing features, and covers a tract of some half-dozen acres. The highway winds to one side of it, while a side-hill pasture borders the other. The mastodon's remains were found near the lower end, only a few feet from solid ground. The creature had evidently ventured into the swamp in search of food, got mired in the peat and marl, and perished there - the skeleton being preserved from decay by the antiseptic properties of those substances that were instrumental in causing its death.



**Otisville
Skull**

© 2005 Yale Peabody Museum

There is an excavation some ten or more yards in diameter where the bones were exhumed, which is now filled with water. The circumstances under which the Mount Hope mastodon was found are these: Some years ago a family by the name of Mitchel, residing in New York City, purchased a farm in the vicinity of Otisville. The land was none of the best; but with commendable enterprise they immediately set about improving the property. Soon a large and commodious brick house was built; fences and outbuildings repaired; and the muck and marl from the swamp a few rods from the house were drawn out and spread upon the upland.

The place for the marl excavation was chosen solely on the ground of convenience in getting the product to the upland; by a fortunate coincidence that was the place where the creature went into the swamp and perished. One day while the men were at work they came upon a bone. Its great size astonished them and they could not divine what sort of animal it had belonged to. Soon after they came upon more bones, similar in form to the bones of animals with which they were familiar, only they were of mammoth size. At last they came to the bones of the pelvis, which were of such huge dimensions that the whole neighborhood flocked to behold the curiosity.

The Mitchels kept at the work of digging, but they now had a double purpose in view. At first the parts of the skeleton were thrown carelessly into a heap, and left there unprotected. Now, as fast as found, they were carefully guarded, and stored away under lock and key.

As the work proceeded the water became troublesome. The owner of the farm, believing he had found a prize, arranged to have the water pumped out while the search continued. The result of their labors was the exhuming of one of the most perfect mastodon remains of the extinct mastodon that has ever been found, and which



Onthiel Charles Marsh

weighed about seventeen hundred pounds; the skeleton when put together stood over ten feet in height, and nearly fifteen in length. Some minor parts were missing, either not having been exhumed by reason of the difficulty experienced in digging, or having been carried away as souvenirs by curious visitors before their value was known.

News of the finding of this valuable geological specimen spread through the country. Inquiries poured in by every mail, and some of the leading colleges took measures to secure it for their respective cabinets. Negotiations with the college authorities reached the point which made it certain that either Yale or Princeton would carry off the prize; and the question which of the two should get it would depend on whether a Yale or a Princeton representative arrived first on the ground.

Prof. Waterhouse Hawkins, of Princeton college, took passage on a train that was

scheduled to stop at Otisville, the nearest station on the Erie railroad. Prof. O. C. Marsh, of Yale University, adopted, as he said, his usual custom, and took the first and swiftest train that started in the direction he wanted to go, and did not trouble himself to inquire whether it stopped at Otisville or not. The latter found means to induce the conductor of the train to slow up at a point nearest the Mitchel farm; and when Prof. Hawkins arrived by the accommodation train some hours later, the writings were all drawn in favor of Yale, and Prof. Marsh had made all sure by a payment on the same. And that is why the Mount Hope mastodon today graces the Yale Peabody Museum instead of the college cabinet at Princeton.

A resident of Otisville, who was personally acquainted with the conductor of the train on which the Yale professor took passage, said to him a few days afterwards:

“You had a distinguished passenger on board of your train the other day, I hear.”

“Not that I know of,” said the conductor.

“Didn't you slow up your train to let a gentleman off? --mentioning the day.

“Yes, I did.”

“That passenger was Professor Marsh, of Yale College. Now tell me how you came to accommodate him so far as to let him get off between stations.”

“Well, I'll tell you how that came about,” replied the railway official, knocking the ashes from his Havana, and assuming an air of gravity; “you see, that fellow had some deuced good cigars with him!”

Doctor Theo Writer, of Otisville, was present when Professor Marsh was packing the mastodon in boxes. The Doctor had in his possession the skull of a weasel; and knowing that Prof. Marsh was an authority on skeletons, took it down to show him. “Here, Professor,” said the Doctor, “here is a skull not quite so large as the one you are packing in that box, but if you will accept it with my compliments, you are welcome to it.” The Professor looked at it and instantly exclaimed, “That is a weasel's skull.” And then he went on to give some facts in natural history relating to those mischievous little animals. He thanked Dr. Writer for the skull. No gift could have pleased him better. Doubtless that weasel's skull occupies a niche in the Yale college museum to this day.

Othniel Charles Marsh (b. 1831, d. 1899) was born in Lockport, New York, on October 29, 1831. His mother, George Peabody's younger sister Mary, died when the boy was not quite 3 years old. Marsh's early love of the outdoors led to friendship with the geologist Colonel Ezekiel Jewett, and young Othniel acquired a taste for collecting natural history specimens as his boyhood idol taught him about the local minerals and the excellent specimens that could be found near his home.

When Marsh reached the age of 21, he inherited the dowry that Peabody had provided for his mother; with it he entered preparatory school, Phillips Academy at Andover, Massachusetts. After graduating from Andover, he attended Yale College with his uncle's financial support, receiving the degree of Bachelor of Arts in 1860. Peabody continued his support while Marsh pursued graduate studies at Yale and at several German universities. It was at this time, in the early 1860s, while Peabody was making plans for the eventual distribution of his fortune to worthy causes, that Marsh persuaded him to include Yale in his list of beneficiaries. In 1866 the Peabody Museum of Natural History was founded with a gift of \$150,000 from George Peabody. The same year O.C. Marsh was made Professor of Paleontology at Yale, the first such appointment in the United States. In 1867 he was appointed one of the Museum's first curators and also assumed the directorship of the Museum, which he had been instrumental in establishing.

Marsh himself received a substantial inheritance after Peabody's death in 1869, which spared him the necessity of receiving a salary from Yale—and doing the teaching to earn it. Marsh used his inheritance to build a large house (now the home of Yale's School of Forestry & Environmental Studies)—in which he entertained visitors ranging from Sioux Chief Red Cloud to Alfred Russel Wallace — and to amass large collections of vertebrate fossils, fossil footprints, invertebrate fossils, osteological specimens, and archaeological and ethnological

artifacts. In 1898 Marsh presented his extraordinary collections to Yale. Between 1870 and 1873 Marsh led four expeditions of Yale students into the American West in search of artifacts.

During his career Marsh published about 300 scientific papers and books. In these he described and named approximately 500 new species of animals that he and his collectors found. From 1883 to 1895 Marsh was President of the National Academy of Sciences. From 1882 to 1892 he was Vertebrate Paleontologist of the U.S. Geological Survey. O.C. Marsh died of pneumonia at his home in New Haven, Connecticut, on March 18, 1899. His tombstone reads: "To Yale he gave his services, his collections, and his estate."

Professor Marsh's collection included the wonderful mastodon recovered from Orange County at Otisville and is on display today at the famous Yale Peabody Museum in Cambridge, MA

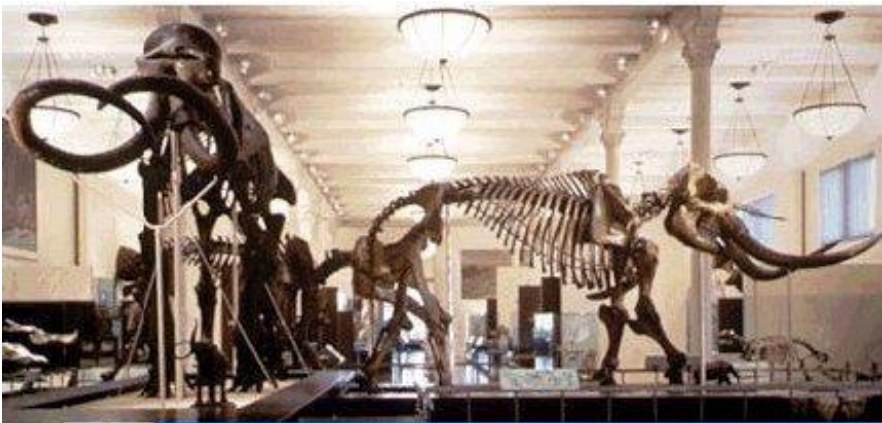
Warren Mastodon (A nearly perfect specimen) 1845

Discovered at Coldenham, Town of Montgomery

Displayed at the American Museum of Natural History, NYC

Discovered on the farm of Nathaniel Brewster on the Turnpike (NYS 17K today) in Coldenham, Town of Montgomery, in 1845, it was referred to as the most complete American mastodon skeleton found in the United States at that time, and is still one of the most complete such skeletons known. With the exception of a few toe bones and vertebrae of the tail, the skeleton is complete. Both upper tusks and lower tusk on the right side are present, the former measuring 8 feet, 6 inches in length.

The farm workers were digging for peat fuel in a bog near the main part of the farm when they uncovered large bones of unknown origin. The soil at the bottom of the bog was composed of a layer of peat about 2 feet thick and then a layer of moss, described as red, which was about 1 foot thick. Beneath the moss, there was a shell marl in which most of the bones were imbedded. Some of the bones of the limbs extended below the layer of marl and were imbedded in the mud. When found, the mastodon was still in the position in which it had died some 11 thousand years ago, standing upright, with its legs thrust forward and its head tilted upward, apparently gasping for air. This is truly a great mastodon specimen.

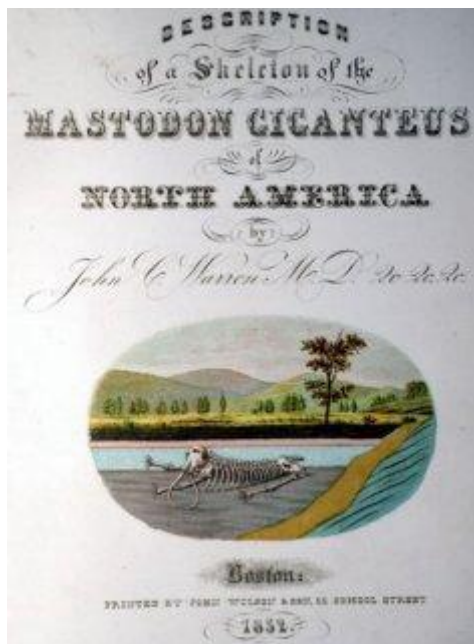


One year after the discovery, Samuel Eager, Orange County Historian wrote: "Having measured the giant, let us inspect the place where found, uncover his resting place, and observe his position in death. Mr. Brewster was digging out marl, and his workmen came upon a skeleton, every bone of which they succeeded in exhuming. Though wanting for some of the toes of the fore foot, we believe they were found and carried away in the pockets of some of the early visitors. Like all others in this



County, these were found in a peat formation, but of very limited extent, between two slate ridges. They were six feet beneath the surface—yet so deep was the peat below the bones of the neck formed

for more upright action; which caused him to carry his head higher than the elephant, and gave him a sprightly and comparatively gay appearance.— If seen together there would be observed about the same difference there is between a large horse and a large ox. The bones of the elephant's head are more rounded than those of the mastodon. The crowns of the teeth of the former in the upper jaw are convex, and fit in the concave surfaces of those in the under jaw. The teeth of the mastodon are formed of two rows of conical prominences like cones or nipples, from which the animal receives its name, while the teeth of the elephant are more horizontal on the masticating surface.— The jaws of one had more circular motion than those of the other. These are a few of the physiological differences which mark the distinction between the animals, yet the formation of the bones and tusks show them to be nearly allied.” Samuel Eager 1846



This mastodon, shown to the right in the image above, was named on behalf of its onetime owner, Dr. John Collins Warren (1778-1856) of Boston, who was one of the most renowned American surgeons of the 19th century. In 1846 he instructed an aide, William Morton, to administer an ether anesthesia while Doctor Warren performed a minor surgical procedure. News of this first public demonstration of surgical anesthesia quickly circulated around the world and Doctor Warren will forever be remembered as the first surgeon to administer an effective surgical anesthesia. Doctor Warren taught anatomy at Harvard University and he purchased the mastodon skeleton from the Brewster family for \$ 10,000. Dr. Warren originally displayed the skeleton in a small museum in Boston where he could illustrate the marvelous bone structure of this great animal.

The mastodon received its popular scientific name after Dr. Warren, who described it as the *Mastodon giganteus* in his famous 1852 & 1855 memoirs entitled *Description of a skeleton of the Mastodon giganteus of North America*. This was its generally accepted name until 1868, when the name *Mastodon americanus* was adopted. The animal is now known

as *Mammot americanum*. In his memoir, Dr. Warren wrote:

"Language is insufficient to give an idea of the grandeur of this skeleton as a whole. Standing as it does in the midst of those of various large animals-the horse, the cow, others, and towering above them, its massive limbs make them sink into insignificance. Even the elephant, although nearly as tall, has a frame which might be called delicate when compared with that of the Mastodon."

The skeleton was acquired by the American Museum of Natural History, New York City, in 1925 where it is currently on display as illustrated in the image provided to the left, above.

Kelly-Whitfield Mastodon 1879
Discovered at Little Britain, NY
On display at Senckenberg Museum, Frankfurt, Germany

This mastodon mount was named for the owner of the farm where the skeleton was found, Hugh Kelly, and R.P. Whitfield, onetime Curator of Geology and Paleontology at the American Museum of Natural History. It took a while for both names to be assigned to this mastodon.

Mr. Kelly's farm was 108 acres and located just south of the great swale (swamp) in the Town of New Windsor at Little Britain, one mile from the Little Britain Presbyterian Church at a crossroad leading to the hamlet of Bethlehem and adjoining the farm of J.W. Morrison. The farm was much later known as Brittany Hills, the home of Arthur Vinton, famous in the early Twentieth Century for his radio role as "The Shadow". One famous often repeated line from that show is (stated in a heavy voice) "What evil lurks in the hearts of men? The Shadow knows!".

The July 8, 1879 edition of the New York Herald gave the following account:

Mr. Kelly was the father of four sons who were grown to the point where they could help with the farming duties and were able to dig when the initial mastodon bones were found. Just east of the Kelly house was a marshy swale, which was a three-acre pond fifty years earlier. On the west is a rising slope where the cattle graze, which is surrounded by cherry trees now loaded with fruit. The pond had been drained and since the black muck ground has been used for garden truck (ed.-fertilizer). The swamp is now planted with potatoes and in order to help this crop along, Mr. Kelly set his sons, Willie and James, young men of sixteen and eighteen years of age, digging a drain on the western edge of the patch. Several bones were observed lying around loose upon the surface of the bog meadowy land and nothing was thought of their appearance. But when Willie discovered on digging down about two feet beneath the surface, the second joint of the foreleg, which measured about two feet and ten inches in length, he was thunderstruck. He had never heard or read about the mastodon of ancient times and when he made the whole family acquainted with his discovery, they, too, were dumfounded.

The NEWBURGH DAILY JOURNAL of July 7, 1879 contained the following passage about the Kelly boys after their initial bone discovery.

Later, on their way to go swimming, they happened to meet Mr. R. Wallace Genung and told him about the bone. He persuaded the boys to take him to the spot. He decided the bone was part of the skeleton of a mastodon. He stuck his cane in the muck and it struck hard objects. Neighbors were told of this and were interested enough to help dig. News of the discovery soon reached the Journal and a reporter went out. Three men were digging. As each bone was found it was cleaned and taken to Mr. Morrison's barn for safekeeping. The reporter went there with Mr. Genung, who made these measurements: "The skull is 45 inches long, 28 inches wide and 29 inches high. Distance between the eyes 23 ¼ inches. In the center of the forehead is a hole 11 by 4 inches for the muscular attachments of the trunk. Many detailed measurements of the bones were also provided.



**Little Britain Mastodon
Senckenberg Naturmuseum**

The NEWBURGH DAILY JOURNAL of July 9, 1879 reported:

The skeleton of the mastodon found on Hugh Kelly's farm is not yet complete. They (the bones) were taken from Mr. Morrison's and carried over to Hugh Kelly's barn this morning. This is only reached by a long lane and is not as easy of access as Mr. Morrison's, but a sign has already been put up at the entrance to the land. This sign is as follows: KELLY'S MASTODON. When you reach the barn you find the bones arranged on the floor, with the exception of the massive head,

which is set up on the improvised bench, two or three feet from the floor. It costs twenty-five cents to get into the barn. This writer's father used to say it was Hugh Kelly's best crop that summer.

The NEWBURGH DAILY JOURNAL of July 14, 1879 had a long article on mastodons in general and then said regarding the digging on the Kelly farm:

Just at present they are too busy gathering in the quarters to do much for science. The little room in a barn where the bones are on exhibition, though never crowded, often has a dozen people in it, and as they are coming and going all the time, the daily receipts must reach quite a respectable figure. Mr. Genung has constituted himself showman, and points out the beauties of the specimen in a very enthusiastic and often amusing fashion. . . It goes without saying that the market for mastodons is limited and by no means active, and that neither the supply nor the demand is very great.

The Kelly mastodon's name was changed to Whitfield in 1900. When originally discovered, the Kelly-Whitfield Mastodon was not quite complete. In 1900 the mastodon was reconstructed using some additional 'parts'. The restoration included tusks from a specimen from Hoopston, IL, the pelvic bones and three ribs from a mastodon from Hangman's Creek, Oregon. Some of the vertebrae of the neck and back and most of the tail were modeled artificially. This reconstruction occurred at the American Museum of Natural History by Mr. E. N. Gueret of Wards Natural Science Establishment. So, the mastodon being now slightly a composite, and not all Kelly may have been given the name Whitfield at that time. This explanation fits in with Dr. Whitfield's visiting the Kelly farm soon after the mastodon was found, and with it's being in the American Museum of Natural History for thirty years.

When Dr. Warren died, the American Museum was able to buy the mastodon long known as the Warren mastodon, found only three miles from the Kelly farm. J. P. Morgan provided the money for this purchase. Then they no longer needed the Kelly-Whitfield mastodon. It was sold to two German men, J. Langeloth and J. H. Schiff in July 1910 for \$2500. They gave it to the Senckenberg Naturmuseum in Frankfurt, Germany.

The Little Britain mastodon was stored away by the German museum for protection during the World War II, and was not harmed. It is still in a room with many other specimens. The Senckenberg Museum currently has the Kelly-Whitfield Mastodon on display as illustrated by the image shown here..

As Margaret Wallace noted many years ago, 'Big' Little Britain's earliest citizen was indeed a big one.

Sugar the Mastodon 1972

Discovered at Chester/Warwick Border, Sugar Loaf
Displayed at SUNY's Orange County Community College

The Sugar Loaf mastodon greets all students as they enter the Biotech building's main entrance. This mastodon skeleton was discovered in 1972 near the Warwick-Chester border south of Sugar Loaf, in a bog by a farmer during spring planting. Sugar was donated to the people of Orange County by the Orange County Chapter of the New York State Archaeological Association. The skeleton belonged to that of a 20 foot long male that possessed an unusual tusk in the lower jaw and stood almost 9 feet tall at the pelvis with a very unusual tusk of the lower jaw. Data for Sugar has been entered in a national database that will assist science in calculating life patterns for prehistoric mammals as noted below.

FAUNMAP is an electronic database documenting the distribution of prehistoric mammal species in the United States. It has been developed at the Illinois State Museum (ISM) with support from the National Science Foundation. This project is co-directed by Drs. Russell W. Graham formally of ISM and now at the Denver Museum of Natural History, and Ernest L. Lundelius, Jr. from the University of Texas at Austin. The primary purpose of this database is to investigate the evolution of mammalian communities. Specifically, with statistical techniques and mapping capabilities of a Geographic Information System (GIS), changes in the distributions of individual species and their effects upon mammal community composition can be documented for the late Quaternary. Understanding these processes will also facilitate paleoenvironmental reconstructions.

For the past four years, data have been captured from paleontological and archaeological sites that contain mammalian remains. There are currently encoded data from 2919 sites. FAUNMAP focuses on sites in the contiguous 48 states during the last 40,000 years or essentially the limits of radiocarbon dating. The following is the Faunmap data entry for Sugar.

Locality information for Sugar Loaf Mastodon, NY

SiteID: 2165	Site Name: Sugar Loaf Mastodon	Site Number:	Alt Name: Nicotra Farms
State/Province: NY	County: ORANGE	Quadrangle: WARWICK-7.5	
Location Precision: QP	Repository: NY ST ARCH ASSO		
Comment: Repository Orange County Chapter-NY Arch Assoc			
References: Dumont and Ehlers(1973);			

Analysis Units present at Sugar Loaf Mastodon

Unit Name	Min. Age	Max. Age	ResAge	Site Type
Marl-Clay Contact	9860	35000	WIHO	PALEO

Full faunal record for [Sugar Loaf Mastodon](#)



The biology club at Orange County Community College, known as the Agassiz Society, is one of the most active clubs on campus. The society is named after the French scientist who was the first to create a classification system of species. Each semester the society organizes campus-wide trips that, in the past, have included whale watching and visits to the Museum of Natural History, the Bronx Zoo, and the Camden Aquarium. Interspersed among these major events are outings the club plans to local areas for activities such as hiking, camping, and eagle watching.

The Agassiz Society has also launched a long-term endeavor to restore Sugar's skeleton, which is beginning to show signs of deterioration. Club members have completed an initial cleaning of the skeleton and are involved in raising funds to cover the expected costs of restoring the skeleton. Several local businesses have contributed through the fundraising efforts of the SUNY students.

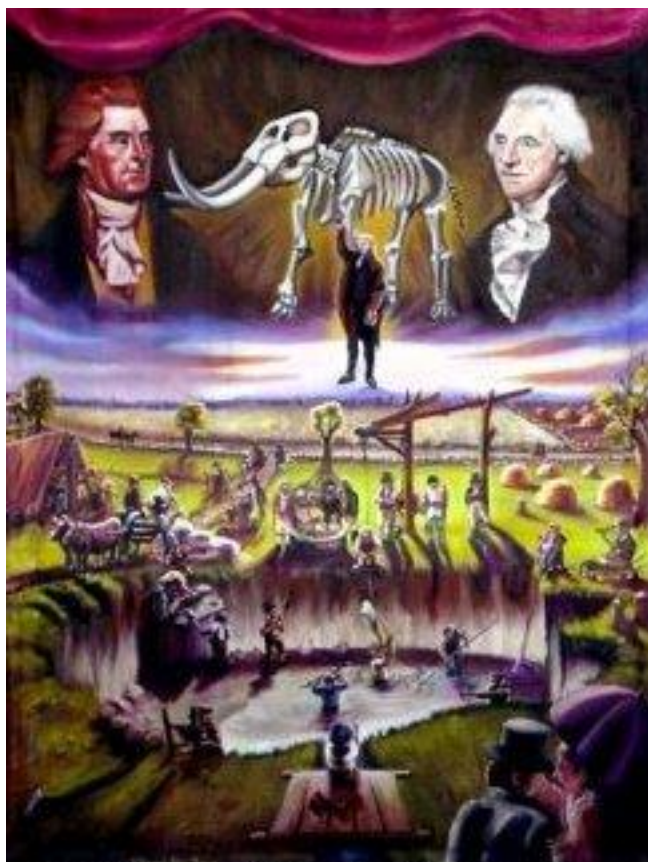
For several years, the student society has been raising funds to help determine what Sugar will need to sustain a long life as a display piece and an in-house specimen for study. The assessment is complete and the results show that the epoxy used to fuse joints trapped moisture inside, allowing decay to work from the inside out. Other problems include the busted braces meant to hold Sugar's ribs together and a handprint from a sloppy helper, dating back to 1976. Using new technology and some plain hard work, the students and staff at SUNY Orange are making a difference in Sugar and his ability to remain sound as the image illustrates.

Peale's 1801 Mastodon

Discovered in the Town of Montgomery

Currently on display at Hessisches Landesmuseum, Darmstadt, Germany

In the early part of the Eighteenth Century, the greatest museum attraction in all of America was the skeleton of the mastodon, discovered in the Town of Montgomery by famed portrait artist and budding scientist Charles Willson Peale. Peale's Philadelphia Museum featured the mastodon, known at the time as the American *incognitum*, which was famous throughout the land thanks to newspaper reports and President Thomas Jefferson's well-publicized efforts to acquire its bones. Excavated by Peale from the farm of American Revolutionary soldier Captain Joseph Barber in the Town of Montgomery in September of 1801. The exhumation site is located directly across NYS Route 17K from Valley Central School in the Town of Montgomery.



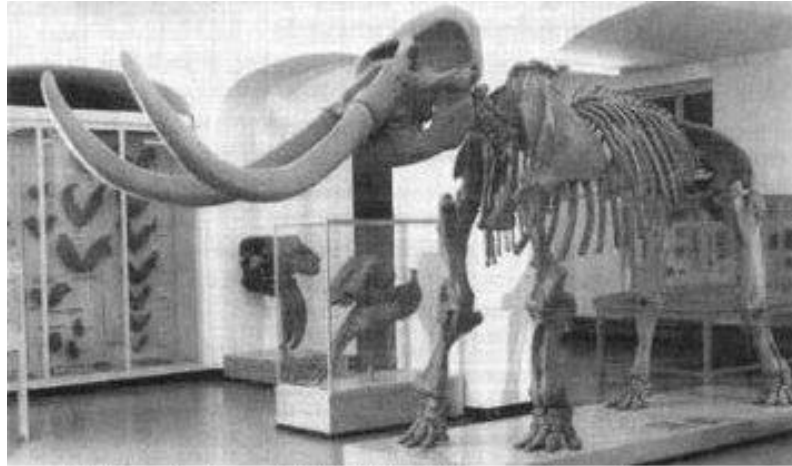
Painting by Shawn Dell Joyce

In the Spring of 1801, the American Philosophical Society of Philadelphia (Mr. Peale's Museum) authorized the expenditure of five hundred dollars for Mr. Peale to visit Orange County and hunt for bones of the *Incognitum*. This was quite a sum of money in 1801 but was needed because Mr. Peale would have to hire many local laborers to assist with the necessary digging. President Thomas Jefferson provided assistance to Mr. Peale from the young U.S. Army and Navy. The Army provided horses and wagons for the trip and the Navy was scheduled to provide bilge pumps and other equipment from their ships to assist with removing standing water at excavation sites. Peale departed New York City where he acquired additional equipment but could not wait for the arrival of the Navy pumps so he rented pumps and boarded a ship for the trip to Newburgh.

Along the way, Mr. Peale was so struck by the sheer beauty of the Hudson River and fabulous views of mountains that he made several outline sketches along the way. Since the boat traveled so fast, Mr. Peale would have to finish these fine paintings at a later date. Images of these paintings are widely available today. After inspecting several possible exhumation sites in the Newburgh area, Peale walked from Newburgh to the Captain Barber farm in Montgomery

alongside his equipment wagons and met with Mr. Barber to discuss the possibility of digging on the farm where the earlier bones were found while digging for marl. Captain Joseph Barber quickly agreed and proved to be a gracious host to Charles Willson Peale. In addition to allowing Peale access to his land and rendering ownership of the relics to Peale, Captain Barber provided transportation to many local sites where mastodon relics had previously been found hoping that they might prove useful for excavation. Mr. Barber also assisted with recruiting local labor to assist with the excavation, which they estimated to take two weeks. The workers were paid over one dollar per day, which was considered quite satisfactory. A twelve-year-old local schoolboy, Samuel W. Eager, later to become the famed Orange County Historian, watched the mastodon excavation at the Captain Barber farm on a daily basis. School did not begin until November so young Eager was not confined to the classroom. He later wrote about his experience and his thoughts about mastodons. Many local residents would walk to the excavation site and watch with amazement as Mr. Peale's team proceeded with their work.

At the Captain Barber farm, Mr. Peale did not need to use the ship pumps he had rented. The swamp area was slightly elevated from the surrounding landscape and a deep trench was dug to carry the standing water away from the marl pit. Workers carefully removed marl and clay to uncover the bones, which were reported to be in



**Peale's 1801 Mastodon
Hessisches Landesmuseum
Darmstadt, Germany**

good condition. These were carefully cleaned and packaged on the wagons for eventual transport to Philadelphia. After two weeks of digging and, with the assistance of Captain Barber, Charles Willson Peale visited two other sites in the Town of Montgomery where he decided not to dig. One was the site of the Reverend Annan farm just South of Montgomery (noted earlier in this essay) and the other was the Colden farm, farther east of Montgomery in current Coldenham. Mr. Peale had purchased bones from the farm of John Masten in Newburgh earlier. In total, the expedition yielded enough relics to construct two complete mastodons, which were taken to Philadelphia and later erected into lifelike reconstructions. Mr. Peale was worried that

overland movement of the bones would cause damage so he arranged for ship passage of the skeletons from NYC to Philadelphia while he, himself, took the faster overland wagon route. The skeletons were first exhibited on Christmas Eve in 1801.

The mastodon skeleton belonged then to an unknown species, later identified as the mastodon. In an era when there was little awareness of extinction or the prehuman past, the animal's identity had been a subject of vigorous debate for nearly a century in both Europe and America. Naturalists on both sides of the Atlantic had puzzled over the bones ever since the first discovery of a giant tooth on the banks of the Hudson River in 1705 and then given to the Reverend Cotton Mather of Salem witchcraft fame. What was this enormous animal for which no living counterpart could be found? Was it a harmless herbivore or a ferocious carnivore? Were its descendants still living in the unexplored parts of the American West? Did the mastodon remains belong to an extinct species whose disappearance was God's blessing upon the new nation? The skeleton preoccupied American patriots for another reason less scientific in nature—one that helps to explain why its bones were eagerly sought after by the Founding Fathers during and after the Revolutionary War. For many Americans, the great beast had become a symbol of the new nation's own conquering spirit. An animal, larger than any ever found in Europe, would give Americans bragging rights to deflect European suggestions that our new nation represented an environment unfit to feed animals. Americans knew their country was lush in grasslands and rich in natural resources so this new large creature became a national icon almost overnight.

President Thomas Jefferson and his house guests rang in the new year of 1802, as many later generations of Americans would celebrate New Years' Day, by consuming some snacks and watching a spectacle. In this case, however, the snack *was* the spectacle: the long-awaited "Mammoth Cheese" from Cheshire, Massachusetts, four feet in diameter, eighteen inches tall, 1200 pounds heavy and already an American icon. The cheese and its saga were several months old by the time it reached President Jefferson. The "Ladies of Cheshire" had made the cheese back in August as "a mark of the exalted esteem" in which Jefferson was held by the small Berkshire County, MA farming community. The cheese was made from the single milking of 900 cows and was meant to recognize the great accomplishment of exhuming the mastodon, known at the time as a mammoth. This is an example of the recognition extended to Jefferson, and America itself, for the mastodon

exhumation in the Town of Montgomery. The milk from 900 cows was a sacrifice of significant proportions for a small farming community in the Year 1801.

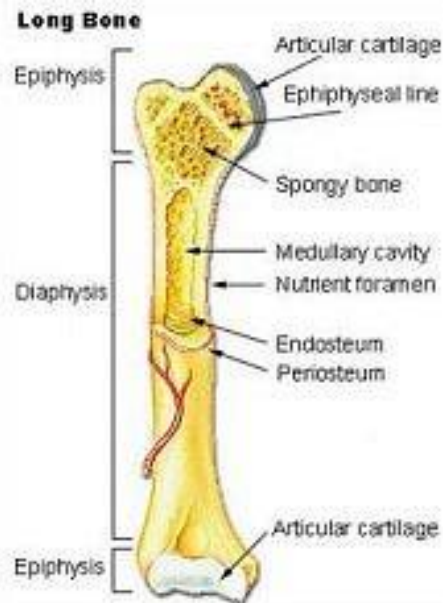
Temple Hill Mastodon 1917 & 1921

Discovered north of Vails Gate, NY

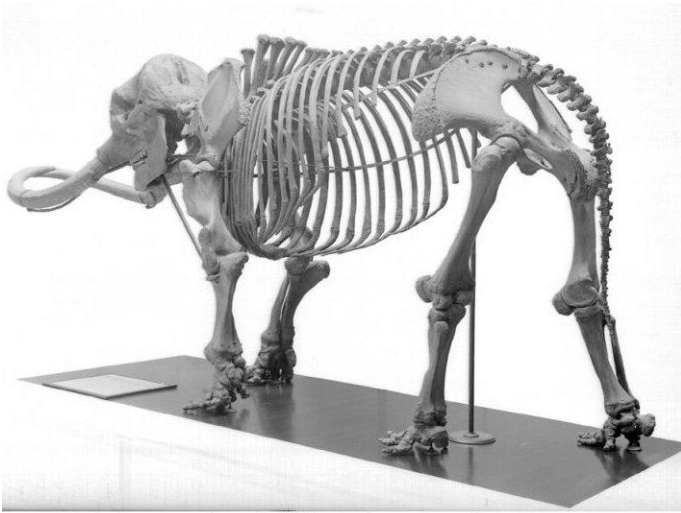
Displayed at NYS Museum, Albany

There were actually two separate mastodon finds at Temple Hill. The first find was in 1917 and this yielded a well preserved lower jaw and some scattered mastodon bones on the muck land of Antonio Fisher, one half mile west of the Temple Hill monument and 1 mile north of the Vails Gate junction. These are part of a private collection.

Four years later, in 1921, a mastodon was found very close to the first site, only a few hundred feet away, also on the farm of Mr. Fisher. This one is in the State Museum at Albany. Mr. Donald W. Fisher wrote of it, "This skeleton is exceeded in size and completeness by only one other, the Warren mastodon, also found in Orange County." The skeleton was also known as the McMillin Mastodon for Emerson McMillin who defrayed the cost of the acquisition in 1921. During construction of a drainage ditch in 1920, part of the cranium was observed but weather prevented further excavation. The following year, 1921, Orange County experienced a severe drought in the Spring and the work of excavating the mastodon commenced. Within a few days, all of the large bones were recovered. Only the bones from the ribs, back and tail vertebrae, toes and part of the cranium were missing. Most of the large bones had been taken from the excavation before the NYS Museum staff was able to join the effort. As a result, the mastodon stomach contents were scattered and lost by the farmer who discovered the bones. Great masses of broken twigs and plant remains were recovered in the vicinity of the skeleton and their position relative to the mastodon were noted, which gave considerable support to the theory of death by being mired in the muck like many other mastodons from Orange County. The mastodon exhibited many long



bones with free epiphyses (round bone ends as shown in the image to the left), which were not even partially fused with other bones, indicating that they were 'free'. This, together with the condition of the molars, indicated that the mastodon was young but fully-grown. A recent radiocarbon C14) date of $11,000 \pm 80$ ¹⁴C years before the present (or 9,000 Years B.C.) on the mastodon bone collagen from this specimen. The Temple Hill Mastodon lived a long time ago and these results were consistent with other occurrences of extinct species regionally.



Temple Hill Mastodon



At the time of its discovery in 1921, the Temple Hill Mastodon, shown in the NYS Museum image above, was considered the largest specimen ever found except for the Warren Mastodon found in Coldenham in 1845. The comparison of the two mastodons is shown below.

	Warren	Temple Hill
Length, base of tusks to drop of tail	14 ft, 11 in	15 ft, 1 in
Height, to top of spines of back at shoulder	9 ft, 2 in	9 ft
Tusks, length of right tusk on outside curve	8 ft, 6 in	7 ft, 5 ¼ n
		base lost
Tusk, length of left tusk on outside curve	N/a	7 ft, 4 ½ in

Harry the Mastodon 1952

Discovered in Harriman, NY

Currently on display at Old Museum Village, Monroe

In May of 1952, a fine mastodon specimen was unearthed near Route 17M in Harriman, and the mastodon was named Harry, quite appropriately. With the assistance of the American Museum of Natural History, the skeleton was carefully recovered from the ground and restored. It is considered by many to be among the finest mastodon specimens ever unearthed. One local prominent resident, Mr. Roscoe William Smith, organized the effort. Mr. Smith had previously organized the excavation of mastodon remains at Monroe Millpond (site of the current Smith Clove Park) in Monroe and also at the dam excavation site above Twin Lakes in Blooming Grove. Dr. Edwin Harris Colbert, Curator of Vertebrate Paleontology for the American Museum of Natural History, worked with Roscoe Smith to ensure that the excavation process was properly managed. After the mastodon exhumation was complete, Professor Colbert released a statement to the press to indicate that the remains were that of a mastodon and not a dinosaur as many local folks had thought since the professor was considered one of the foremost authorities on dinosaurs at that time. Harry, the 1952 mastodon specimen, was carefully restored and is currently on display at Museum Village in Monroe.



Roscoe Smith

Museum Village was the vision of Roscoe Smith, an electrical engineer, entrepreneur, philanthropist and collector who contributed to his native Orange County in many ways during his 99 years. Roscoe made his fortune as founder of the Orange and Rockland electric company in 1905. The wealth he generated from his successful company and investments allowed him to give back to the community in many ways. Probably Mr. Smith's most cherished gift to the local community was Museum Village of Old Smith's Clove, which was the original name of Monroe before area residents decided to honor the American President. The museum is located on part of the Smith family farm. Mr. Smith was passionate about American history and was an avid collector of Americana. His collection varied widely, from textiles and porcelain items to horse-drawn carriages. His main interest though was in craft tools and mechanical devices: their invention, adaptation and development, which he realized, were slowly disappearing. When Mr. Smith visited farmers to try to sell the idea of bringing

in electricity, he would poke around their barns. He would sometimes accept farm tools or artifacts as forms of payment for electricity for those who could not afford to pay. Mr. Smith used to say "power for artifacts". For over 40 years Mr. Smith amassed a great collection and in 1940 he began to construct his dream of a place to

display the artifacts and educate the visitor. Museum Village opened its doors on July 1, 1950. Today, the Museum Village still pursues its founder's vision of educating generations of Americans about the work and life of their ancestors. With educational programs, hands-on-exhibits and special events, Museum Village is dedicated to exploring and interpreting 19th century rural life as well as inspiring an appreciation for the evolution of industry and technology in America. Mr. Smith said of his living history museum, "I've always liked collecting old things, and now I've gathered them here to show people what the life of our ancestors was like - what used to be the American way of life." Today, the village is the largest folk museum in New York State.



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Museum Village at Old Smith's Cove

find a circa 19th century blacksmith, broom shop, candle shop, dress emporium, drug store, general store, log cabin, pottery shop, print shop, school house, wagon shop, and weave shop. Several of the shops are operational, so you can watch the various proprietors work at their individual trades.

Museum Village is just that, a village. Visit the village grounds, and walk through an accurate depiction of 19th Century American life. Along the village's meandering streets you will

For a step even further back in time, stop by to visit Harry, the mastodon discovered in 1952 right here in Orange County.

Museum Village - 1010 Route 17M, Monroe, NY 10950

(845)782-8247

<http://www.museumvillage.org/index.htm>

Arborio Mastodon
Discovered in the Town of Montgomery
NYS Museum Storage, Albany

Most of a mastodon skeleton (90-95% complete) was recovered from an esker-rimmed bog during construction of I-84. The mastodon was recovered on the Malley Farm, located on Beaver Dam Road in the Town of Montgomery. The mastodon was found just to the south of Beaver Dam Rd between the current east and westbound lanes of Route 84 and is named for the Arborio Construction Company, which was building the roadway. The skeleton was recovered by the Orange County Chapter of the NYS Archaeological Association and the skeleton is safely stored by the NYS Museum.

The carbon-dated age of this mastodon has been fixed at 10,000 +/- 160 years according to the Canadian Radiocarbon database, which includes data for selected American mastodons. Peat-marl contact, 1.8-2.4 m depth.



Although mainly oriented toward archaeology and radiocarbon dates, CARD includes coverage of part of the palaeontological record. It represents a first step toward the creation of a vertebrate database that can be incorporated into the FAUNMAP database already established at the Illinois State Museum.

Borden Number: NY	Site Name: Arborio mastodon	Component: -
Location: 2.7 km south of Montgomery, Orange County, New York	Record Updated: 2002-04-24	NTS: -
Lab No.: I-3785	Field No.: -	Submitter: R.E. Funk
Material Dated: mastodon bone collagen; collagène osseux de mastodonte		
Taxa Dated: Mammut americanum rib		
Provenience: peat-marl contact, 1.8-2.4 m depth		
Uncorrected Age: 0 ?	Del C13: ?	Normalized Age: 10000 ± 160
Suggested Age: -		
Note: -		
Significance: palaeobiology; paléobiologie		
Associated Taxa: Mammut americanum		
Comments: Arborio mastodon: Most of a mastodon skeleton (90-95% complete) was recovered from an esker-rimmed bog during construction of I-84. Cobbles found in the enclosing peat could have been dislodged from the esker or could have been brought to the site by human hunters or scavengers.		
References: Funk et al., 1970; Faunmap 2132		

Schaeffer Skeleton 1899
Discovered in the Town of Newburgh, NY
American Museum of Natural History, NYC

In 1905, Henry Fairfield Osborn, one of the most respected science professors of his time, created the name for the largest, most fearsome predatory dinosaur of North America: *Tyrannosaurus rex*. Professor Osborn also examined the skeleton and site of the Schaeffer Mastodon where almost an entire skeleton was found on the farm of F.W. Schaeffer about 3 miles west of Newburgh on the turnpike, Route 17K today. The skeleton lacked the bones of the legs and feet (except about twenty phalanges), one scapula and a number of vertebrae and ribs.



Henry Fairfield Osborn

Professor Osborn made the following observations:

“The deposition is in three levels, the upper two being separated by a smooth, clearly defined surface and by slight differences in the character of the soil, which is largely dark and thoroughly decomposed vegetable matter, intermingled with a few stones and very numerous remains of trees of various sizes. Examination of the latter gives abundant evidence of the existence of beaver in this hollow in the period of the mastodon, and we can easily imagine that the different soil levels were due to the building of successive beaver dams.”

The Schaeffer Mastodon was originally displayed at the Brooklyn Museum. The museum transferred all of its non-art assets to the American Museum of Natural History in the 1930s and the Schaeffer Skeleton was transferred as part of that collection move.

Osborn was professor of anatomy, biology and zoology at Princeton and later at Columbia University and the American Museum of Natural History. He served as President of the museum, during which time he accumulated one of the finest collections in the world. He assembled a great team of artifact hunters and preparators, which included Roy Chapman Andrews, one of the prototypes of the movie icon, Indiana Jones.

His best known publication might be his two-volume work of 1936, *The Proboscidea: A Monograph of the Discovery, Evolution, Migration and Extinction of the Mastodons and Elephants of the World*, in which he discussed the fossil history and evolution of elephants and their relatives. A second volume appeared in 1942, after his death. He published many papers and other works during his career. Osborn wrote an influential textbook, *The Age of Mammals in Asia, Europe and North America* (1910). He also authored *The Origin and Evolution of Life* (1916). He co-founded the ‘Save the Redwoods League’ and he was long-time president of the New York Zoological Society. Professor Osborn was certainly one of the great scientists in American History.

The Great Swale

Towns of Montgomery and New Windsor

Do you want to dig for a mastodon? We have been told that Mr. Giacomelli found a few mastodon parts on his land. This is the farm across the meadow from the Little Britain church, a part of the same swale that extends from Hugh Kelly’s farm north to the Brewster farm in Coldenham as shown in the image below. Doubtless, the rest of the skeleton is waiting for someone to dig for it.

Margaret Wallace, Orange County Post, June 15, 1967



The observations of Margaret Wallace apply yet today. Swamps, wetlands and ponds are prime sources for recovery of mastodon bones and skeletons. These environments offer a barrier between the buried skeletons and the open environment, thus providing excellent protection from decay that we cannot provide once remains reach the surface. The Great Swale is it has been known for hundreds of years, is a huge swamp now protected as part of the Stewart Preserve. The swale doubtless contains many remains of mastodons and other Ice Age mammals and these skeletons are rightly protected from exploration so that future generations may enjoy them one day when the mastodons currently on display succumb to the effects of the environment

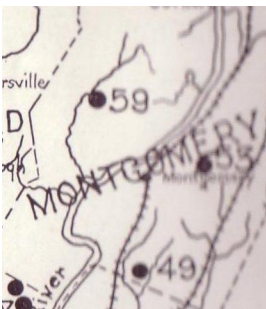
and eventually decay. Located to the west of Stewart Airport, the swale extends, as Margaret Wallace noted, from the Town of Montgomery and Route 17K to the north all the way down to Little Britain and Route 207 to the south. This massive swamp provides a wonderful habitat for wetland species of reptiles, amphibians and mammals on the surface while acting to protect the very special remains of ancient mammals beneath the surface. One of the many benefits of wetland protection laws, in addition to preserving living species, is the preservation of bygone species. The skeletal remains of these fine creatures are quite limited in number and it is to our benefit that they be protected, whether intentional or not.

Partial Mastodon Finds in Orange County

The Archibald Crawford Mastodon 1829

Discovered in the Town of Montgomery
Bones Given to Peale's Museum

Very little information exists for this mastodon discovery. In 1922, the NYS Museum publication by Hartnagel and Bishop reported that the skeleton of a young mastodon was unearthed in the Town of Montgomery and that the bones were reported to have been transferred to the Peale Museum of New York. Besides many bones of the trunk and limbs, both tusks and jaws were found. Philadelphia physician and medical journal editor Dr. John Godman altered scientists to the presence of sockets and a fragment of tusk in the right side of the lower jaw. He used these observations to attempt to establish a new genus but this effort failed. Dr. Godman was among the first scientists to counter Peale's contention that the mastodon tusks should be mounted pointed downward. He believed that they should be mounted like those of an elephant, unless an actual skeleton was found to prove otherwise. Dr. Godman married Rembrandt Peale's daughter, Angelica.



This mastodon specimen was of particular interest, however, because of the retention of sixteen teeth in the jaws, they're being two teeth on each side, above and below, in addition to the permanent compliment of teeth.

The site of the exhumation was identified by Hartnagel and Bishop as being along the stream that enters the Wallkill to the west of the Village of Montgomery as noted from the 1922 image shown here. This would mean that the mastodon specimen was found along the Muddy Kill stream near Corbett Road or Searsville Road in the Town of Montgomery. See Item # 59 in the 1922 image provided to the left.



**Rubens Peale, Painted by
His Brother, Rembrandt**

If the 1922 publication is correct, the bones from the Crawford Mastodon would have been used with other bones to create a skeleton for display at the New York museum, managed by Rubens Peale, one of Charles Willson Peale's sons. Museums in this period of American History were originally managed by naturalists for the scientifically minded but soon were challenged by the true showmen of the times, like P.T. Barnum, the self-proclaimed prince of humbug. Rubens Peale felt the financial strain of trying to compete with the showmen and he changed his museum to exhibit more like them rather than the purely scientific type.

During a particularly trying financial time, the Panic of 1837, Rubens Peale sold his New York Museum and all of its assets to Barnum who reopened the museum in true showman fashion in 1842, exhibiting, among other items, a mastodon, likely acquired from Peale and formed with many of the bones from the 1829 discovery in the Town of Montgomery. The Barnum museum featured 'curiosities,' including 'the Egress' and the midget, Tom Stratton ('General Tom Thumb'), whom he took to meet Queen Victoria. He knew what the public wanted and how to promote his unique attractions. In 1871 he introduced 'The Greatest Show on Earth,' a three ring circus which he transported by rail. Joining with rival James Bailey in 1881, he featured exotic animals, including one he advertised as 'the last mastodon on earth', which was actually Jumbo the elephant.

Shawangunk Head 1844

**Found at Scotchtown, Town of Wallkill
American Museum of Natural History, NYC**

In 1843 or 1844, the best-preserved head of a mastodon was discovered near the hamlet of Scotchtown in the Town of Wallkill. The 1922 Hartnagel/Bishop text reports that the remains were few, except for the head, which was extremely well preserved. The jaws retained 10 teeth and the tusks of the upper jaw, said to have been perfect when found, disintegrated soon after exposure to the air. The head and other bones were said to have been covered first by a layer of gravel, second by marl, third by a layer of peat. The Scotchtown Highlander (http://scotchtownhighlander.com/history/articles/mastodon.htm#_ftn9) tells an interesting story about this mastodon skull recovery and provides considerable detail about the exhumation background with reference to news reports that followed. The community interest shown for this discovery is well received. Several publications have cited the Scotchtown Mastodon due to the well-preserved state of the skull. The name, as previously stated, probably came from NYC news reports that suggested the Hudson Valley as being in the valley of the Shawangunk Mountains.

Gordon Mastodon 1902

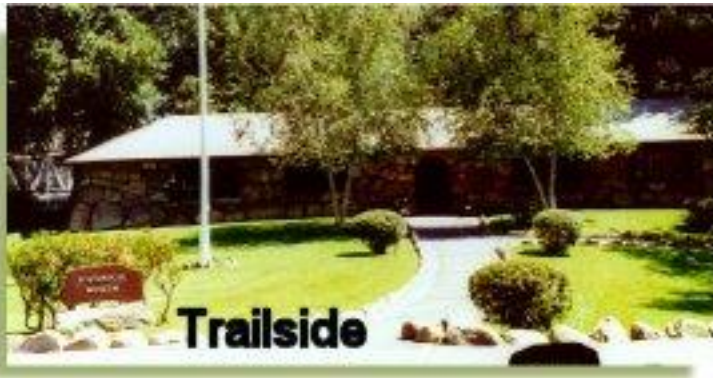
**Found at Balmville, North of Newburgh
Trailside Museum and Wildlife Center
Bear Mountain State Park**

The remains of the mastodon were discovered in 1902 on the property of Dr. Reginald Gordon in Balmville to the north of Newburgh in 1902 by a worker, E.W. Dubois, while digging up peat well below the ground surface with the help of a team of horses. The first bone found was a large rib found at a depth of five feet in a mixture of lime and muck. Dubois recognized the importance of this discovery and he alerted the owner of the property, Dr. Reginald Gordon, who was a Professor of Physics at Columbia University. Dr. Gordon instructed his workers to dig in the swamp to recover as many bones as possible.



Balmville Skull

In three weeks, they cut through the black ooze and peat into a bed of grey marl, made up of shells from minute marine life. Under Dr. Gordon's direction, the skeleton was expertly excavated and stored away. With the mastodon, the workers found pieces of spruce and cedar that flourished locally when the mastodon lived. These may have been the animal's last meal. Water from underground springs halted the digging, leaving about one third of the mastodon still in the bog.



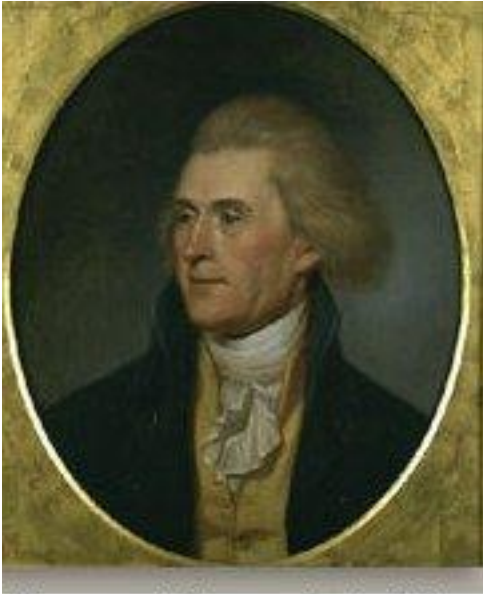
The excavated mastodon bones were carefully cleaned and stored in the basement of Dr. Gordon's home, where they remained for several decades. In 1938, D. Gordon became interested in the work conducted by Trailside Museums, which was then under the direction of the American Museum of Natural History. Professor Gordon waived all financial considerations, which would have represented a fortune, and included only one stipulation. He wanted the mastodon to remain in the area where the living animal once roamed,

stipulating that the mastodon should stay in Orange County. In October of 1938, the skeleton was carefully packaged in mattresses and moved from Balmville to the museum workrooms with the New York State Police acting as an escort for the shipment, traveling at only ten miles an hour. The reconstructed animal was fifteen feet long and nine feet tall, quite a size for an animal, don't you think? Today, only a partial skeleton are on display along with the six foot curved tusk. Plans to recover the remaining one third of the mastodon never materialized. You can visit the Gordon Mastodon today at the museum.

Bones from the John Masten Farm 1799

**Found at Town of Newburgh
Acquired by Charles Willson Peale in 1801**

Perhaps, the most important partial mastodon recovery occurred in the Town of Newburgh, about one mile east of the City of Newburgh, in the year 1799, when workmen digging in marl pit on John Masten's farm uncovered a massive femur. A frenzy of digging ensued as neighbors descended upon the site to help and soon a considerable assemblage of bones lay on the floor of Masten's granary barn. These skeletal parts not only provided 'spare parts' for the assemblage of a future skeleton, they also provided for the motivation for scientists to invest in digging in Orange County for more bones. Interest, however, in these unusual bones soon diminished until the next year when local clergy and physicians — alerted of their importance by an appeal by the American Philosophical Society — sent news of the discovery to associates in New York City and ultimately to Philadelphia and Vice President Thomas Jefferson.



Thomas Jefferson, Portrait by Charles Willson Peale

The following year, in the spring of 1801, despite being embroiled in the most serious electoral challenge of the new republic, Jefferson sent an emissary to procure the bones.

Charles Willson Peale traveled to John Masten's farm early in the year 1801, originally to draw paintings of the bones, but he soon bought the skeletal parts that lay on the Masten granary floor and he purchased the right to excavate for others at that site. Charles Willson Peale returned to Philadelphia to obtain funding and support of the American Philosophical Society and Thomas Jefferson. Later that year he was back at Masten's farm leading an ambitious excavation, which, unfortunately, yielded little new material. Following leads at other local sites, Peale's team ultimately exhumed the remains of a nearly complete second skeleton in Orange County. Two pieces of mastodon tusk were in the possession of Dr. Mitchell, one of the proprietors of the NYC

Medical Repository, in 1801. It is assumed that these tusk pieces may have come from the bone collection acquired by Peale at the Masten farm and presented to Mitchell while Peale traveled between Newburgh and Philadelphia.

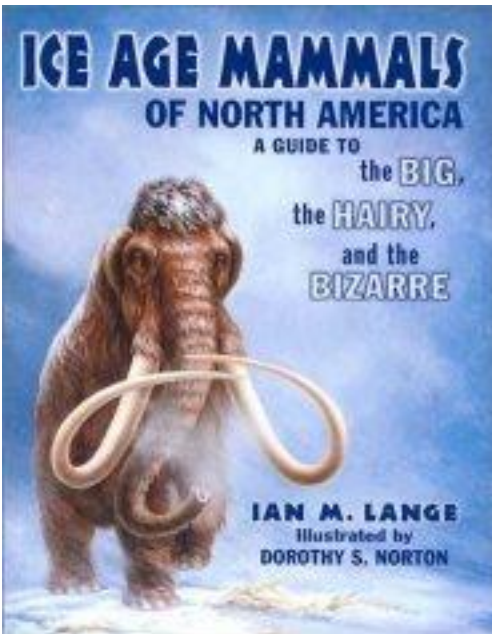
On his way to and from Orange County by ship, Charles Willson Peale was dazzled by the beauty of the Hudson River and the beautiful mountains. Since the ship sailed so fast, Peale was not able to complete any paintings during the voyage but he painted many sketches, which he later finished in Philadelphia.

For a free 2008 map of all New York State and Orange County, NY mastodon exhumation sites, please click the link below

<http://home.roadrunner.com/~montghistory/> ←-click here

If you visit my website, please sign my guestbook. Thanks

Suggested Reading



For the non-scientist, there are several books and websites that provide clear, concise information relative to the mammals of the Ice Age. One of the best I have read is 'Ice Age Mammals of North America' by Ian M. Lange, image shown to the left. The author provides the reader with a good understanding of the Pliocene Epoch, which began two million years ago and concluded at the end of the Ice Age ten thousand ago. Mr. Lange provides detailed information for the animals that lived during this period in North America. This book is a pleasure to read.

Many of the recent mastodon exhumation sites offer a good insight regarding the role of scientists and students alike in these recovery challenges. New York sites of particular interest are the sites at Hyde Park, North Java and the Hiscock site in North Byron, NY, which is still under excavation after almost fifty years since the initial discovery. The 'Links' section below will direct you to the proper website.

A detailed map of the mastodon exhumation sites has been generated by the author for all of New York State. A similar map has been created for Orange County, NY. These maps provide the first detailed attempt at documenting mastodon recovery sites in over ninety years. The author in this essay has made these maps available to anyone who wishes to download them from his website. Other mastodon related documents are also available on that site for download. These include essays as follows:

- 1801 Charles Willson Peale's First U.S. Scientific Expedition Overview
- For 4th and 5th Grade Students – the story of the 1801 mastodon recovery as told by a twelve year old boy who witnessed the exhumation on a daily basis
- Mastodon facts document – primarily for kids
- Other documents for kids are in progress and will be added in the near future.

To access these documents, please use the web address below.

<http://home.hvc.rr.com/montghistory/index.html> ←-----

Associated Links

<http://www.peabody.yale.edu/> Peabody Museum of Natural History, Yale University

http://www.senckenberg.de/root/index.php?page_id=28 Senckenberg Naturmuseum, Frankfurt, Germany (Note the English button on the right)

<http://www.amnh.org/> American Museum of Natural History

<http://www.nysl.nysed.gov/> New York State Library

<http://www.nysm.nysed.gov/> New York State Museum

<http://www.hlmd.de/index.php?fl=1> Hessisches Landesmuseum, Darmstadt, Germany

<http://www.news.cornell.edu/chronicle/00/1.20.00/mastodon.html> Good web site about children participating in the analysis of mastodon site material in Chemung County, NY

http://www.priweb.org/mastodon/java_mast/java_mast_home.html North Java Mastodon - good

<http://www.sciencedaily.com/releases/2000/01/000118063112.htm> Another one about Chemung - good

<http://library.albany.edu/subject/geol.htm#Maps%20&%20Cartography> SUNY Albany, Geology resources - exceptional

http://www.priweb.org/Research/research_home.html Paleontological Research Institute's web pages on the Hyde Park and Gilbert Mastodons – great

http://www.nationalgeographic.com/education/maps_photos/index.html National Geographic Guide for Teachers – lots of good information here

Credits

First, for those of us who enjoy stories about the great prehistoric animals, we should extend special thanks to all those professionals in the archaeology and paleontology fields, past and present, who have worked very hard to bring true meaning to the understanding of life forms dating back to the era before recorded history. Their tireless efforts have yielded the treasure of understanding regarding the mysteries of human and animal existence. They deserve our admiration and our thanks!



NYS Museum Mastodons



For a 2008 map of all New York State and Orange County, NY mastodon exhumation sites, please click the link below

<http://home.roadrunner.com/~montghistory/>

Feedback to the author:

I would appreciate any communication that assists in providing useful details regarding Orange County or NYS mastodon sites. Documents like this are particularly useful if they represent input from a wide readership and if they are maintained over the years. It is quite likely that I have not identified all of the mastodon exhumation sites so feedback will be very welcome. Contact details are provided at the following web address.

<http://home.roadrunner.com/~montghistory/>

Thanks, Joseph Devine, 708 River Road, Montgomery, New York 12549

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