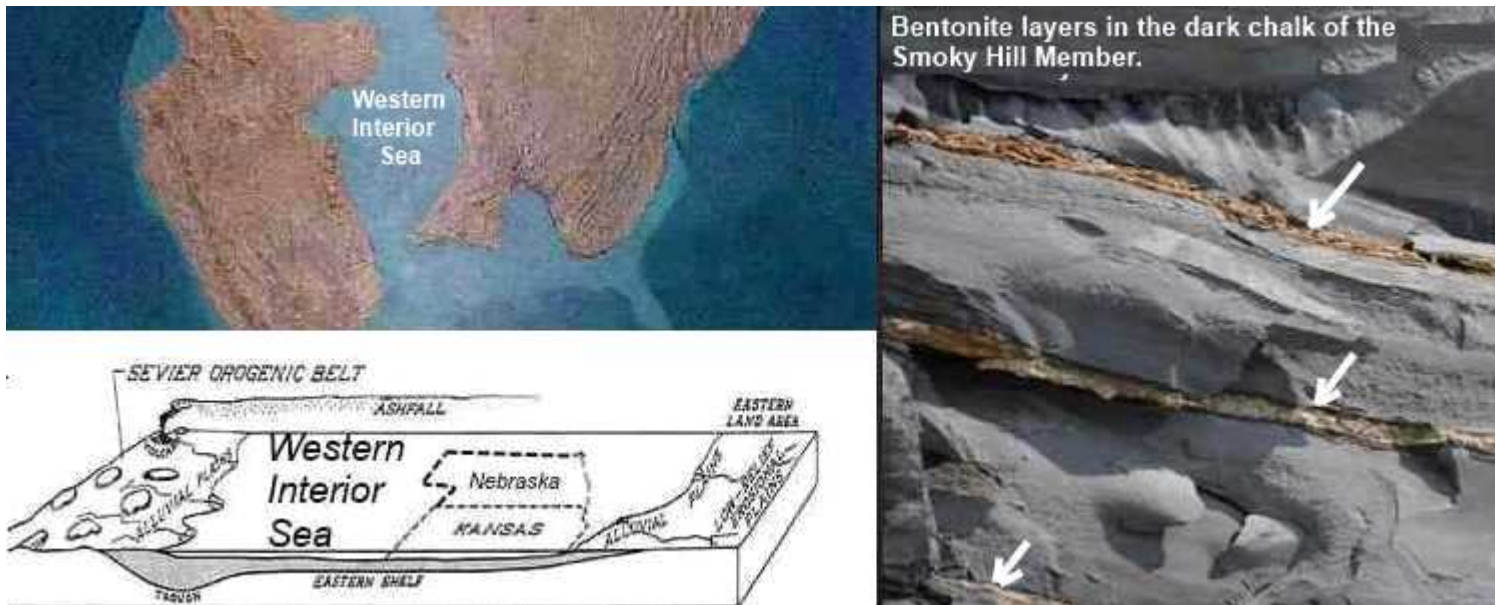


Chalk is a soft, white, porous, sedimentary carbonate rock, a form of limestone composed of the mineral calcite. Calcite is an ionic salt called calcium carbonate or CaCO_3 . It forms under reasonably deep marine conditions from the gradual accumulation of minute calcite shells (coccoliths) shed from micro-organisms called coccolithophores. ... Chalk has greater resistance to weathering and slumping than the clays with which it is usually associated, thus forming tall steep cliffs where chalk ridges meet the sea. ... Most cliffs of chalk have very few obvious bedding planes unlike most thick sequences of limestone such as the Carboniferous Limestone or the Jurassic oolitic limestones. This presumably indicates very stable conditions over tens of millions of years. (Wikipedia-chalk) **However, the about 600 feet thick formation of the Smoky Hill Chalk member in southeastern Nebraska and northwest Kansas has more than a hundred thin layers of bentonite clay, most of which are rusty red in color, that are the result of the fall of ash from repeated eruptions of volcanoes to the west of Kansas in what is now Nevada and Utah. These ash deposits can be traced for miles across the chalk beds and have been used as marker units in describing the stratigraphy of the formation. The Smoky Hill Chalk was deposited near the center of the Western Interior Sea.**



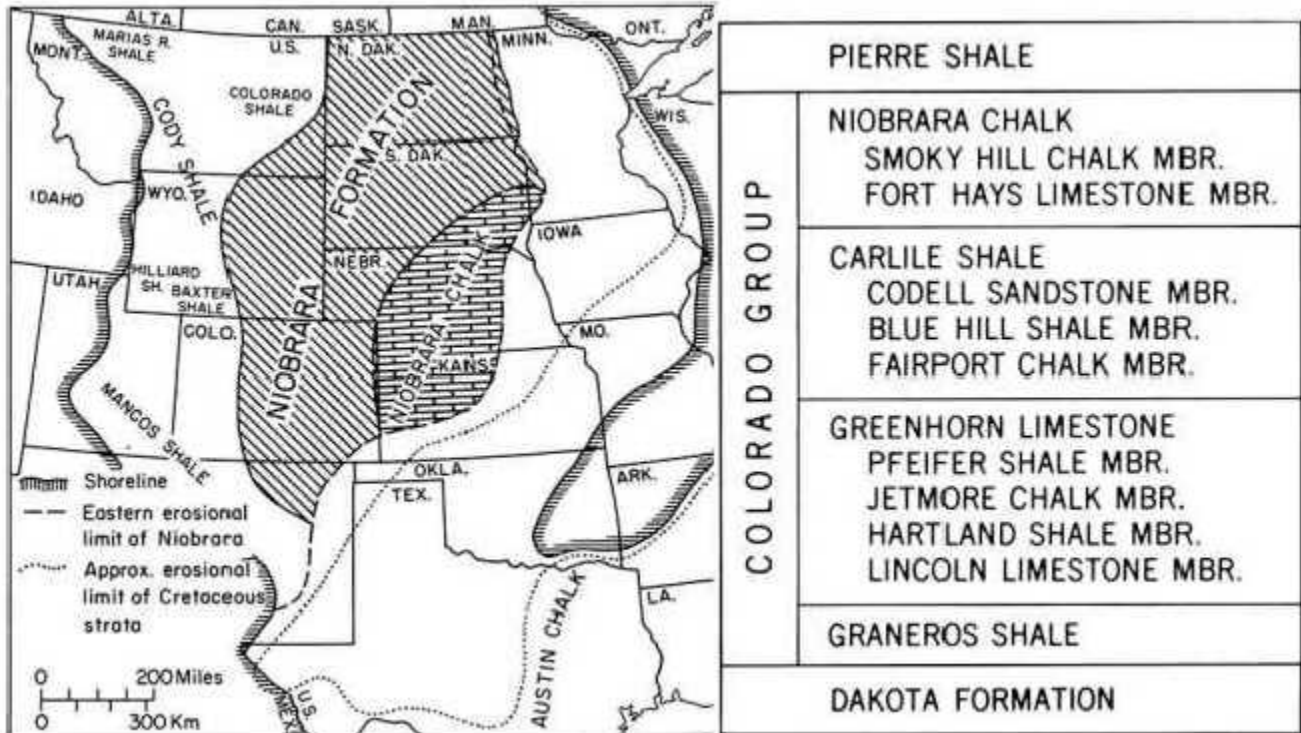
Several species of vertebrate and invertebrate marine life that lived and/or became extinct at certain times during the deposition of the chalk are useful in determining the age and biostratigraphy of widely separated exposures (See Stewart, 1990). With time the Western Interior Sea began to close, becoming shallower and narrower as the Rocky Mountains were pushed up from the west, uplifting the sea bottom as they rose. Eventually, the center of North America rose above sea level and the sediments (limestones, sandstones, shales and chalk) deposited on the basement rocks of the area then began to erode away." (from Oceans of Kansas Paleontology.htm)



Next is an older photo showing a group of 5 bentonite seams (5 arrows).



The Smoky Hill Chalk is downwind of a long chain of what were active volcanic centers that ends in Wyoming at Yellowstone. The Pierre Shale which overlays the Niobrara Formation and the Smoky Hill Chalk also contains numerous layers of bentonite.



Further examples of this type of ashfall and the destruction it can cause is seen at Ashfall Fossil Beds State Historical Park with its unique collection of skeletons in an ash bed of 1 to 10 feet. Digging down from the top the scientists always found rhinoceroses first, then, at deeper levels, smaller hoofed animals such as horses and camels, and finally, birds and turtles. The latter were always at the very bottom of the ash bed, in a layer containing numerous footprints of rhinos and other hoofed animals. It seemed evident that the small creatures died first, then the middle-sized ones, and finally, the rhinos. The animals definitely did not die all at once; they were not (with the possible exception of the birds and turtles) buried alive. The larger animals clearly died more slowly, over a period of a few days to a few weeks. Proof that they were not instantaneously killed and buried can be seen on many skeletons, especially those of horses and camels, which often show bite marks attributed to large scavengers that must have had access to the carcasses before they were completely buried. Every fossil mammal so far discovered at the site has abnormal patches of highly porous superficial bone on various parts of its skeleton, especially on the lower jaw and the shafts of the major limb bones and ribs. Veterinarians have reported very

similar growths on animals that have died of lung failure. Inhalation of large amounts of volcanic ash almost certainly caused the deaths of the Ashfall victims." (from museum.unl.edu /ashfall)

Chemical analysis revealed that the volcanic ash has the same components as an extinct volcanic caldera in southern Idaho that geologists call the Bruneau-Jarbridge Eruptive Center 600 miles to the west and just north of the south west border between Idaho and Nevada.

GEOLOGIC SETTING OF ASHFALL FOSSIL BEDS AND VICINITY

SEDIMENTARY ROCK LAYERS			SIGNIFICANT FOSSILS	ENVIRONMENT OF DEPOSITION	CLIMATE	
Elev	Name	Age				
1750	LONG PINE FORMATION	2.5 million	Loose sand and gravel with colorful pebbles of Rocky Mt. gravel up to 5" across	Zebra, lemmings, giant camels, muskrats, giant beavers, short-jawed four tuskers	Energetic river (probably ancestral Platte before diverted South by the first glaciers to reach Nebraska)	Still warm enough for armadillos and large tortoises but cooling rapidly as ice sheets approached
1700	ASH HOLLOW FORMATION (CAP ROCK MEMBER)	11	Ledge-forming sandstone with bed of silvery-gray volcanic ash 1 to 10 feet thick near the base ASH	Barrel-bodied rhinos, giant land tortoises, camels, burrowing rodents, horses, bone-crushing carnivores	Broad flat savanna (grassland with clumps of trees) periodically inundated by floodwaters	Still frost-free but drier than before
1650	VALENTINE FORMATION	12	Silty, clayey sand with numerous liny nodules (DEVIL'S GULCH MEMBER)	Long-jawed four tuskers, hornless rhinos, alligators, giant salamanders, fish fossil wood (both upright stumps and rolled logs)	River channels bordered by forested floodplains	Frost-free climate with abundant rainfall (evidence of drying climate in upper part of formation)
		14	Clean, cross-bedded sand with lenses of clay pebbles (CROOKSTON BRIDGE MEMBER)			

Note: When Mt St. Helens erupted on May 18, 1980, a relative small eruption, a pocket of ash 5 to 13 cm reached the Idaho border, about 250 miles away and with smaller traces reaching Yellowstone.

The Ashfall bed is on top of a sedimentary rock layer called the Valentine Formation and below the Long Pine Formation each containing many large mammal fossils. The Smoky Hill Chalk has also been the source of **thousands of fossil specimens**, giant clams, rudists, crinoids, squid, ammonites, numerous sharks and bony fish, turtles, **plesiosaurs, mosasaurs**, pteranodons and even several species of marine (toothed) birds. (from oceansofkansas.com)



After the interior sea was gone and Nebraska became dry the mammoth became abundant. Three species of mammoth are known from the state: the Woolly mammoth (*Mammuthus primigenius*), the Columbian mammoth (*Mammuthus columbi*), and the Imperial mammoth (*Mammuthus imperator*). These large elephants are found in sediments near major rivers,

among them the Missouri, Platte, and Niobrara. Also Nebraska was at the southern edge of the large glaciers that covered northern North America. Vast prairies dotted with lakes developed near the ice sheets, providing an ideal grassy habitat for these large grazing creatures, as well as for bison, beavers, prairie dogs, and condors. Mammoth fossils have been found in all 93 of Nebraska's counties, and it is estimated that the remains of ten mammoths lie buried in an average square mile of Nebraska landscape and it has been designated as the state fossil. The most famous discovery in the state was a 15 ton, 14 foot high specimen of the Imperial mammoth found in Lincoln County in 1922.

Plesiosaur neck vertebrae in field jacket at University of Nebraska State Museum and diagram of skeletal portion excavated from the chalk formation.

from The Mammoth, August 2003



Bottom line: Some Young earth theorists have wrestled with the problem of how hundreds of feet of chalk can form in only the time frame of the Flood of Noah (371 days) and have not really come up with a reasonable proposal ! And of course they do not consider the periodic layering of chalk formations with bentonite clay layers formed from intermittent ash deposits blown in from active volcanic centers many hundreds of miles away ! **Only old earth theories allow for a satisfactory explanation for these extensive layered chalk formations !!**

And Gen 2:1 " Thus the heavens and the earth were **finished**, and all the host of them." **says it is all pre-Flood !!**