The Fishhook Mammoth: rediscovery of a Woolly Mammoth carcass by the CERPOLEX/Mammuthus Team, Taimyr Peninsula, Siberia

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SUMMARY: The Fishhook or Hook Mammoth is a 20,620 +/- 70 BP old woolly mammoth carcass. It was discovered in the estuary of the Upper Taimyra River, Taimyr Peninsula, Siberia, in 1990 and some parts of the carcass were removed in 1990 and 1992. After the site had been flooded for 8 years, it was rediscovered in 2000. In May 2001 the remains were excavated as a part of the CERPOLEX/Mammuthus program "Who or What Killed the Mammoths". The remaining parts of the carcass, including soft tissue, fur and underfur were exctracted from the frozen ground together with the surrounding sediments to learn more about the environment and the time of death of the Fishhook Mammoth.

1. Facts

Species: *Mammuthus primigenius* (Blumenbach, 1799); woolly mammoth.

Year of Discovery: 1990, by Mr. Alexander Stolyarow, Resident, Khatanga.

Year of Rediscovery: 2000, by Mr. Sergei Pankevitch, Subdirector, Taimyr Nature Reserve; Brigade Member, CERPOLEX/Mammuthus Expedition 2000.

Location: Estuary of the Upper Taimyra River, Western Lake Taimyr, Central Taimyr Peninsula, Siberia, Russia. The Upper Taimyra River ends in the Gulf of Baikura Turku.

Coordinates: 74°08'48'' N; 99°35'28'' E.

Radiocarbon Date: ^{14}C accelerator mass spectrometry date = 20,620 +/- 70 BP

Gender: Male, based on (1) large cranium, (2) diameter of the tusks, and (3) size of known post-cranial skeletal elements. The cranium of the Fishhook Mammoth is extremely big, indicating an old male individual.

Size of the Fishhook Mammoth: Comparison of skeletal elements with other specimens of *Mammuthus primigenius* show that the Fishhook Mammoth stood about 260 cm at the shoulder.

2. History of the Fishhook mammoth

In 1990, Mr. Alexander Stolyarow, a citizen of Khatanga, Taimyr Peninsula, discovered a nearly complete carcass of a woolly mammoth, *Mammuthus primigenius*, in the delta of the Upper Taimyra River, near Lake Taimyr. Stolyarow removed the two wonderfully preserved tusks and, allegedly, sold them to someone in Krasnojarsk.

In 1992, a Japanese team (sponsored by Mitsubishi) visited Khatanga by invitation of Dr. Yuri Karbainov, Director of the Taimyr Nature Reserve. This team arrived in autumn when the carcass and surroundings were completely covered with snow.

The Japanese team visited the carcass site by helicopter and began to uncover parts of the frozen carcass. Although the specimen and the ground were frozen, they uncovered the skull, vertebrae, ribs, and part of a scapula. Their finds also included a lot of mammal hair, skin, and muscle.

Later in the week, the Japanese returned to the site with a "steam machine" to thaw the mammoth. Much of the carcass remained frozen in the ground, but the team removed the cranium, a humerus, a partial ulna, and a complete ulna. The team brought much of the meat and skin of this specimen to Japan, and left the bones at the museum of the Nature Reserve in Khatanga. Still, a lot of material, including some skin and muscle, was left in the permafrost at the carcass site.

When the Japanese team returned to the site the following year (1993), the entire site had been – and remained – flooded naturally by the river. This expedition included staff members of the Zoological Museum in St. Petersburg, including Dr. Mikhail V. Sablin. All activities of the team were filmed and later shown on Japanese television.

The careless and brutal way in which the Japanese team "excavated" the carcass became a scandal in academic circles in Russia. After viewing the Japanese film, the internationally renowned mammoth expert Dr. Nikolai Vereshchagin (ZIRAS) wrote an article that expressed his horror. This article was published in the major Russian newspaper Izvestie.

3. Rediscovery of the mammoth carcass

In August, 2000, Mr. Sergei Pankevitch worked for CERPOLEX/Mammuthus. He sought the mammoth carcass remains where they were first discovered in 1990. Because the area was flooded, Pankevitch searched with his fishing equipment: he was successful! On his fishhook, Pankevitch caught a muddy strand of mammoth hair. On August 27, the remains which he collected during his excursion were identified by Dick Mol. Ross MacPhee named this carcass the "Fishhook Mammoth." This was soon shortened to the "Hook Mammoth."

Small drilled samples of the long bones of Fishhook were taken by MacPhee and Flemming (AMNH) for DNA research and radiocarbon dating. The ^{14}C-AMS date (Beta Analytic, FL; November 2000) for the Fishhook Mammoth = 20,620 +/- 70 BP.

4. Catalogue of known parts of the Fishhook mammoth

Museum of the Nature Reserve at Khatanga (Taimyr Peninsula, Russia)

- Ulna (left), complete (both epiphyses fused); maximum length = 79 cm. (Bored samples taken by MacPhee and Flemming, AMNH).
- Humerus (right), complete (both epiphyses fused); maximum length = 89 cm. (Bored samples taken by MacPhee and Flemming, AMNH).
- Cranium, high-domed and heavily damaged (lacks tusks and molars); broken maxillae demonstrate that both M3s were broken out after specimen was unearthed. Molar alveoli indicate that small molar remains (M3) were present on both sides, indicating that the mammoth was a very old individual, older

than 55 African Elephant Years (AEY). Both M2s were lost long before to the animal's death. Maximum diameter of tusk alveoli = 14 cm; maximum width of cranium at eye sockets = 73 cm (top) and 65 cm (bottom); maximum width of posterior cranium = 73 cm. All collected skeletal remains of the Fishhook mammoth indicate that it is a very old individual.

Collection of N. Maliguina (Mammalogist, Nature Reserve, Khatanga)
• Hair, long guard hairs (multicolored)

Collection F. Kozlov (Geologist, Khatanga)
• Hair (quantity unknown)

Collection of CERPOLEX/Mammuthus L. Agenbroad (Paleontologist, NAU and Program Coordinator, CERPOLEX/Mammuthus)
• Hair, long guard hairs (brown color)

Collection of CERPOLEX/Mammuthus D. Mol (Program Coordinator, CERPOLEX/ Mammuthus)
• Hair, long guard hairs (brown color)
• Hair, long guard hairs (yellow color)
• Ulna, right proximal part with muscle attached to proximal epiphysis
• Vertebra, thoracic

Collection of CERPOLEX/Mammuthus (courtesy, S. Pankevitch, Khatanga)
• Vertebra, thoracic, with cartilage (in care of Dr. MacPhee, AMNH)
• Muscle, small strip (in care of Dr. Tikhonov, ZIRAS)

Additional mammal remains collected near the woolly mammoth by Mr. Pankevitch include:

Equus caballus (wild horse); 12 specimens
Ovibos moschatus (ice-age woolly musk ox); 1 specimen
Rangifer tarandus (reindeer); 8 specimens
Mammuthus primigenius (woolly mammoth); 45 specimens

5. The CERPOLEX/Mammuthus expedition, October 2000

In October 2000, a small expedition led by Bernard Buigues (CERPOLEX/Mammuthus) set out to study the Fishhook Mammoth. When this expedition arrived at the site, all was frozen and partly snow-covered. But, because the water level had been extremely low the previous summer (when Pankevitch rediscovered the carcass), it was relatively easy for the expedition to locate the Fishhook Mammoth. Parts of it were exposed at the surface: a portion of the vertebral column (lumbar vertebrae in anatomical position), parts of the pelvic bones, muscles, and an abundance of hair.

An expedition was planned for spring (May) 2001 by CERPOLEX/Mammuthus to extract the remains of the Fishhook Mammoth, using the same method as in the case of the Jarkov Mammoth.

6. The CERPOLEX/Mammuthus expedition, May 2001

When the CERPOLEX/Mammuthus team reached the site in May 2001, the river bank was covered with more than 200 cm of frozen snow which needed to be removed. After the site had been cleaned, approximately 75 m^2, it became clear that some of the parts of the carcass had detoriated and were scattered by the water. Nevertheless, we excavated many skeletal parts, some of which were still in anatomical order (vertebrae and ribs). The isolated parts were taken out by using jackhammers. One block of frozen sediments, including 6 vertebrae thoracales and 2 vertebrae lumbales (the last v. thoracalis is in anatomical order with the first v. lumbalis), several ribs, soft tissue, fur and underfur, was extracted and transported to an ice cave in Khatanga where it will be defrosted under controlled conditions.

7. Inventory of the remains collected by the CERPOLEX/Mammuthus expedition, May 2001

• Two fragments of the tusk socket (alveolus sin.) fitting to the cranium in the collection

of the Museum of the Nature Reserve at Khatanga, Taimyr, Russia.

• Pelvic fragment including the complete acetabulum (sin.)

• Pelvic fragment including the complete acetabulum (dext.)

• Proximal half of the femur sin. (max. width at the proximal end is 34 cm. The caput femoris is completely fused with the diaphysis, which indicates a very old individual). The impression is that the complete femur was rather small.

• Complete tibia sin. (max. length 60 cm, epiphyses are fused).

• Complete fibula sin. (max. length 56 cm, epiphyses are fused). This fibula is extremely heavily built (which possibly indicates a male individual).

• Damaged fibula dext. (damage is mainly on the proximal part, the distal epiphysis is fused with the diaphysis).

• Astragalus sin., complete.

• Cuneiforme II sin., complete.

• Phalanx II (not the terminal phalanx), complete

• Scapula dext., complete (max. height 82 cm).

• Scapula sin., damaged; max. height is preserved (82 cm).

• Radius dexter, in two parts (broken) (no measurements taken because of sediments attached to the surface of the fracture). The epiphyses are fused, again indicating an very old individual. This radius is extremely heavily built (which possible indicates a male individual).

• Lunatum sin., complete (relatively small).

• 10 ribs of both sides of the animal, 6 of which are complete and 3 of which show pathological characteristics.

• Fragments of thoracic vertebrae (vertebral bodies and spines).

• One block with several parts of the Fishhook Mammoth, amongst others: 6 vertebrae thoracales and 2 vertebrae lumbales (the last vertebra thoracalis is in anatomical order with the first vertebra lumbalis), several ribs, some of which are entirely complete. The vertebrae and the ribs show soft tissues as tendons and muscles. The block is 135 cm long, 110 cm wide and 40 cm thick. Its weight is approximately 1000 kg. It was extracted from the permafrost on May 8, at 08.00 h.

• The Fishhook Mammoth block was placed in an ice cave in Khatanga on Saturday May 12th, 2001. In this ice cave also the Jarkov Mammoth block is stored.

8. Reconstruction of the Fishhook mammoth

A male individual (bull), more than 55 years old at the time of the death of this animal 20620 years ago. Its height was about 260 cm at the shoulder (highest point of the back-bone) and it had an extremely large cranium (typical for an old male individual).