

BFA SEMINAR SERIES - NO. 14

EXTINCTION IN ELEPHANTS, MASTODONS AND MAMMOTHS

Gary Haynes

Held at the Bulawayo Club, Thursday 1 August 2002. 25 people attended.

Gary Haynes, a anthropologist from the University of Nevada, USA, gave an illustrated talk on his research over the last 20 years on the demise of elephants, mastodons and mammoths, particularly in North America, Russia and Zimbabwe. His African research, in Hwange National Park, has been aimed for many years at seeing how elephant remains decay and appear, and to try and relate this to fossil assemblages in North America. He published a book on the topic some years ago.

North America had two species of mammoth (grazers) in the past, and there were two species of mastodon (browsers) in South America. Mammoth remains date from 2 MYA, while mastodons were more recent. His key question is why do North and South America now not have any mammoths and mastodons when they were present there up to 13,000-11,000 years ago? Extinction of these two groups is thought to be related to the activities of Early Man, and perhaps climatic changes. The northern hemisphere Ice Ages were a crucial time. Climates oscillated for 60-100,000 years and the last cold period was 13,000 years ago.

About 11,000 years ago in North America the fossil record indicates that 80% of large mammal genera disappeared over a relatively short time, the same thing occurring 13,000 years ago in South America (there were 34 genera of large mammals in the Americas before this time) and 46,000 years ago in Australia. Early Man came across the Bering Straits into North America (sea levels were lower by 100 m in the last Ice Age) at this time, moving rapidly (1-3000 years) down into South America. These Late Glacial Extinctions did not seem to be due to any catastrophic effect, and were not a mass extinction; massive reductions only applied to large mammals that would be hunted by Early Man. Evidence of hunting by Man is seen in spear points being found in grouped mammoth carcasses, which are mostly only found under a clay 'black mat' strata.

However, the evidence is not clear-cut. The timing is ambiguous in many instances, and it is difficult to believe that mammoth populations could be reduced so much that they became extinct. In part this can be explained by fragmentation of woodland habitat, with large mammals being consequently forced more into the open when moving, and hence becoming easier to hunt - a metapopulation theory. Wide-ranging large mammals may have ended up congregating in refugia with good conditions, and Early Man followed. Mammoths and mastodons appear to have been highly ranked and desired animals for hunting. Strangely, bison do not seem to have been so affected by high levels of hunting, and were almost the only large mammals to survive to modern times.

Most of Gary's talk addressed the evidence for and against these ideas, looking at extinction pulses and relating it to climate. In particular, he related his findings from Hwange on how elephant carcasses decay and get spread around by hyaenas, etc. to what is found at fossil sites in North America.