

Now this fluid, so agreeable to the taste and so nutritive, cannot be derived from nothing. In fact it contains, as we have seen, a large amount of force, that is, food, and every particle of milk yielded by the cow must of necessity have entered her body at some time as food. If we bear, then, in mind that product can only be derived from product, and these products all represent forces, and that these forces can all be dissipated in various ways, it will be seen how ignorant is the man, not to say dishonest, who claims to attain a large product on insufficient feed.

It will also be seen how unwise it is to turn these forces from their profitable function of product (either milk, fat, or growth) towards supplying the deficiency of knowledge on the part of the owner. When an animal is exposed to the cold wintry blasts, she is being compelled, as it were, by her owner, to consume more food, and this food is largely wasted in keeping up a temperature which is being lessened by such cruel neglect. As a rule, protection is a cheaper fuel than corn or hay.

Again: it will be seen that certain forces are necessary for the support of the body. These forces have to be supplied by the food, and it is only as the food exceeds this minimum that the profit commences. The unwisdom of under-feeding is thus seen. With the rightly constituted animal which digests her food, every additional mouthful of food she can be persuaded to digest is a source of increasing profit to her owner.

As all the animal motions result from forces, and are the products of food, it will again be perceived how unwise is the harassing of cattle unnecessarily, whether by dogs or children.

As forces are required for animal progression, and as the whole weight of the cow has to be lifted up every step, in whatever way the hill be surmounted, it will be perceived that a true economy would dictate the size of the animal best adapted to the pasture. Of two cows, equally good milkers the larger must consume more of her food in sustaining the increased exertion of carrying her greater weight in the roaming for feed than the smaller cow, and, therefore, in this one respect, would be indicated as being less profitable to her owner.

#### ADULTERATION OF TEA.

DR. J. M. EDER is the authority for the statement that one-half of all the tea sold is mixed with spent tea leaves. Processes for the sophistication of tea are considered valuable property, and if there has not been some misinformation sent abroad, the owner of a tea-doctoring secret lately sought protection in its use from our courts. Among dealers of an article so generally used as tea there is a keen competition, and the temptation to have recourse to swindling as a fine art is strong and sometimes irresistible. By and by the evils will compel a remedy. There are few subjects that are better worth the energetic attention of officers intrusted with the public health than the extent and kind of tea adulteration. Exhausted leaves are not the worst substances employed. Dr. Eder sets no value on the determination of theine as a test of the character of tea. He proposes to ascertain the total extractive matter as obtained with hot water, the proportion of tannin in the solution, the total amount of ash, and the proportion of ash soluble in water.

#### THE AUTOPSY OF AN ELEPHANT.

By A. J. HOWE, M.D.

THE day before last Christmas John Robinson lost by death one of the largest specimens of his fine herd of elephants. The animal bore the name of "Conqueror," and originally came from Abyssinia. He had been in America fifteen years.

Conqueror was so fond of fun that he would in his way challenge boys to throw stones at him, and if he succeeded in cajoling them into a contest of the kind he would gather the missiles that hit his sides and fell to the ground, until he had quite a supply upon which to draw when he chose to hurl the ammunition back. It seemed to give the ponderous pachyderm great delight as the boys scattered with a shout when a stone fell in their midst.

At length Mr. Robinson placed Conqueror in company with seven or eight other elephants, and took him about the country as a feature of his traveling menagerie; but the playful nature of the beast so often gave way to fits of anger that he proved an unwelcome part of the "show." He took the conceit that he would not obey any one except his old master, and came near killing two or three men who undertook to exercise authority over him; and he often provoked quarrels with the other elephants, and attempted to stampede the camels, dromedaries, and other animals of any significance in his estimation. He seemed to covet a contest with the larger felines, especially the tigers, against whom he appeared to entertain an instinctive hate. These caprices and freaks of temper caused him to be hampered with chains that extended around his body, over his tusks, and to bracelets locked upon his wrists. These incumbrances made him so irritable while traveling on a fenced platform car, on the railroad, that he made a desperate attempt to break loose while the train was in motion. In this struggle one fore-foot was so much bruised that the animal had to be taken to a quiet retreat for recuperation. Three months afterwards the foot had so far recovered that Conqueror went into winter quarters with his old companions, and seemed pleased to return to the company of his fellow kind. However, he could not live in peace with anybody—he must play or quarrel, so exuberant were his spirits. His companions could stand a certain amount of his rude frolics, but at length they would unite their forces and drive him to his corner of the inclosure, where he would utter the well-known bellow of submission. After patching up a truce he might be quite companionable for a few days, until his restless spirit provoked a fresh onset. His inclination ran chiefly to badgering the four Indian elephants in the corral with him; and they at length, after forbearance ceased to be a virtue, made a fierce onslaught upon the ill-mannered African, and so severely punished him with thrusts of their tusks in his neck and shoulder that a large vein was lacerated, and Conqueror cried "hold, enough!" for the last time. In two days he was dead, and his carcass became the property of the Cincinnati Society of Natural History. Our taxidermist, Charles Dury, with a force of assistants, proceeded with zeal to flay the monster, and to preserve the skin and skeleton. The dissection lasted several days; and during the time I endeavored to investigate the organic peculiarities of this massive specimen of the animal kingdom.

It was estimated that the entire elephant weighed more than five thousand pounds, and that the skin, with some fat and fascia attached, would weigh over eight hundred pounds. The integument was comparatively thin on the inside of the legs and under side of the abdomen, but on the back and exposed parts of the creature the skin was more

than an inch thick. Surely the animal is entitled to be called a "pachyderm."

The prominent peculiarities of the African elephant are his untamable disposition, his prominently convex forehead, his immensely large ears, and sloping or receding rump. Although the "African" elephant was employed by the Carthaginians in their wars with the Romans and the rest of mankind, the art of capturing and taming the creature was lost to the inhabitants of the Middle Ages. It is not long since the African elephants were placed in the London Zoological Gardens. The ivory of the African elephant is more valuable than that of the Asiatic species, hence it is sought by every trader doing business in the "dark continent." It has been estimated that seventy-five thousand African elephants are annually slain for the tusks alone; and when guns of large caliber are distributed among the native Africans from the Sahara desert to Cape Colony, the elephant will become extinct, or exceedingly scarce. The trunk or proboscis of the elephant is a curious appendage to the upper lip and nose. The attachment to the forehead is through powerful muscles, ligaments, and fascias. The implement contains enough dense structure to render it manageable, and it is sufficiently flexible for the multiple purposes executed by the organ. The free end of the trunk has a finger or thumb like extension that is capable of picking up a straw or even a pin. Inasmuch as the elephant obtains its food and drink through the instrumentality of the proboscis, it is not strange that the animal guards the useful organ against all harm. When the huge proboscidian is attacked by the tiger, its inveterate foe, the trunk is raised high in the air, and the tusks are employed to toss the great feline. On the other hand, the tiger understands the vulnerable part of the elephant, and seeks an opportunity to leap upon the forehead at the base of the tusks, and there, with tooth and nail, inflict direful wounds upon its clumsy enemy.

An elephant's proboscis is really a prolonged upper lip and snout, the nasal chambers running the entire length of the organ, and directly connecting with nasal apertures in the skull of the animal. A dense vomerine septum divides the chambers in the proboscis, and connects with the osseous vomer of the facial bones. Near the junction of the trunk with the skull there is a valvular arrangement in the nasal chambers which is of use in sucking fluids and fine substances into the proboscis, which are afterward to be discharged into the mouth or outwardly by means of air expressed from the lungs. The creature uses the trunk thus to spurt water upon its back and sides when inclined to enjoy the luxury of a shower bath.

The tusks of the elephant are a distinguishing feature of the creature. They spring from the premaxillary bones, hence are modifications of incisor teeth. They correspond to the gnawing teeth of the beaver and other rod ents. The extinct mammoth had two others which sprang from the lower jaw and projected forward. The dugong has two in the inferior maxillary which curve downward as the tusks of the elephant incline to turn upward. The tusks of the elephant are largest in the male, and are used as weapons, yet they become useful in breaking down branches and in uprooting small trees while food is gathered.

The grinders of the elephant are compound teeth, having ridges of dentine on their bruising surfaces. Representatively, there is but one grinder in each side of either jaw. The tooth springs from the alveolar space in the deep and posterior recesses of the maxillaries, and while growing or developing moves forward, and its anterior thin edge breaks off, so that in the course of several years the entire grinder is lost; but before it is half wasted another comes along in the rear and occupies the same place and position of the one passing away. In this replacing process it is not uncommon for an entire tooth and part of another to be present in one side of a jaw at the same time. In several respects the dentition of the elephant is peculiar.

The under jaw of the extinct mastodon, mammoth, and living elephant have a deep notch in the front aspect of the under jaw, through which it would seem a long and free tongue protruded for the purpose of gathering herbage, but the real fact of the case is, that the elephant has a restricted use of the tongue, the tapering and conical end being free to a limited extent. It has been said that the elephant is tongue-tied; also that it has no frænum linguae, and is consequently free-tongued, but neither state really exists.

The pharynx of the elephant is capacious, and, as in the ox, terminates in the œsophagus, with the bulbous larynx projecting into it. The posterior nares extend into the pharynx, but with a direction and extension which make them almost communicate with the larynx. At the upper part of the pharynx is a pocket, in which, at a central point, terminates a single canal that soon, by division and subdivision, communicates with the extensive sinuses and air-cells in the forehead and other parts of the skull.

The larynx of the elephant is very large, and bears the general features of the same organ in the horse. The trachea is a complete tube, the rings, thirty in number, coming together, though not joining, on the œsophageal surface, where in a man there exists an interposing membrane. When the elephant utters its loudest voice the sound resembles that coming from a trumpet. The lungs have no lobes, but a process of pulmonary tissue extends between the heart and diaphragm. The stomach of the elephant is thrown into ridges or partial compartments by muscular bands that nearly encircle the organ. One of these compartments at the extreme left of the organ can be made to hold water un-mixed with food—an arrangement somewhat like that of a camel. The lining membrane of the stomach is coarsely plicated; and sometimes the folds join, making cups or circumscribed spaces. The organ will hold five or six bushels, and probably much more when distended to its fullest capacity. The jejunum is eight inches in diameter, and receives the biliary and pancreatic secretions in receptacles or pouches situated a short distance below the stomach. The liver has two lobes, divided by the suspensory ligament, but no gall bladder. The cæcum is large, with its inner surface rugous. The colon is about twenty feet in length and a foot in diameter. The entire alimentary track is more than sixty feet long. The fæces are discharged in lumps or balls when the animal feeds upon hay, but present a mushy consistence when meal, grain, and fruits make up a large part of the animal's diet.

The circulatory system of the elephant is like that of most mammals. The heart is a foot or more in diameter, and in its contraction exerts tons of pressure. The aorta is over three inches in diameter, and its walls are thick with yellow elastic tissue. The current of blood propelled at each stroke of the heart must equal that forced from the nozzle of a steam fire engine. The veins have thick walls, and correspond in caliber with companion arteries. The testes of the elephant never descend into a tegumentary scrotum, but remain in a fold of peritoneum just below the

kidneys. In this respect the creature approaches birds and reptiles. The testes of the rhinoceros descend to the internal abdominal ring, and there remain through life.

The female elephant has two mammary glands located between the fore legs. The young elephant sucks the teats with its lips. The period of gestation peculiar to the elephant extends through a period of over five hundred days, or nearly two years. These great proboscidians rarely breed in captivity. Some years ago the birth of an elephant took place in the Zoological Gardens in London; and one is to take place in America within a few months, conception having taken place on the 25th of May, 1878, at Concord, N. H., the pairing having occurred in the "Great London Circus." The conjunction was like that between equines or bovines, by mounting.

The eye of the elephant is comparatively small, the organ being but a little larger than it is in the horse. The sclerotic tunic is very dense, and the fascias which bind the eye in the orbit are thick and tough.

The external ear of the African elephant is exceedingly large and leathery. In fact, the size of the ear is one of the characteristic features of the species. Muscles keep the auricles in flapping motion, especially when flies or other insects are to be driven away. The external auditory passages, as well as the fluted conchas, are freely exposed outwardly, and not covered by the overlapping auricle, as in animals with drooping ears. The hearing of the elephant is very acute, as well as the sense of sight. The membrana tympani is a complete oval, and seems to send fibers from its center, where the handle of the malleus rests, to the circumference with regular radiation.

The ligamentum nuchæ of the elephant is the thickest and strongest band of elastic tissue to be found in the animal kingdom. Specimen disks of this structure were saved; some of them measured from eight to ten inches in circumference. The ligament must be immensely strong to sustain the ponderous head. The muscles which move the head and under jaw are large, coarse, and terribly tough. The tendinous intersection would turn the edge of the best knives.

The brain of the elephant is larger than that of man, and the medulla is four inches in diameter. The cerebrum has a large amount of gray neurine in the convolutions; and the animal is known to be one of the most sagacious of quadrupeds. Its memory of friends and foes extends a life time.

The muscles of the elephant are distributed to the limbs from the vertebral column, scapulae, and pelvic bones, much as they are in the larger and more familiar quadrupeds. The most striking feature of them is their massiveness. In the mechanism of the elephant there is provision for the outlay of physical force, and no adaptation for speed or agility. The ordinary walk of the elephant is a little faster than a corresponding gait in the horse. When hastened by fright the animal manages to escape with an ambling stride, which a horse has to gallop to match in speed. The leg joints are poised perpendicularly, one over the other, so that it is difficult to determine whether the backward or forward swing of a joint is to be called flexion.

The tendons of the muscles of the legs which extend to the feet are white and glistening cords, an inch in diameter; they are stronger than any cordage of equal size, and they move in sheaths with less friction than can be attained in the best machinery.

The sole of the elephant's foot is an immense cushion of yellow elastic tissue, too dense to be punctured by stubs or sharp stones. The bottom surface is quite flat, yet it shows the outline of the digital hoofs. Although the elephant takes quite long steps, and in an ungainly manner, the creature has such finely padded toes that its foot-fall cannot be heard but a short distance. The track of the beast in mud or sand leaves no digital marks. In walking, a fore and hind limb on one side of the body move at a time, and the hind foot is placed almost in the spot indented by the fore foot. This peculiar gait gives a swinging or swaying motion to the body as each step is taken, making it quite difficult for a person to keep his seat while riding on the animal's back.

The skeleton of the elephant presents some interesting peculiarities, one of which is the giant air-cells of the cranium, the sinuses extending into the diploic spaces, pressing the tables of the skull twelve inches apart in some places. No other animal exhibits such a chambered cranium. The nasal passages, high on the forehead, quite resemble the "blow-holes" of the whale.

So far as cervical vertebræ are concerned the elephant adheres to the mammalian type by having seven individual pieces. The spinous process of the seventh rises high, conforming in this respect to the spines of the first dorsal bones. To these spines is attached the huge ligamentum nuchæ that sustains the head weighed down with tusks. The elephant has twenty-three dorsal or trunk vertebræ, and nineteen or twenty of these sustain ribs. The shoulder-blades exhibit a branch process from the spinous ridge on the dorsum of the scapula. It extends backward two or three inches at a right angle from the regular spinous process. The glenoid cavity is shallow, and twice as long as broad. It looks downward, therefore the scapula rises vertically above the humerus. The top of the blade reaches higher than the tip of the spine of the seventh cervical vertebra. The humerus bears the ordinary characteristic of the typical bone. The great tuberosity rises higher than the articular face of the bone. The deltoid ridge extends below the middle of the humerus, and the bicipital groove is deep. The radius and ulna cross each other obliquely on their way from the condyles of the humerus to the carpus, the radius keeping in front. The ulna is the larger bone of the two. The carpal bones number eight, and are placed in two rows, one above the other. They articulate with each other, and with adjacent bones above and below, by means of flat surfaces. Of the phalanges, there are two in the first, and three in the other four digits. Each ungual phalanx is incased in a hoof; and all, as before indicated, terminate in a thick sole.

The pelvic girdle slopes downward so rapidly from the normal axis of the vertebral column, that the out-spreading ilia look upward as in the human pelvis. The sacrum consists of four blended vertebræ, and the caudal appendage has thirty-three distinct bones. The pubic and ischial bones are comparatively small, the expanded ilia having been extended at their expense. The obturator foramen is smaller than the acetabulum. The head of the femur is globular and free from a ligamentum teres. The trochanter major does not rise so high as the head of the bone, and the lesser trochanter is comparatively small. The bone is shaped so much like the human femur that sharpeners have exhibited it as that of a giant. The tibia and fibula compare so well with those in the human leg that they might pass upon the unwary as relics of a giant fifteen feet high. The seven

tarsal bones in the elephant's foot bear a close resemblance to corresponding bones in a man, but the inner digit which represents the hallux is a dwarfed affair, especially in the African species.

The elephant lies down and rises up with comparative ease, but in a very clumsy manner. The creature in settling down allows the hind legs to extend backwards till one hip is near the ground, and then drops unguardedly upon the protuberant abdomen and side. The huge animal in this terminal movement of lying down falls so helplessly that it would seem a hopeless task to rise again. But the somewhat flexible or mobile joints help the prostrate creature to raise the hips with ease, and to poise the ponderous trunk upon the legs.

The enormous weight of a full-grown elephant, and the awkward use of its limbs, would seem to warn the animal not to venture in miry places, but facts are against the supposition. The elephantidæ delight to wallow in the mud and mire of swampy places, and to sport in ponds and streams. I never knew a tame elephant to become inextricably stranded in a quagmire of its own choosing as a wallowing place.

In reviewing the peculiarities of the elephant, I forgot to mention in the proper place that in the skin on the side of the head, between the eye and the ear, there exists a small opening, which is the commencement of a duct an inch or two in length, running towards the lachrymal organs (if it do not reach a gland in the orbital cavity), that leads to a secretory apparatus. A gummy substance is produced in the canal, which sometimes clogs the external opening. This

An interesting peculiarity of elephantidæ is that more species are extinct than now living. This has led to the speculation that the two species, Asiatic and African, now on earth, are late lingerers of a race on its way to extinction. The theory is presented that a cold period in the earth's history killed off all of the elephant family except such as were accidentally protected in tropical latitudes. And the theory obtains some support from the fact that carcasses of mammoths have been found preserved in the ices of Siberia. An ivory hunter by the name of Schumacher, while looking along the shores of Lake Onoul for mammoth tusks in 1803, came across the carcass of an *Elephas primigenius* which was being gnawed by dogs, wolves, and bears, so fresh and well kept was the flesh. The remains were afterwards taken to St. Petersburg, and mounted. The skin was thickly covered with a dense wool, through which projected long black hairs or bristles. This protective covering shows conclusively that the animal was accustomed to a very cold climate, and does away with the theory that a tropical climate once extended to the neighborhood of the polar regions; and that a change of temperature occurred so suddenly that the elephants then abounding in high latitudes were instantly overwhelmed with cold, and became incased in perpetual ice. It is possible that Siberia is now too cold for the mammoth, yet as far north as its remains are found there are pines, willows, and birches upon which the creature might feed; and its thick and complex coat of wool and hair would enable the animal to live in as high latitudes as the musk ox thrives in British America.

#### THE LAST CALL.

MR. BIRCH's group at the Royal Academy represents a hussar struck mortally wounded, both man and horse, at the moment of charging, and as the man has just sounded the charge. The horse drops nerveless, head downwards, breaking its neck. The man will, of course, in the next moment be thrown forward also; but, with a fine discrimination in the attitude, the sculptor suggests that in the death spasm the soldier erects himself for an instant in the saddle, throwing the arm with which he holds his clarion high above his head, as he would very likely do if struck in the heart. It is well known that a wound in the heart will often occasion a sudden and prodigious muscular effort, causing a man sometimes, when struck on foot, to leap in the air. There is a little technical point in this sculptural representation to which cavalry men may take exception. The cavalry trumpeter is, we believe, provided with both a trumpet and a small bugle; the former being usually slung behind his back, when, with the latter, the charge is sounded. But we may readily suppose that the bugle has been lost in the excitement of battle, perhaps even shot away, and the sculptor has not exceeded an artist's license in placing the more sightly, important, and, so to say, poetic instrument, in his hero's hand. The difficult attitude of the falling horse is perfectly mastered, and not less so the well-conceived and spirited action of the man.

The modeling of both figures is unexceptionably good. If such a work as this were produced in France and Germany it would make a sculptor's reputation, and the Government would immediately commission the execution of the work, and probably replicas of it, in an enduring material. In the absence of state patronage in this country, can not one of our great military clubs commission this work, which would form so fitting a decoration for one of their halls?—*Illustrated London News*.

#### THE OWL-CRITIC.

"Who stuffed that white owl?" No one spoke in the shop;  
The barber was busy, and he couldn't stop;  
The customers, waiting their turns, were all reading  
The *Daily*, the *Herald*, the *Post*, little heeding  
The young man who blurted out such a blunt question;  
Not one raised a head or even made a suggestion,  
And the barber kept on shaving.

"Don't you see, Mr. Brown,"  
Cried the youth with a frown,  
"How wrong the whole thing is,  
How preposterous each wing is,  
How flattened the head is, how jammed down the neck is—  
In short, the whole owl, what an ignorant wreck 'tis?  
I make no apology.  
I've learned owl-ology.  
I've passed days and nights in a hundred collections  
And cannot be blinded to any deflections  
Arising from unskillful fingers that fail  
To stuff a bird right from his beak to his tail.  
Mister Brown! Mister Brown!  
Do take that bird down,  
Or you'll soon be the laughing-stock all over town!"  
And the barber kept on shaving.

"I've studied owls,  
And other night fowls,  
And I tell you  
What I know to be true:  
An owl cannot roost  
With his limbs so unloosed;  
No owl in this world  
Ever had his claws curled,  
Ever had his legs slanted,  
Ever had his bill canted,  
Ever had his neck screwed  
Into that attitude.  
He can't do it, because  
'Tis against all bird laws.  
Anatomy teaches,  
Ornithology preaches,  
An owl has a toe  
That can't turn out so!  
I've made the white owl my study for years,  
And to see such a job almost moves me to tears!  
Mister Brown, I'm amazed  
You should be so gone crazed  
As to put up a bird  
In that posture absurd!  
To look at that owl really brings on a dizziness;  
The man who stuffed him don't half know his business!"  
And the barber kept on shaving.

"Examine those eyes.  
I'm filled with surprise  
Taxidermists should pass  
Off on you such poor glass,  
So unnatural they seem  
They'd make Audubon scream,  
And John Burroughs laugh,  
To encounter such chaff.  
Do take that bird down;  
Have him stuffed again, Brown!"  
And the barber kept on shaving.

"With some sawdust and bark  
I could stuff in the dark  
An owl better than that.  
I could make an old hat  
Look more like an owl  
Than that horrid fowl,  
Stuck up there so stiff like a side of coarse leather.  
In fact, about him there's not one natural feather."

Just, then, with a wink and a sly normal lurch,  
The owl, very gravely, got down from his perch,  
Walked around, and regarded his fault-finding critic  
(Who thought he was stuffed) with a glance analytic,  
And then fairly hooted, as if he should say:  
"Your learning's at fault this time, anyway;  
Don't waste it again on a live bird, I pray.  
I'm an owl; you're another. Sir Critic, good-day!"  
And the barber kept on shaving.

—James T. Fields, in *July Harpers*



THE LAST CALL. BY C. B. BIRCH. IN THE EXHIBITION OF THE ROYAL ACADEMY.

lachrymal appendage is prominent in the cervidæ, and when the duct becomes obstructed in the deer, the animal employs the point of one of its hind hoofs to clear away an obstacle to free discharge. The elephant, to accomplish a similar purpose, selects a straw or dry twig, with its proboscidian digit, and probes the canal as skillfully as a surgeon. The keeper of Mr. Robinson's herd of elephants took me among the creatures in order to show one of the animals that was actually attempting to permeate the sinus with a piece of dead twig selected from a bundle of hay. The elephant stood still and patiently waited for the keeper to use a smooth stick, kept for that purpose, in clearing the obstructed passage. The probing seemed to be enjoyed by the appreciative beast.

The Asiatic or Indian elephant is more docile and tractable than the African, and, in a captive state, is employed as a beast of burden. Having been shown where to drag timber, the faithful creatures will work all day just as shown in the morning, two or three together using their trunks, tusks, and even shoulders in the process of piling up lumber, bales, boxes, and barrels. Besides being found in India, the Asiatic elephant is met in Burmah, Siam, Ceylon, Sumatra, and Borneo. The ears of the Indian elephant are small when compared with those of the African species. The forehead of the Asiatic elephant is flat and even indented, while that of the African is convex and bulging.

An albino or white elephant, a rare creature, has superstitiously ascribed to it certain protective powers which extend to its owners. The primitive Indian princes used to wage long and bloody wars for the possession of one of these strangely marked beasts.

The mastodon was nearly as large as the mammoth, and they were contemporaries, though the former stuck pretty closely to temperate climates. Nipple shaped cusps on the grinders gave the creature the name of mastodon. The tusks of the animal sometimes measured fourteen feet from tip to base; and they curved more gently than they did in the mammoth. The cabinet of the Cincinnati Society of Natural History contains some fine specimens of mammoth and mastodon tusks that were excavated from alluvial soil near Big Bone Springs, in Kentucky. Similar relics have been discovered in all parts of the West and South, and nearly complete skeletons have been exhumed in New Jersey and New York. Kindred osseous remains of the larger proboscidiæ are found in the various latitudes of Europe, showing that animals decidedly elephantine in character were once well distributed through the northern temperate zone; and observations made in latitudes of the equator demonstrate a general distribution of the elephantidæ over all parts of the habitable earth.

Remnants of proboscidiæ in a fossil or petrous state have been discovered in Miocene deposits, yet the larger of the elephant family did not appear till late in the Tertiary epoch of geological history. What is called the Glacial or Drift period was probably quite fatal to huge pachyderms, yet representatives of various species reached the modern river system, for their bones are found in gravel beds, and the alluvium of bordering lands. In some instances teeth and bones are associated with those of modern deer and bison; but there exists no positive evidence that the earliest inhabitants of the American continent ever beheld a living mammoth or mastodon.