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Author(s): Loren C. Eiseley
Source: *The Scientific Monthly*, Vol. 62, No. 6 (Jun., 1946), pp. 517-524
Published by: American Association for the Advancement of Science
Stable URL: https://www.jstor.org/stable/18836
Accessed: 06-11-2023 19:00 +00:00

MEN, MASTODONS, AND MYTH

By LOREN C. EISELEY
DEPARTMENT OF SOCIOLOGY, OBERLIN COLLEGE

FOR over a hundred years men have been describing the "coarse brown hair" of the American mastodon, and for over a hundred years the mastodon's hide and hair have been regarded by textbook writers as irrefutable proof of its recent existence. In the midst of this constant repetition of what, through the sheer prestige of age, has come to be accepted as undeniable fact, it has never been pointed out that American institutions of science do not possess the tangible evidence which alone could justify such wholehearted faith in the exact appearance of this long-vanished beast. In addition, it has not been sufficiently noted that the eyes of competent scientists have never beheld this phenomenal spectacle of remains surviving under completely adverse conditions. Furthermore, it has escaped attention that in the one instance in which hair was apparently noted by a reputable scientist that same scientist dismissed it as illusory and satisfactorily explained it.

It is true that some paleontologists have limited themselves to what they regard as a single reliable instance of hair preservation, but it is also true that with the passage of years one or two have quietly dropped the subject from their books. Nevertheless, the story persists and continues to be reprinted down to the present day. It has become, in fact, part of the folklore of paleontological science, flourishing with renewed vigor because of existing archeological interest in the exact time of extinction of the American mastodons.

Extenuating circumstances have admittedly contributed to our gullibility. It is known, for example, that the sloth has left undoubted and unquestioned remains of hide, hair, and bits of cartilage in the insulating dust of the dry American caves. Why, then, should the similar early reports upon the mastodon, long extant in the literature, be questioned? Like my colleagues in paleontology and archeology, I had accepted this impressively documented "fact" until quite recently. Then research on another subject happened to lead me back into the source material of the early nineteenth century. The results of this investigation have completely and thoroughly convinced me that neither "hide nor hair" of the American mastodon has been found under conditions which would justify belief in the authentic nature of such discoveries. Moreover, it is my considered judgment that there exists a completely adequate explanation of these finds—one partially supplied by a paleontologist of note—buried away in the literature and never adequately treated in the light of other, European, discoveries which were agitating the minds of naturalists during this period.

To explore the reasons for assuming this iconoclastic attitude, it will be necessary to examine our subject in minute detail. Perhaps the best method of approach will be to list all those finds where claims are made as to the survival of soft parts, including hair, of the American mastodon. Few would claim validity for all, and, oddly enough, it will appear as our investigation proceeds, that some, at least, of this material was more vigorously questioned in its own day than in modern times.

TO PURSUE certain of these early accounts back into the early nineteenth or late eighteenth century is a tedious and

difficult task. Some, though deriving ultimately from a single source, have been widely scattered through numerous secondary sources from which the accounts have found their way into modern literature. Often the early references are vague, inadequate, or completely lacking. As a result, some detective skill has had to be exerted to discover whether finds reported in two different works actually were distinct discoveries or represented differing accounts of a single early find. The results of these labors, which I think are reasonably complete, have yielded the following items.

Rembrandt Peale, having given an extended account of the excavation of the bones of what we now know to have been a mastodon from a bog near Newburgh, N. Y., goes on to comment: "The only instance of hair being found with the remains of this animal, occurred in a morass belonging to Mr. A. Colden in the neighborhood where this skeleton (the Peale mastodon) was found. The hair was coarse. long and brown, a large mass of it together, and so rotten that, after a few days' exposure to the air, it fell into powder." (This find is sometimes directly ascribed to Peale's mastodon. It should be noted that it is distinct from this find, and that Peale does not claim to have seen the hair in question. Curiously enough, the only other material associated with these remains was a mastodon tooth, according to the account given by Dr. J. G. Graham. It seems strange that this hair, recovered at a depth of four or five feet should have outlasted every other portion of the animal but a single tooth!)

In 1805 Dr. B. S. Barton, writing of bones from Big Bone Lick, quotes from a letter written by John Bartram to James Logan. Bartram's letter gives an account of some "Shawanese" Indians who had brought to Pittsburgh an elephant tooth and a fragment of tusk of which they were attempting to dispose. Describing similar remains, the Indians mentioned a head with a long nose and a mouth on the underside. Though there are no data to show that the Indians specifically mentioned soft parts, this item has been repeated as proof of the survival of fleshy tissue about which the Indians could have known nothing.

In the same journal a year or so later the discovery of mastodon remains in Wythe County, Va., was reported by Barton. The information had been supplied him by Bishop James Madison, at that time president of William and Mary College in Virginia. This find, because of Bishop Madison's prominence, was widely quoted, and numerous lengthy accounts of it are available. One of the best is that to be found in John Godman's *American Natural History.*

In brief, the Bishop claimed, on the authority of gentlemen whose veracity could be relied upon, that amidst the bones of the Wythe mastodon, the stomach, containing a large amount of half-digested food, was discovered in a perfect state of preservation. Neither the bones nor the "stomach" survive. Robert Bakewell, in the first American edition of his *Introduction to Geology* (New Haven. 1829) added mention of flesh to the original version.

Another account, whose exact date I cannot verify, but which has been mentioned by Howorth, Blainville, and Hay, describes the discovery of mastodon remains in Posey County, Ind., in the depths of a sixty-foot well. One of the "curators of the library" at Vincennes, Ind., stated that some skin and hair were found with the specimen.

In 1839 there appeared in the *Philadelphia Presbyterian* of January 12 an account of a mastodon discovery in Missouri. The account was unsigned, but it is known that Albert Koch was the au-

thor. I quote that section pertaining to the soft parts:

> Also between the rocks that had sunk through the ashes was found large pieces of skin, that appeared like fresh tanned sole leather strongly impregnated with the ley from the ashes, and a great many of the sinews and arteries were plain to be seen on the earth and rocks, but in such a state as not to be moved, excepting in small pieces, the size of a hand which are now preserved in spirits.

It may be added that though this animal was later disposed of in Europe, we hear nothing further of arteries, sinews, and hide.

Following this time, fresh accounts of similar discoveries lapse out of the serious literature of science, though the old ones continue to be handed down. Subsequent discoveries of bones were made, but, strangely, hide and hair discoveries are no longer made, the last attempt at that sort of thing being, perhaps, a find at Paw Paw, Ill., recounted in 1914. Here, because of "certain streaks and mossy fibers," the excavators assumed that their specimen (*Elephas columbi*) had been clothed with hair.

Taken together, these accounts present a fairly formidable array of evidence, and it is easy to understand how they have been passed along through the textbooks of science. Yet before beginning our analysis of these discoveries, it would be well to bear the following facts in mind: (*1*) No person of real scientific repute ever saw these remains. At best the accounts have been repeated or retold by scientists. (*2*) The accounts proliferated during a period when the world of science was excited over the discovery of refrigerated remains of the mammoth *Elephas primigenius* in Siberia. This inevitably biased Cuvier, whose works were widely read and quoted both here and abroad, toward the acceptance of such accounts from the New World. (*3*) The stories are old. Though mastodon remains are still found in bog deposits in the Eastern United States, many years have passed since anyone has claimed the discovery of mastodon hair under such peculiar circumstances. This suggests, obviously, that a certain naive credulity and nationalistic enthusiasm have quietly faded out of American biology. A closer analysis will reveal these facts with greater clarity.

In analyzing these early reports it will be well to treat the more easily disposed of discoveries first and reserve the find at Colden's farm till the last. Colden's discovery is early enough to escape the charge of deliberate faking which can be leveled against certain later accounts. Second, it concerns the hair of the mastodon and more or less sets a pattern for later stories. In addition, it is the only find accepted as valid by some writers. If we can show cause for rejecting this particular discovery, the strongest link in the chain of accounts purporting to demonstrate the survival of hide and hair of the American mastodon will have been destroyed. No one has reason to attribute this find to attempts at conscious deception. Its 1800 dating is too early to have been influenced by European accounts of the hairy mammoth. The same cannot be said for certain later discoveries.

Much has been made of the Shawnee Indian account of a head with a long nose. It has been pointed out that the Indians, unacquainted with the Proboscidea in life, would have been incapable of imagining this feature of elephant anatomy unless it had, in reality, been observed in the flesh. (This view has also been expressed in regard to certain Indian legends I have discussed elsewhere.) Actually a perfectly rational explanation on other grounds is possible.

It is to be noted that the Shawnee spoke merely of a long nose. They did not say how long nor did they give any details or even claim it to have been of

fleshy consistency. If one does not allow preconceptions about elephant trunks to obscure the issue but, instead, considers the appearance of both mastodon and mammoth skulls as they would appear to the untutored eye when the tusks had dropped from their sockets, a simple interpretation of the Indian story becomes apparent. If one turns to a good photograph or drawing of the mammoth or mastodon skull as presented, say, in Osborn's *Age of Mammals* or the full-page plate in Warren's *Mastodon Giganteus,* it can be seen that the most reasonable view that one untutored in paleontology could adopt would be that the empty protruding twin tusk sockets overhanging the anterior portion of the mouth were nasal cavities. In comparison with ordinary animals they would constitute, even in the unfleshed skull, a "long nose." No amount of writing can demonstrate this as clearly as a reference to a good anatomical plate.

The Wythe County, Va., find, also recorded by Barton, was challenged and dismissed in its own day by several competent naturalists. Yet, perhaps because the details were supplied by a churchman of high standing and because corrections of error never receive as wide publicity as the original statements, this find is still occasionally referred to as valid.

Whether or not the account of the contents of the animal's stomach as being present is true need not concern us greatly. Twigs and similar plant remains may survive for long periods under bog conditions. In the light of the general inaccuracies accompanying the account, however, it is by no means unlikely that even this item is the result of misinterpretation of materials in the stratum where the animal lay. Our real concern is with the report that the stomach itself was present. Considering the fact that all the other soft parts had vanished—cartilage, hair, and hide—this preservation of so delicate an organ as the stomach ceases to be merely possible; it takes on an aspect of the miraculous. Nor was it long before the discovery was challenged.

A very competent and astute, though anonymous, reviewer treated the whole subject with vigor and thoroughness during the course of a review of the first American edition of Robert Bakewell's *Introduction to Geology.* Bakewell had collected and repeated in a rather uncritical fashion, stories of the type we have been examining. Some were obtained from Cuvier's *Ossemens Fossiles,* Cuvier himself being also somewhat credulous about items received from far-away America. Portions of this anonymous review are worth reproducing here:

> . . . we should not any the sooner believe that this was a stomach and that its possessor died in the act of digesting its food; still less that it belonged to the mastodon itself whose bones lay around. The idea of the stomach enduring the destroying action of long inhumation, which no other parts except the bones could withstand, not even the integument, cartilage nor tendon seems really too ridiculous to have ever been seriously related. . . .
>
> We are sorry to see such things in a work of this kind, many of the readers of which may be incapable of investigating the subjects themselves, and the wrong impressions which they get may not soon be corrected. We know not how it is, but really, naturalists over sea have the luck of knowing a great deal about the mastodon that we never dreamt of here.

Even prior to this critique, however, Dr. John Godman had given an extended account of the Wythe County find and recorded the fact that Bishop Madison later tried to correct the impression made by his ealier statement "acknowledging that his information was inaccurate, and his conclusions too hastily adopted." The find was also dismissed by James Hall, the great nineteenth-century geologist, as "altogether fabulous." Since, in spite of refutations, the story continues to float through the literature, let us finally reiterate: the supposed stomach does not survive; the bishop

who had the story from gentlemen who remain anonymous "recanted" from his previous position. Probably it is through the medium of *Ossemens Fossiles*, which ran through several editions, that certain of these stories have gained such currency in scientific circles that there is a continued tendency to accept them, with scant realization that they were challenged successfully even in their own day.

BEFORE passing on to a discussion of the remaining finds, note should be made of factors which, both here and abroad, were contributing to a more credulous attitude on the part of public and scientists alike toward the sort of discoveries we have been discussing. The discovery of fossil elephants in the New World had greatly stimulated the birth throes of the young science of paleontology. A cluster of great names—Buffon, Cuvier, Jefferson—had focused attention upon the subject. Collections of fossil bones were gathered up, exhibited in private museums for a fee, and then taken abroad for exploitation. The great public museum of today did not exist. To maintain interest, the owners of such collections did not hesitate to embellish their more exciting specimens by appropriate and judicious use of items that would lend human interest. It is in such a light that we have to consider the discoveries and publications of such men as Albert Koch.

A find which immensely stimulated popular interest in fossil elephants and played directly into the hands of some of the less scrupulous collectors in America was the discovery of refrigerated mammoth remains in Siberia in 1799. There are earlier accounts of such remains in the literature, but this was the first find actually to reach a museum. Many pounds of hair were obtained which eventually reached a number of the European institutions. The first accounts appeared in 1807, and thereafter the news was widely disseminated and soon known in France, England, and America. A precedent had been established—a precedent for the discovery of elephant hide and hair in the New World. Moreover, the European scholars, such as Cuvier, were more inclined as a consequence to credit these tales when they appeared in a New World setting. The American Barnums who lived upon public interest were quick to see that such discoveries of hide and hair were a great stimulant to the popular imagination. It is in this light that we must consider the activities of Albert Koch. He was a public showman, and in spite of one or two attempts to clothe him in the tatters of scientific regalia, his career is not such as to justify confidence in his word upon the more spectacular phenomena of paleontology. There is more than a little imaginative literary flair in the account of "sinews and arteries . . . plain to be seen on the earth and rocks, but in such a state as not to be moved. . . ."

George Gaylord Simpson, who has made the most intensive study in existence of the beginnings of vertebrate paleontology in America, dismisses Koch with the incisive comment: "Koch's data and publications have little scientific value and hardly merit mention . . . unless possibly as comic relief." He is similarly castigated by Digby. The bones secured by Koch at his sites were exhibited in Europe in 1842 and later sold to European museums. Perhaps the best commentary on the whole affair lies in the fact that though the European museums had eagerly acquired mammoth hair from Siberia and would doubtless have been similarly anxious to acquire Koch's specimens, "preserved in spirits," we hear no more of the arteries, sinews, and skin fragments. They were the evanescent products of imagination —no more—yet Koch's appetite for such

creations is transparently indicative of the journalistic tastes of a vanished era.

The minor items which remain to be considered before turning back to the discovery on Colden's farm are not of a significant character. The find at Posey, Ind., of mastodon hide and hair in the depths of a sixty-foot well, the details vaguely given on the authority of "one of the curators of the library," has about the validity of common gossip. The material is not preserved, and it has been noted by the paleontologist Hay that a well of the depth given would in that region carry the remains into Iowan loess or Wisconsin drift, depending upon the location. This can be then, no argument for recency, but even under geological conditions of a more modern order, this vague tale, incapable of substantiation, is scarcely worth the effort to refute.

The 1914 discovery at Paw Paw, Ill., is obviously a case of confusing moss with hair—something any untutored excavator is apt to do.

We come now to the most important discovery of all—the find on Colden's farm. This discovery has been thought to answer requirements not met by the other more obscure and questionable tales. Alexander Colden was a simple farmer, not a showman like Koch. His discovery was reported by a gentleman country doctor with only the purest of scientific motives at heart—a man who stood to gain nothing by his account and who immediately lapses back again into rural obscurity, leaving no line in the histories of science. Yet he says: "In Orange County near Montgomery, New York a tooth (one of the grinders) and some hair, about three inches long were found by Mr. Alexander Colden four or five feet below the surface."

Dr. James Graham wrote these lines in 1800. He did not know of the discovery of frozen mammoth remains in Siberia. Yet he and Peale speak of the coarse brown hair which is later to grow so common in the literature and be described as dun-colored. Their reports are not to be dismissed as in the case of Koch. These men saw something, found something. On this point hinges the whole defense for the complete recency of the American mastodon. What was it that lay in the gloomy peat swamps of the New York woodlands which, when found, set men to talking of a beast vanished so recently he might almost have seen the Puritans land? It was, of course, hair—hair of the mastodon—the hair that is pictured in every restoration on museum walls. From that day to this no one has been able seriously to challenge the existence of that hair—no one, that is, but one man. He found the answer and promptly buried it again in the depths of a huge geological report.

James Hall was one of the first really scientific geologists America produced. He was an authority on the Paleozoic System of North America and probably one of the first men in America really experienced enough to pass an objective judgment on that queer brown hair from the backwood swamps. In a huge volume on the geology of New York State Hall ventured, in his typically restrained and quiet manner, a comment on a site of similar implications. In 1843 he wrote:

> In a small muck swamp in Stafford, Genesee County, a small molar tooth was found several years since. Its situation was beneath the muck, and upon a deposit of clay and sand. A large quantity of hair-like confervae, of a dun brown color, occurs in this locality; and so much does it resemble hair, that a close examination is required to satisfy one's self of its true nature.

The circumstances of this discovery are remarkably like those of a half-century before on Colden's farm. A solitary tooth is the only mastodon evidence; the entire body has disappeared, yet the hair remains. Furthermore, here again

is the dun-brown color. But this time a careful, trained scholar looks at it closely. It is confervae—stringy tough strands of algae from the New York swamps, and algae with a tendency to turn dun brown!

If James Hall had written out a discussion of the whole problem, it is probable we would not be arguing this point today. Hall, however, was engaged on weightier tasks. He had the whole geology of New York State on his hands. He recorded his own particular site and he settled its position in the literature once for all—it was never listed as another hair discovery! But once that was done, he forgot it in the immensities of his many volumes. He never turned to the subject again. He never discussed Colden's discovery. But Colden's find, through the medium of Dr. Graham's words, continues to pass down through the literature.

One other faint bit of light flickers upon Colden's swamp for a moment and aids in substantiating the judgment derived from Hall. Godman gives an account of a mastodon find in Orange County, N. Y., in 1817. The bones were found four feet below the surface of the peat, surrounded with "coarse vegetable stems and . . . broken films of confervae, like those of the Atlantic shore."

Professor S. L. Mitchell, the geologist, explored the site, recognized the confervae. The statement is made that the site had been worked some ten or more years previously. This would carry its dating approximately into the time the Colden farm discovery was made. It is possible that the site represented is the same. But at any rate we have brought into the very neighborhood of Colden's discovery, the demonstrated existence of filamentous confervae and shown it to be present at the levels from which the Colden discovery came. Alexander Colden, farmer, and James Graham, physician, were mistaken in what they thought was mastodon hair. But mistaken with them have been a large number of later scientists of better training who, partly influenced by Siberian discoveries, had come to accept the idea that finds of this sort might naturally be expected. The anatomist Warren, for example, is found using the Russian material as evidence that hair can be preserved in America. He skirts, however, the difference in latitude involved.

There remains, then, from all the spectacular stories of the hide and flesh of the American mastodon only a faint swamp effluvium, perhaps a hint of lingering bone marrow or the organic matter of the bones themselves in the encasing muck of ancient bogs. And even these faint smells are probably more suggestive of the general organic composition of the muck itself than of the bones. Nevertheless, we may record this type of organic survival as possible. But whatever the antiquity of the American mastodon, it is safe to say that "nor hide nor hair" of him remains. We assume that he may have been clothed with hair like his brother, the mammoth, but the dun brown in which he has masqueraded these many years is that of drying algae. It is not the coat of the vanished mastodon, nor does it prove his near-colonial survival.

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IMPROBABILITY

One ultramicrocosmic mote of dust
Among unnumbered cosmic galaxies
And one colloidal spawn from ancient seas,
One transient form from millions upward thrust
To last a twink, then sink into the crust
Of earth inanimate: what phantasies,
What paranoid and crass audacities,
For this minuscule midge to feel he must

Somehow endure, be central to some Plan,
The End for which the macrocosmic Whole
Was made . . . Dreamer and dunce, thy name is Man!
Life on the stars?—a doubtful guess, a droll
Desire; life after death?—a dubious hope
Born in the dark where humans blindly grope.

READ BAIN, 1946.