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MAMMOTH MYSTERY

By Joe Spears

Mammoths pose a mystery to science. How did they get frozen? The answer is not as simple as you might think. Normal cold weather would not freeze them quickly enough to preserve them as well as they are found. The temperature had to drop drastically, in only a few hours, to -150°F or lower!¹ Based on the range of places where they are found, this had to be a widespread, not just a local, phenomenon.

This article will explore the mystery of mammoths and analyze several theories trying to explain the facts. This summary is based primarily on the book, *In the Beginning*, by Walt Brown, PhD.¹

What are mammoths? One is shown in Figure 1, an exhibit in a museum in France. At one time, mammoths were thought to be a species that burrowed underground, like a mole, and to eat earth, sometimes causing earthquakes by their burrowing! Perhaps this was because the living animal was never seen above ground, though the dead bodies were sometimes found. Anyway, we have found various mammoths in different levels of preservation, and we know enough to say they were elephant-like creatures, with tusks and a trunk. The tusks were extremely long in some cases, up to 13 feet. Their size is approximately that of a modern day elephant. Also, they had long hair, while modern elephants do not.

Sometimes the flesh of mammoths has been found frozen. Often only bones are found. However, since some mammoths are found frozen, one question that might present itself is whether or not they lived in a cold environment. However, their environment, though it existed in the past, no longer exists. What method do we have to check what it was like back then? We can check on the creature itself and determine to what extent it was adapted to the cold. We might assume that mammoths lived in a cold environment, simply because they have

Figure 1



Mammoth museum exhibit in France

been found frozen and also because they were covered in hair, but let us look a little deeper, and do some investigation. There are several pieces of evidence that the mammoth did not live in a cold environment and that the mammoth's body was not adapted to a cold environment.

First, let us look at the hair. Animals living in cold environments typically have fur, not hair, and they are able to "fluff" the hair by means of tiny muscles in their skin. This traps air in tiny pockets, which insulates them from the cold. Mammoths, amazingly, lack these skin muscles. So we see that mammoth skin seems to be not particularly adapted to the cold. Let's think, though, of other animals that have hair or fur yet live in temperate environments. Bears are one example. Of course, there is the polar bear, which lives in a cold climate, but there is also the black bear, which lives in a temperate climate. Musk oxen, wolverines, wolves, and sheep are other examples. The point is that having hair alone is not proof of living in a very cold environment.

Look also at other problems of living in such a cold environment. Food is one problem. Think of it: what grows during the winter? Flowers? Not much. Water is one other problem, especially if the temperature is below

¹ Brown W (2008) *In the Beginning: Compelling Evidence for Creation and the Flood, 8th Edition*, Center for Creation Science, Phoenix, AZ. Also available at: < <http://www.creationscience.com/onlinebook/index.html> > Accessed 2011 Dec 21

freezing. Elephants consume 30 to 60 gallons of water per day. It is safe to assume that the mammoth consumed much the same based on its similarity to the elephant. Where can a mammoth find water to drink if all the water is frozen? If the mammoth “eats” the snow or ice, then the heat from the body of the mammoth must melt the water. This heating of frozen water would take a large part of the calories from the mammoth’s food. One estimate is that half of the mammoth’s daily consumption in calories would be used in melting the ice it needed for water. We also must remember the mammoth is a rather large animal and as such requires a rather large amount of food and water on a daily basis. Based on modern elephants, the mammoth would need to eat over 300 pounds of food per day. Evidence indicates over 5 million mammoths once lived in a rather small portion of Siberia. How could such a cold region supply this much food? Rather than showing mammoths suffering from starvation, evidence shows that most mammoths were fat and well fed. Perhaps the region was not so cold in the past, or perhaps the mammoths were somehow transported to the region after their death. More on this later.

The stomach contents of one mammoth found near the Berezovka River in Siberia revealed much. Forty species of plants were identified, some of which grow in Mexico, which indicate a milder climate than currently exists in Siberia.

Core samples going down 100 feet into Siberian permafrost reveal a line of demarcation separating the content above this line from that below. Above this line is DNA of modern Siberian plants, plants which today are not very plentiful and certainly not sufficient to sustain a large population of well-fed, fat animals as large as mammoths. (Frozen mammoths are typically fat and well-fed.) Below this line, mammoth DNA is found, along with DNA from lush, temperate vegetation which could have kept mammoths well-fed. This indicates there was a time when the climate changed from a more temperate one to a colder one, which still exists in Siberia.

An elephant depends much on its trunk. If a mammoth were drinking cold water using its trunk there would be increased danger of freezing the trunk, which is already more vulnerable to the cold than the rest of the mammoth’s body. This is due to the fact that the trunk has a larger ratio of surface to volume than the mammoth in general, which increases the effect of the air surrounding the trunk on its temperature. Therefore cold air would have more effect on the trunk than on the rest of the mammoth, and the trunk is not covered in hair, nor can it have a thick layer of fat (there simply isn’t enough room). Elephants with injured trunks rarely survive.

Thus mammoths probably would not thrive in a cold climate.

The difficulty of finding food and water in a cold environment, and the presence in mammoths’ bodies of plant material which grows in temperate environments, plus the lack of adaptation of the mammoth for cold environments, together would seem to indicate the mammoth is not a creature that lived in a cold climate.

Another puzzle is the requirement for rapid freezing, at a very low temperature. Vegetable material has been found in the mouth and stomach of frozen mammoths. Also, the meat of frozen mammoths has been eaten by dogs and perhaps by humans—there are claims of people eating mammoth meat, but they seem to not be well documented. To prevent the deterioration of frozen animals and to preserve food found in their stomachs, intestines, and/or mouths would require sufficient cooling of the carcass. The mammoth is a large animal, and because of its size, such cooling would be slow. In fact, to accomplish the internal cooling within the estimated 10 hours necessary to preserve the animal and its food would require a skin temperature of -150°F ! Regular winter freezing of a dead animal does not seem sufficient, e.g., reindeer in Greenland fallen into crevasses are found in a putrefied condition. Some frozen mammoths are not, and this requires explaining. Well, then, how do we account for the fact that some mammoths have been found frozen in such well-preserved condition? This is the mystery. We now will examine several explanations.

The Flood - Hydroplate Theory

According to Genesis, when the Flood occurred, it did not just rain; the Bible tells that the fountains of the deep were opened. Water apparently came up from under the surface. This would imply an opening through which the water gushed out, eroding and carrying with it much material from the crust. Even today, waterfalls, such as Niagara Falls, are known to be eroding material, even rocky material, to such an extent that Niagara Falls is measurably receding. Water from underground can reasonably be assumed to be under pressure, which would generate even more erosion. But the pressure could carry the water up high into the atmosphere, even out to where the air is thin and the temperature is cold, very cold, even to space, perhaps a major component of the freezing apparatus for the mammoths.

Frozen food experts have said that the temperature had to drop to -150°F or about -175°F for the mammoths to be frozen in such well preserved condition. To accomplish this freezing, there would have to be a transfer of heat away from the mammoth. Cold is not a “thing” as such, but the absence of a thing, heat. Heat is transferred away from an object when there is another, colder object

to absorb the heat. The transfer is in the direction away from the hotter body to the colder body. This is like the flow of water, which flows in a certain direction: away from the higher location to the lower location.

So, we might then ask ourselves this question: What, in the environment of the frozen mammoths, existed long ago in the past that was colder than -150°F , the temperature that was required to freeze the mammoths? This cold-source, or heat-absorber, had to exist close enough to the mammoth to be able to physically absorb the mammoth's heat, and it also had to be very cold itself. Not only that, but this cold substance would exist in an area that was warm enough for plant material to grow just shortly before the freezing event since the plant material found in the mammoths' mouth and stomach was obviously growing shortly before the mammoth froze. Not many plants grow in winter, so what substance could exist that would be cold enough, in a not-too-cold environment, for the freezing of the mammoth and yet not have been there only a few hours previously? (Had this cold substance been there long before, it would have prevented the growth of the vegetation found in mammoth's mouths and stomachs.)

This puzzle can be solved by the muddy water gushing forth at the time of the Flood. This water would have been under the pressure of the weight of the upper crust of earth, which would have forced the jetting water upward to great heights, where it cooled and then fell back to earth as muddy hail. This muddy hail accumulated and froze, creating the layer of muck found near the Arctic Ocean. One seventh of the earth's land area is covered in muck, and it has been measured to be 4,000 feet deep at some places. Where did it come from? It could have come from the muddy water that gushed from the deep at the time of the Flood. The muck and muddy ice/hail would not have been in the environment previous to the freezing event, since it was the result of a cataclysmic event, the Deluge or the Flood. It only appeared *after* the water sprang forth, bursting up into the high parts of the atmosphere, where it cooled and then fell as muddy hail. Also, mammoths are more typically buried in muck, not in clear ice.

This explains something else about the mammoths. The only cause of death that has been ascribed to any mammoth is that of suffocation. Evidence (from both mammoths and frozen rhinos) indicates blood gorging the organs of the mammoth, distended nostrils, etc., all of which indicate death by suffocation. But how can a mammoth die by suffocation? Submerging the mammoth in water could do it, or submerging the mammoth in anything that would prevent air from reaching the creature. But, the mammoth is a big animal. What would bury a mammoth?

If the water that sprang forth from the great deep was enough to cover the entire planet with water, then it would conceivably provide enough material, at least in some areas, to bury the mammoths. So, not only does this scenario explain the (otherwise inexplicable) freezing of the mammoths, it also explains their death by suffocation!

It also explains one other item. One mammoth, the Berezovka one (found near the Berezovka River), has a leg bone crushed, while surrounding tissue was damaged only a little. This is not a broken leg, but a crushed leg, with the mammoth in an upright position. This seems unusual since if you apply pressure lengthwise to the ends of a yardstick, typically the stick will not be crushed. If the force increases, it will bend and break but not be crushed unless there is something preventing it from bending. The mammoth is a large animal, which would require a strong leg bone. Figure 2 illustrates the size of a mammoth leg bone. Therefore, the force required to crush, rather than just bend and break, the mammoth leg bone would have been very large. Figure 3 shows an artist's depiction of a mammoth being buried under muddy hail.

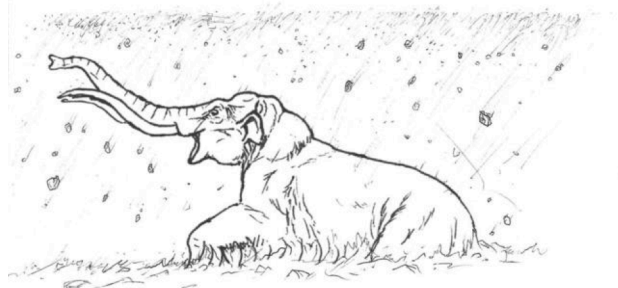
To crush such a bone would require considerable force. A force without the bone bending or breaking implies that something was preventing the leg from bending to either side. Being buried in muddy hail would provide the required material to surround the leg and prevent it from bending. The continued accumulation of muddy hail buried the mammoth under even greater depths of frozen water until the pressure was sufficient to crush the leg bone. By that time, the leg could have easily been totally encased in the frozen muck, which could have been compressed and compacted tightly around the animal's leg. This crushed leg therefore can be explained by the frozen waters from the Flood.

Figure 2



Mammoth leg bones

Figure 3



Artist's depiction of mammoth being buried under muddy hail

Another mystery that can be explained now is the peppering of some tusks by small particles. These millimeter-size particles can be found embedded in some tusks of mammoths. These particles are rich in nickel and iron. Also note that they are typically found on one side of the tusk. Erupting floodwaters from underground could have eroded these particles from earth's crust and ejected them into the air. There would be strong winds as a result of this cataclysm, which could embed the tiny particles in tusks. If the particles in the tusks resulted from everyday gradual processes, there would be no reason for one side of the tusk to be favored. However, if the impact of the particles with the tusks occurred only over a fairly short time, then it is easy to imagine them impacting on a single side of the tusk.

One last puzzle is how mammoths could have lived and thrived in Arctic conditions. There is not much space for a detailed explication here, but briefly, the theory states that the underground water lubricated large plates above them. These large plates with water beneath them are called hydroplates and give the Hydroplate Theory its name. The eruption of the water released pressure in certain areas, which allowed the plates to move. This movement raised large areas, including mountains, and lowered or buckled others. Altering the mass distribution of the earth affected the spin enough to shift what had been temperate regions to more Arctic latitudes. See Dr. Brown's book for more information.

Above I mentioned that the frozen mammoths were otherwise inexplicable. Let us look at other explanations, or attempts to explain them, and look at them in the light of the known data.

Ten theories explaining frozen mammoths

1. Flood - Hydroplate Theory
2. Lake Drowning Theory
3. Crevasse Theory
4. Mud Burial Theory

5. River Transport Theory
6. Extinction-by-Man Theory
7. Bering Barrier Theory
8. Mild Ice Age Theory
9. Shifting Crust Theory
10. Meteorite Theory

A few brief comments will be made about each, but not total or exhaustive; for more detailed analyses of these theories, see <http://creationscience.com/onlinebook/FrozenMammoths6.html> and related linked pages.

Flood – Hydroplate Theory

This is the theory that is described above, the main subject of this article.

Lake Drowning Theory

This posits drowning in a partially frozen lake, river, or bog.

This theory does not explain the extremely rapid freezing, the warm climate just before the freezing, nor the crushed leg.

Crevasse Theory

This theory assumes some mammoths fell into ice crevasses or deep snowdrifts.

This does not explain the evidence of a warm climate nor the extremely cold (at least -150°F) temperature.

In Greenland, which is today covered with much ice, reindeer falling into crevasses are not preserved; they are found in a putrefied condition.

Mud Burial Theory

This assumes the animal was stuck in mud, was killed by mudslides, or died and then became buried in slow mud -flows during several summer thaws. Sudden cold spells, sometimes followed by long, cold winters, froze the animal.

This theory suffers from the problem of the extremely low temperature required. In fact, the mud would have provided insulation, thus requiring an even colder temperature to prevent deterioration of the mammoth flesh and stomach contents.

River Transport Theory

This theory assumes flooding rivers carried mammoth carcasses from temperate zones to the cold north.

One problem with this theory is that mammoths have been found on higher levels, some 1,000 feet above near-

by rivers. This accounts for the vegetation in the stomachs but not for the extreme cold required for preservation.

Extinction-by-Man Theory

Another explanation is that Man, in hunting mammoths, pursued and pushed them north into Siberia and Alaska, where the mammoths died from harsh weather, lack of food, or the direct killing by man.

Even if man pushed these animals north into Siberia and Alaska, why would a disproportionate number be buried on the higher elevations of generally flat plateaus? But animals fleeing rising floodwaters to higher ground could explain this.

This theory provides no explanation for the burial of the mammoths nor for the upright posture of frozen mammoths. Another unanswered question by this theory is why man would pursue mammoths into such cold climates instead of pursuing other game. Also, this fails to explain death by suffocation and the extremely rapid freezing.

Bering Barrier Theory

According to this theory, the Ice Age caused more ice, lower oceans, and the appearance of a land bridge in the Bering Strait, which separated the warm Pacific Ocean from the cold Arctic Ocean; warm evaporation from the Pacific condensed over the cold Arctic, and mammoths were buried in severe snow storms early one fall. As the Ice Age ended, rain washed dirt onto snow to form the material in which mammoths are found.

The temperature would have been too cold during an Ice Age for the temperate food supply the mammoths needed and to explain their well-fed condition. The area in which mammoths are found today is not temperate, and it would have been even colder during an Ice Age, with even less food supply. Yet snow storms would not have been cold enough for the extreme cold needed for preservation, nor does this theory explain the peppering of the tusks.

Mild Ice Age Theory

This theory assumes a mild Ice Age, with burial by dust in "loess."

Dust particles are rounded while loess particles are not. Even today's climate is too cold to support large numbers of well-fed large animals inside the Arctic Circle, where there would be extended periods of darkness with drastically reduced food/vegetative growth. This theory also does not account for the -150°F temperature.

Shifting Crust Theory

According to this theory, accumulation of ice during the Ice Age somehow caused the crust to slide (perhaps because the ice was not equally distributed on all parts of the earth, moving Hudson Bay from the then North Pole to its current location. This moved some temperate regions to what are now Arctic regions. This crustal displacement also resulted in release of volcanic gas high into the atmosphere, where it cooled and then fell to earth. Volcanic dust also lowered temperatures, and mammoths were buried in the dust.

A problem is that this would not move Alaska much north, so this is weak on explaining Alaskan mammoths. Another is that the results of such a shift ought to be found in the Southern hemisphere, too, so there ought to be frozen carcasses in the Southern hemisphere.

Meteorite Theory

In this theory a meteorite melted frozen tundra/ice, which mammoths wandered into before it refroze.

This cannot explain how mammoths thrived in the Arctic, nor the -150°F temperature.

Conclusion

To reiterate, none of the other proposed theories examined can explain the extreme and sudden drop in temperature to such an extreme (at a minimum of -150°F). Some theories propose burial, by snow or mudslide, and may explain the crushed bone, though this still is difficult since this requires enormous force to not just break, but crush, the leg bone. Some theories explain a part of the puzzle, but the only theory that explains all the puzzles listed in this article is the Hydroplate theory.

This is really only part of a much more comprehensive theory developed by Dr. Walt Brown, known as the Hydroplate Theory. There is much more to this theory, which deals with fossil formation, the Grand Canyon, measured ages of rocks, etc. For more information on not only the frozen mammoths but other interesting aspects of this theory, see Dr. Brown's book *In the Beginning* or his website, creationscience.com. ☞

COMING EVENTS

Thursday, January 12, 7:00 P.M., Providence Baptist Church, 6339 Glenwood Ave., Raleigh, Room 631

We will examine the mammoth mystery. Plant material found in mammoth's mouths and stomachs indicate warm weather; the mammoth's state of preservation indicates freezing at -150°F! We will explore how events related to the Flood might solve this mystery.

Contributions can be made at the TASC web site at www.tasc-creationscience.org
through any of these major credit cards or through PayPal.



Or mail your contribution to: TASC, P.O. Box 12051, Research Triangle Park, NC 27709-2051