Prehistorians Puzzle Over

WORLDWIDE MAMMAL MASSACRE

Not many thousands of years ago, a series of bizarre catastrophes turned our earth into an animal disaster area. It was a massacre of worldwide proportions. Today paleontologists stare at the fossil record. They ask themselves, "But why — and HOW?"

by Paul W. Kroll

THE PLACE: Alaska.

THE SUBJECT: A mysterious series of events that wiped out mammal life in Alaska a few thousand years ago.

THE REPORTER: Frank C. Hibben, well-known professor of archaeology at the University of New Mexico who visited Alaska in 1941. He surveyed the tragic effects visible in the fossil record. Later, Dr. Hibben pieced together the facts in his book, *The Lost Americans.*

Here is a tiny part of the baffling story as he told it.

Animal Disaster Area

"In many places the Alaskan muck blanket is packed with animal bones and debris in trainload lots.

"Within this mass, frozen solid, lie he twisted parts of animals and trees intermingled with lenses of ice and layers of peat and mosses. It looks as though in the middle of some *cataclysmic catastrophe* . . . the whole Alaskan world of living animals and plants was suddenly frozen in mid-motion in a grim charade" (Frank C. Hibben, *The Lost Americans,* New York: Apollo Editions, 1961, pp. 90, 91).

Tendons, ligaments, fragments of skin and hair, hooves — all are preserved in the muck. In some cases, portions of animal flesh have been preserved. Bones of mammoths, mastodons, bison, horses, wolves, bears and lions are hopelessly entangled! One author counts 1,766 jaws and 4,838 metapodials from ONE species of bison in a small area near Fairbanks, Alaska, alone.

Archaeologist Hibben saw with his own eyes — and smelled with his own nostrils — the specter of death. North of Fairbanks, Alaska, he saw bulldozers pushing the melting muck into sluice boxes for the extraction of gold. As the dozers' blades scooped up the melting gunk, mammoth tusks and bones "rolled up like shavings before a giant plane." The stench of rotting flesh — tons of it — could be smelled for miles around.

Hibben and his colleagues walked the pits for days. As they followed the bulldozers they discovered perfect bison skulls with horns attached, mammoth skin with long black hair and jumbled masses of bones.

Appalling Death in Alaska

But let Hibben continue his grisly account:

"Mammals there were in abundance, dumped in all attitudes of death. Most of them were pulled apart by some *unexplained prehistoric catastrophic disturbance.* Legs and torsos and heads and fragments were found together in piles or scattered separately" (*ibid.,* p. 97).

Logs, twisted trees, branches and stumps were interlaced with the mammal menagerie. The signs of sudden death were legion.

For example, in the Alaskan muck, stomachs of frozen mammoths have been discovered. These frozen stomach masses contain the leaves and grasses the animals had just eaten before death struck. Seemingly, no animal was spared.

"The young lie with the old, foal with dam and calf with cow. Whole herds of animals were apparently killed together, overcome by some common power" (*ibid.,* p. 170).

Sudden and Unnatural Death

The muck pits of Alaska are filled with evidence of universal and catastrophic death. These animals simply did not perish by any ordinary means. Multiple thousands of animals in their prime were obliterated.

On reviewing the evidence before his eyes, Hibben concluded:

"We have gained from the muck pits of the Yukon Valley a picture of QUICK EXTINCTION. The evidences of violence there are as obvious as in the horror camps of [Nazi] Germany. Such piles of bodies of animals or men *simply do not occur by any ordinary means*" (*ibid.,* p. 170).

If you want the *full impact* of what Dr. Hibben surveyed, read his book, *The Lost Americans.*

Why Paleontologists Are Puzzled

It is this type of colossal carnage which gives scientific workers gray hairs. But Alaska's immense slaughterhouse remains as just one case in point.

Much of North America beyond

World News

Alaska's frontiers became an animal disaster area. It has never recovered from the effects. North America would have made Africa's modern big-game country look like a children's zoo in those B.C. ("Before Catastrophe") times.

The imperial mammoths, largest known members of the elephant family, thundered across western North America. In New England, the mastodon, another elephant cousin, roamed the countryside. Further north, another tusky relative, the wooly mammoth, made his home.

Besides elephants, the woolly rhinoceros, giant ground sloths, giant armadillos, bear-sized beavers, saber-toothed tigers, camels, antelopes, giant jaguars ALL roamed the countryside.

Then, with alarming suddenness — all these creatures perished. The evidence is still with us in the rocks for all to see. In varying degrees, it is found on every continent the world over.

Across the vast stretches of Siberia — on the other side of the Arctic ocean, the same type of monstrous mammal pogrom is quite evident.

Worldwide Destruction Enigma

Africa is populated with an immense number of exotic animals. But fossil evidence shows that African wildlife is just a shadow of its former self. The same is true for South America. Today, there are few large animals in that continent. However, the fossil record contains the bones of many extinct animals with strange-sounding names.

Europe and Asia were also struck by this mammalicide. But what was responsible for this mass zoological homicide? A recent authoritative book on the subject is called *Pleistocene Extinctions, The Search for a Cause.*

The book title reveals the truth: scientists are still "searching" for a cause. It is still a mystery. But why?

Why is the Case of the Colossal Catastrophe still such an enigma? Why has no Sherlock Holmes of paleontology been able to put together the clues — and deduce the answer?

The basis for the dilemma goes back many, many decades to the time of Charles Darwin. He too was mystified by this universal mammal butchery. A butchery which gave the *coup de grace* to so many species and genera.

Darwin Puzzles Over the Evidence

In his book *The Origin of Species* Darwin wrote, "The extinction of species has been involved in the most gratuitous mystery . . . No one can have marvelled more than I have at the extinction of species" (Charles Darwin, *The Origin of Species,* New York: Collier, 1962, p. 341).

Darwin was referring to his five-year cruise as amateur naturalist aboard the H.M.S. Beagle. In his notes he revealed WHY he and the paleontologists of today are puzzled by the record of catastrophic death found in the rocks.

"What then, has exterminated so many species and whole genera?" Darwin asked in astonishment. "The mind at first is irresistibly hurried into the belief of some great catastrophe; but thus to destroy animals, both large and small, in Southern Patagonia, in Brazil, on the Cordillera of Peru, in North America up to Behring's [Bering's] Straits, *WE MUST SHAKE THE ENTIRE FRAMEWORK OF THE GLOBE*" (Charles Darwin, *Journal of Researches into the Natural History and Geology of the Countries Visited During the Voyage of H.M.S. Beagle Round the World,* citation under date of January 9, 1834).

A Worldwide Catastrophe?

The same thought of violent catastrophe struck Alfred Russel Wallace in the latter 1800's. Nonscientists today generally do not know very much about Wallace. He, in fact, developed the idea of biological evolution simultaneously with Darwin. Had Darwin not been persuaded to publish his ideas when he did, Wallace would have beat him to the punch and published first. As it turned out, both of them read their papers at the same meeting to avert any possible bad feelings.

Courtesy of American Museum of Natural History

BABY WOOLLY MAMMOTH — dug out of frozen ground in Alaska, now kept preserved in a refrigerated case.

Wallace, like Darwin, was a shrewd observer and student of zoology and paleontology. He likewise was struck by the decimation of mammal life in prehistoric times.

In 1876, Wallace wrote, "We live in a zoologically impoverished world, from which all the hugest, and fiercest, and strangest forms have recently disappeared . . . yet it is surely a marvelous fact, and one that has hardly been sufficiently dwelt upon, this sudden dying out of so many large Mammalia, not in one place only but over half the land surface of the globe" (Alfred Russel Wallace, *Geographical Distribution of*

Animals, New York: Hafner, 1962, Vol. 1, p. 150).

Wallace's immediate conclusion was that, "There must have been some physical cause for this great change; and it must have been a cause capable of acting almost simultaneously over large portions of the earth's surface" (*Ibid.,* p. 151).

What Was the Cause?

Darwin, Wallace and other scientists of that day put forth theories to explain this worldwide decimation of animal life. But no theory was accepted by all scientists. ALL the theories had weak points; no one idea accounted for all the phenomena.

Especially puzzling were the fossils of extinct animals in the deep Alaskan muck beds. Equally perplexing was the Siberian record. The evidence at face value told a story of violent catastrophe. The record demanded area-wide, continent-wide — indeed WORLDWIDE — and simultaneous catastrophe.

This baffled the original workers, it baffles scientists today. Indeed, any ideas put forth today are generally rehashes of theories thought of long ago.

"The mysteries of extinction are so many and so baffling," wrote two archaeologists, "that it is small wonder no book in English has been written on the subject. Since 1906, when Henry Fairfield Osborn summed the matter up in his paper of fifty-odd pages, 'The Causes of Extinction of Mammalia,' Eiseley [famed anthropologist] credits only two theories with contributing anything new to the discussion" (Kenneth Macgowan and Joseph Hester, *Early Man in the New World,* New York: Doubleday, 1962, p. 202).

Were Ice Ages Responsible?

Earlier workers postulated that Ice Ages were responsible for the mass killings. Not long ago, many paleontologists became rather cool to this idea. And for good reasons. The death-by-refrigeration idea simply didn't hold water. It was put into deep freeze storage largely for the following reason, neatly summed up in a book already quoted.

"Horses, camels, sloths, antelopes, all found slim pickings in their former habitat. But what was to prevent these animals from simply following the retreating ice to find just the type of vegetation and just the climate they desired? If Newport is cold in the winter, go to Florida. If Washington becomes hot in the summer, go to Maine" (Frank C. Hibben, *The Lost Americans,* New York: Apollo Editions, 1961, p. 176).

This was a good question! And it couldn't be answered.

A typical problem was the glyptodont. Paleontologists regarded him as strictly tropical in adaptation. But here was the rub. Glaciation could not account for his extinction — unless:

"Unless one is willing to postulate freezing temperatures across the equator, such an explanation clearly begs the question of their extinction in tropical America" (P. S. Martin and H. E. Wright, Jr., editors, *Pleistocene Extinction,* "Bestiary for Pleistocene Biologists," by P. S. Martin and J. E. Guilday, New Haven: Yale, 1967, p. 23).

Giant tortoises, victims of this same mammal destruction, were found throughout the warmer parts of the world. No paleoclimatologist was prepared to say that in glacial times freezing temperatures extended through the Caribbean.

It is no wonder paleontologists put the Ice Age theory of extinction into cold storage. It simply would not explain catastrophe in the tropics.

Equally perplexing was the mysterious extinction of horses in North America. About a decade ago, eminent paleontologist G. G. Simpson was discussing this problem. It was a real head-scratcher. When horses were reintroduced into the hemisphere, they increased marvelously. If the present climate and terrain is so favorable, what caused their extinction in the prehistoric period?

To George Gaylord Simpson, it was "one of the most mysterious episodes of animal history."

Wiped Off the Face of the Earth

What signed the horses' death warrant — killing them in droves? For Dr. Simpson, there was no answer:

"There has been no lack of speculation and a dozen possible explanations have been suggested, but all of these lack evidence and none is really satisfactory."

After explaining why he, in particular, rejected the Ice Age as the Grim Reaper of horses, Simpson dejectedly summarized by saying:

"This seems at present one of the situations in which we must be humble and honest and admit that we simply do not know the answer.

"It must be remembered too that extinction of the horses in the New World is only part of a larger problem. Many other animals became extinct here at about the same time" (George Gaylord Simpson, *Horses,* New York: Doubleday, 1961, pp. 198, 200).

Why did the horse cash in — so violently and quickly? Why did the candle go out on so many hardy species of mammal life around the world? What caused the mass destruction in Alaska? How did mammal genocide across the vast stretches of Siberia occur? What caused the last gasp, the death rattle of land-living creatures in every continent the world over?

Was Man the Killer?

As paleontologists discussed the problem, a new gleam came to many an eye. They saw that the remains of man — camp fires, burnt bones, arrow heads — are sometimes *associated* with animal remains.

The more they thought about it, the greater became their excitement. "Could man be responsible for the decimation and extinction of mammal life?" they asked.

It was an intriguing idea.

Extinction occurred almost exclusively on land. It sometimes occurred with definite evidence of the presence of man. Further, the explanation seemed to be the ONLY ONE left.

Paleontologists published a book, *Pleistocene Extinctions, The Search for a Cause,* in 1967. The book was based largely on papers read during the Proceedings of the VII Congress of the International Association for Quaternary Research.

From the reports, it was quite evident that the new "overkill" idea was too impotent to be the answer to the mammal massacre. Although a number of

paleontologists accepted the idea, they had to acknowledge the weakness of the theory.

For example, note the following admission:

"We may speculate but we cannot determine how moose, elk, and caribou managed to survive while horse, ground sloth, and mastodon did not.

"One must acknowledge that within historic time the Bushmen and other primitive hunters at a Paleolithic level of technology have not exterminated their game resources, certainly not in any way comparable to the devastation of the late-Pleistocene.

"These and other VALID OBJECTIONS to the hypothesis of overkill remain" (P. S. Martin, "Prehistoric Overkill," in *Pleistocene Extinctions, The Search for a Cause,* P. S. Martin and H. E. Wright, Jr., editors, New Haven: Yale, 1967, p. 115).

For example, anthropologist Arthur Jelinek in his article "Man's Role in Extinction of Pleistocene Faunas" for the above-mentioned book, had this to say:

"Throughout the New World one major puzzle exists with regard to linking man with the extinction. This is the absence of direct evidence of human activity associated with the remains of extinct animals" (*ibid.,* p. 198).

More staggering were the masses of bone in Siberia and Alaska. Surely, these could not be explained as the "overkill" effects of man.

The Problem of Siberia

Russian scientist N. K. Vereshchagin was blunt. He simply disagreed that man could be responsible for the massive piles of animal bones in Siberia.

"The accumulations of mammoth bones and carcasses of mammoth, rhinoceros, and bison found in frozen ground in Indigirka, Kolyma, and Novosibirsk islands bear *no trace of hunting* or activity of primitive man" (*ibid.,* "Primitive Hunters and Pleistocene Extinction in the Soviet Union," p. 388).

That man hunted animals is not in dispute. That he may have "overkilled" is, of course, possible. Some of the fossils DO bear what appears to be the action of man's hunting.

But to accuse man as solely responsible for killing ALL the animals whose fossils are found round the world is impossible. Even where animal fossils and evidence of man are found together, man is one of the fossils!

A Worldwide Catastrophe

The evidence — globe-wide evidence — seems to demand a WORLDWIDE paroxysm. This is what stuns geologists and paleontologists.

"Either some UNIQUE NATURAL CATASTROPHE must have precipitated extinction or else natural environmental changes had nothing to do with the event" (P. S. Martin, "Prehistoric Overkill," in *Pleistocene Extinctions,* P. S. Martin and H. E. Wright, Jr., editors, New Haven: Yale University Press, 1967, p. 86).

There it was in a nutshell. The type of catastrophe demanded by the evidence would sabotage the idea that the "present is the key to the past."

In the preface of the same book, P. S. Martin asked:

"If climatic change was responsible, then it must have been a change of a magnitude not known previously. Are meteorologists prepared to recognize the possibility of a climatic shock wave of UNPRECEDENTED DIMENSION?"

In fact, "unprecedented" is a weak word. Better phrased is Hibben's explanation:

"Throughout the Alaskan mucks," said this startled scientist, "there is evidence of atmospheric disturbances of unparalleled violence. Mammoth and bison alike were torn and twisted as though by a *cosmic hand in godly rage*" (Frank C. Hibben, *The Lost Americans,* New York: Apollo Editions, 1961, p. 177).

Then it is possible that singular and extraordinary ravages of nature could have delivered the knockout punch. Climatic shock waves — not seen since — could have delivered the fatal blow, extinguishing the breath of myriads of land mammals.

The idea, admittedly, may be hard to accept — but it *is* possible! Are we afraid to think the unthinkable?

The question becomes: Does the fossil record show a worldwide upheaval of sufficient dimension to explain the virtual extirpation of life on land?

The answer, of course, is yes.

Catastrophe Across Siberia

Workers who have studied the fossil finds in Siberia are equally astonished by the specter of mass extinction.

World-known British zoologist Ivan T. Sanderson, discussed the Siberian remains in a popular magazine article some years ago:

"The greatest riddle . . . is when, why and how did all these assorted creatures, and in such absolutely countless numbers, get killed, mashed up and frozen into this horrific indecency?" (Ivan T. Sanderson, "Riddle of the Frozen Giants," *Saturday Evening Post,* January 16, 1960, p. 82.)

It was Sanderson's conclusion that no previous theory could explain the mammal mess. He especially emphasized the last meal of the Beresovka mammoth.

Upon the tongue, "as well as between the teeth, were portions of the animal's last meal, which for *some almost incomprehensible* reason it had not had time to swallow.

"This meal proved to have been composed of delicate sedges and grasses and — most amazing of all — FRESH BUTTERCUP FLOWERS. The stomach contained many more quarts of similar material. This discovery, in one fell swoop, just about demolished all the previous theories about the origin of these frozen animals and set at naught almost everything that was subsequently put forward. In fact, it presented a royal flush of new riddles" (*ibid.,* p. 82).

In thinking about the vast hordes of bones in Siberia plus analyzing the preserved specimens, Sanderson was constrained to conjure up a scenario of vast catastrophe.

Earthwide Cataclysm

He concluded his death-by-catastrophe theory on this shocking note:

"There would be forty days and nights of snow in one place, continent-wide floods in another, and roaring hurricanes, seaquakes and earthquakes bringing on landslides and tidal waves

in others, and many other disturbances" (*Ibid.*, p. 83).

This does not mean that all the details of this series of catastrophes followed the "Sanderson scheme." However, it is quite clear that the catastrophes had to involve elements he mentioned — and be on the same order of magnitude described. In no other way can one account for the evidence.

ONLY this type (one may bicker about details) of catastrophe would be able to put an end to mammal life in the way which explains the record in the earth's surface.

How else does one explain young and old cast about, torn apart and frozen? What other theory would account for cases of fresh or only partially decayed meat? What about vast masses of animals — including entire herds? These are all piled together into gulleys, riverbeds, holes. How does one explain the chaotic caldron of mud, shattered trees, huge stones, bits and pieces of animals?

These are ALL evident in Alaska and across Siberia. No theory of uniformitarianism; no theory dependent on present conditions explains them. Worldwide catastrophe is the only answer.

Can Some Disagree?

Astounding as it may seem, one scientist took Sanderson to task for postulating a doomsday-like destruction.

In his article, Pleistocene geologist William Farrand challenged the idea that an unprecedented catastrophe was needed to account for this menagerie of violent death.

What was his paleontological diagnosis? The animals died due to "natural factors."

After chiding Sanderson concerning the veracity of some facts, Farrand goes on to say, "Adding insult to injury, Sanderson proceeds to fashion a fantastic climatic catastrophe to explain his conclusions" (William R. Farrand, "Frozen Mammoths and Modern Geology," *Science,* Vol. 133, No. 3455, March 17, 1961, p. 729).

The author may have had reason to criticize some minor points of the article. But Farrand's main bone of contention was Sanderson's use of unparalleled catastrophic events to solve the Siberian riddle of mass death. Like many scientists, Farrand felt squeamish before such violence. He would rather have seen the mammoths cross the bar in a more graceful — uniformitarian — way.

What Price Uniformitarianism?

Farrand's contention reads like this:

"All the evidence now at hand supports the conclusions of previous workers that NO CATASTROPHIC event was responsible for the death and preservation of the frozen woolly mammoths....

"There appears to be no need to assume the occurrence of a catastrophe ... it is very unlikely that a catastrophic congelation occurred in Siberia" (*Ibid.*, pp. 733, 734).

What Farrand means by "all the evidence" is obscure. Nor is it clear to which "conclusions" of what "previous workers" he refers to.

Strangely enough, Farrand was silent about the jumbled mass of bones in Alaska. We have already seen the reaction of one "previous worker" and his "conclusions."

Farrand DID ADMIT, "Sudden death is indicated by the robust condition of the animals and their full stomachs. Asphyxiation is indicated ... by the blood vessels of the head of a woolly rhinoceros.

"The well-preserved specimens, with food in their stomachs and between their teeth, must have died SUDDENLY probably from asphyxia resulting from drowning in a lake or bog or from being buried alive by a mudflow or cave-in of a river bank" (*Ibid.*, p. 734).

If these were the ONLY remains found, perhaps a uniformitarian explanation might suffice. But how does one explain the myriads of tangled animal remains that Hibben, for example, saw with his own eyes in Alaska?

Taken to Task by Colleagues

A number of individuals wrote to Farrand — taking issue with his uniformitarian idea. One such letter was published in a subsequent issue of *Science:*

"These fossils of the Siberian permafrost present an insuperable difficulty for a theory of slow, gradual geology ... no gradualistic process can result in the preservation of tens of thousands of tusks and whole individuals, even if they died in the winter. They must have been frozen suddenly" (Harold E. Lippman, "Frozen Mammoths," *Science,* Vol. 137, August 10, 1962, p. 449).

The author of the above letter referred to a number of workers, aghast at the heaps of tusks found in Siberia. For example, in the few decades preceding 1899, one report stated that about 20,000 tusks had been exported for the ivory trade. These were in perfect condition.

Farrand answered the letter by harking back to his original article. He also hinted at the possibility of "natural" catastrophe. But in true evolutionary form, he denied that any truly extraordinary series of apocalyptic paroxysms could have occurred.

Why?

Because, said Farrand, "It is not logically sound to postulate a major catastrophe on a scale far beyond anything we have experienced" (*Ibid.*, p. 451).

But why? Why should an earth-jarring series of events comparable to Sanderson's be illogical?

Do the fossil facts warrant a conclusion such as Sanderson's? If so, why should it be illogical? Why must the "present is the key to the past" dogma be so sacrosanct?

In other words, what do your eyes tell you?

A "Small" Catastrophe?

To soften the blow, Farrand finally did admit to the possibility of catastrophe. But it was only a "small" and "local" catastrophe — one we might imagine today.

"Certainly the death (suffocation, in several cases) of the frozen mammoths *was catastrophic,* and they were frozen in a VERY short time, geologically speaking — *probably in much less than one year* ...

"Such catastrophes are in accord with the doctrine of uniformitarianism" (*Ibid.*, p. 451).

But were the catastrophes "limited" and in accord with uniformitarianism?

If only a few isolated animals or

bone remains were found, perhaps yes. But how does one explain tens of thousands of tusks; in some cases fully preserved animals; in other places fossils which give the appearance of multi-mile-wide and long disaster areas? How does one explain these worldwide records all of which curiously have a "catastrophic" flavor?

These are NOT compatible with uniformitarianism — as some scientists are coming to realize. No uniformitarian theory will explain the estimated remains of TEN MILLION extinct animals along the rivers of northern Siberia.

The destruction evidenced in Siberia is just one example — however outstanding — of an unprecedented series of catastrophes. The subcontinent of India, for example, was also badly battered.

Havoc in the Himalayas

The worldwide destruction of mammal life is clearly evident in the Siwalik Hills. These are the foothills of the mighty Himalayas, in the nation of India.

In the nineteenth century, workers found the remains of living and extinct animals in great abundance. When one examines the strata, it appears as though all these vast numbers of animals SUDDENLY came on the scene.

"This sudden bursting on the stage of such a varied population," says geologist D. N. Wadia, "of herbivores, carnivores, rodents and of primates, the highest order of the mammals, must be regarded as a most remarkable instance of rapid evolution of species" (D. N. Wadia, *Geology of India,* 2nd edition, London: Macmillan and Co., Ltd., 1939, p. 268).

The mammal life of the area today cannot compare with the plethora of creature's remains found in the Siwalik Hills. Musing on this extinction and reduction, Wadia said, "The sudden and widespread reduction, by extinction, of the Siwalik mammals is a most startling event for the geologist as well as the biologist.

"The great carnivores, the varied races of elephants belonging to no less than 25 to 30 species . . . the numerous tribes of large and highly specialized ungulates [hoofed animals] . . . are to be seen no more in an immediately succeeding age" (*Ibid.,* p. 279).

When Burma Broke Up

This was NO local disaster. Thirteen hundred miles away the same spectre of sudden and wholesale slaughter is seen. The place is central Burma. Here two fossiliferous horizons occur, interrupted by approximately 4000 feet of sand.

The signs of two destructions are quite obvious in deposits sometimes 10,000 feet thick.

In the upper horizon, we find typical Pleistocene mammals, similar to those in the Siwalik Hills.

"The sediments are remarkable for the large quantities of fossil-wood associated with them . . . Hundreds and thousands of entire trunks of silicified trees and huge logs lying in the sandstones suggest the denudation of thickly forested" areas (*Ibid.,* p. 275).

The proof is unmistakable. Cataclysmic occurrences wiped out mammal life and denuded the landscape. The effects of violent water action are everywhere obvious.

Many other such examples could be cited in Asia. But let us go to the United States.

The Case of the Smashed Conifers

In the western United States are stands of giant conifers called *Sequoia gigantea* trees. They pose a special riddle.

Many of the giant sequoias are known to be over 3000 years old. John Muir, famous 19th century scientist, felt the age of some of these trees was in the 4000-year bracket. It is indeed possible that some may have been.

The sequoias, except for unusual catastrophe, seem to be immune to disease and pest attack. The remarkable fact is that many of the sequoias living today seem to be the ORIGINAL trees that grew into today's present stands.

An observation from the late Edmund Schulman, famed dendrochronologist, makes the point clear:

"Perhaps the most intriguing of the unanswered questions regarding longevity in conifers has to do with *Sequoia gigantea* . . . Pertinent also is the well-known fact that standing snags of this species, other than those resulting from factors of gross destruction, are unknown.

"Does this mean that shortly preceding 3275 years ago (or 4000 years ago, if John Muir's somewhat doubtful count was correct) *all* the then living giant sequoias were *wiped out by some catastrophe?*" (Edmund Schulman, "Longevity Under Adversity in Conifers," *Science,* Vol. 119, March 26, 1954, p. 399.)

The Amazing Bristlecone Pine

In the White Mountains of California, the bristlecone pine trees have supported the conclusion reached by a study of the sequoias.

Once again, the OLDEST, *living* bristlecone pine trees are in the 4000-year-old bracket.

Edmund Schulman commented on the discoveries:

"Microscopic study of growth rings reveals that a bristlecone pine tree found last summer at nearly 10,000 feet began growing more than 4600 years ago . . . Many of its neighbors are nearly as old; we have now dated 17 bristlecone pines 4000 years old or more" (Edmund Schulman, "Bristlecone Pine, Oldest Living Things," *National Geographic Magazine,* Vol. 113, March, 1958, p. 355).

Since then a 4900-year-old bristlecone pine was found in the Snake Range of east central Nevada.

We then have this unusual situation. Allowing for unforeseen possibilities, we find that the known LIVING species of sequoias and bristlecone pine average out at the oldest age somewhere in the vicinity of 4100 years old.

There are no LIVING 20,000-year-old trees; none at 15,000; none at 10,000; none at 8000. Somewhere in the vicinity of 4100 years ago is the limit of still-living trees.

Then did some *catastrophe* wipe out the sequoias and bristlecone pine about 4000-5000 years ago?

Why Only on Land?

At the boundary of *pre*-catastrophic and *post*-catastrophic times complex and remarkable changes in the type of life in different areas have taken place. In many cases, the locale of many animals has changed. Animals found in areas

before the catastrophes are today located in widely separated areas.

Equally remarkable is the tremendous REDUCTION in number and size of mammal life. Our earth today has only a smattering of the immense variety of mammal types which previously roamed the earth.

More remarkable, is the fact that ONLY land mammals became extinct in any appreciable numbers. That there is evidence of ALL life having been decimated in this series of catastrophes is clear. But as a whole only land mammal species suffered extinction. In other types of life, the individual species are basically the same today as in pre-catastrophic times.

"Survival of the small," says anthropologist P. S. Martin, "includes survival of the pelagic [water-living creatures] . . . the Pleistocene-Recent boundary cannot be recognized by marine guide fossils . . . At no time in the Pleistocene was there massive marine extinction . . .

"Nor were the largest mammals of the world, the cetaceans, [water-living mammals such as porpoises] affected by late-Pleistocene extinction.

"Finally, late-Pleistocene extinction is not evident in the plant kingdom. While a *major depression* . . . with a worldwide drop in vegetation zones of roughly 1000 meters, is evident in pollen profiles . . . there are no extinct late-Pleistocene genera among the diatoms or vascular plants, two groups of organism with *extraordinarily* rich fossil records" (P. S. Martin, "Prehistoric Overkill," in *Pleistocene Extinctions,* edited by P. S. Martin and H. E. Wright, Jr., New Haven: Yale University, 1967, pp. 78, 79).

But why should this be? Why should ONLY land-living, air-breathing, mammal species be exterminated? Why did plants, though decimated by worldwide catastrophes, seem to grow back into the same species? Why were the land mammals not able to do the same? For example, why did some 70 percent of all native North American mammals with an adult body weight of one hundred pounds or more die out completely? Why was marine and plant life — though decimated by catastrophes — not wiped out in the same manner as *land*-living, air-breathing creatures?

A Whale of a Tale

A further difficulty concerns the location of fossils. How does one explain two whale skeletons found in bog deposits in glacial till of Michigan? What about marine shells and bones of whales at least 500 feet above sea level at the Vermont-Quebec boundary and at 600 feet in the Montreal-Quebec area? Whence came the skeleton of a baleen whale found at Daveluyville about 60 miles southwest of Quebec? Reference to all these can be found in the textbook, *Historical Geology,* by Carl O. Dunbar, New York: John Wiley, Second edition, 1960, p. 396.

Whales are not usually known to travel by land. Glaciers do not carry whales. Besides, the whale bones were found in *post*-glacial deposits.

A solution usually postulated is that the land was then lower and the sea went further inland. But is not another — and better solution when all facts are considered — that an ocean tide, transgressed the land, depositing and BURYING the hapless creatures? After all, how does a whale become "slowly buried" over vast stretches of time in ocean waters?

If this is puzzling — the next example becomes absolutely staggering.

Back to the United States

The Columbia Plateau covers vast areas of Washington, Oregon, and Idaho. In places, the lava of this plateau is several *thousand* feet deep.

"In western North America, the Columbia River basalts comprise more than 60,000 cubic miles of piled up lava sheets spread over a region considerably more than 100,000 square miles in extent" (Charles A. Cotton, *Volcanoes as Landscape Forms,* Christchurch: Whitcombe & Tombs, Ltd., 2nd edition, p. 96).

Other estimates are more "conservative." They put the lava total at 35,000 square miles (John S. Shelton, *Geology Illustrated,* San Francisco: W. H. Freeman, 1966, p. 340).

The Columbia Plateau is larger than the combined area of France, Switzerland and Belgium. There are similar outpourings in South America and western India.

Lava flowed out — not as a stream — but as a veritable fiery flood. It filled the valleys, burnt up the forests, steamed out lakes, and buried mountains.

But as startling as the lava flows are — they pale into insignificance beside an associated phenomena — the Scablands.

The Scablands

It concerns the so-called scablands of the Pacific Northwest. Few people are aware of this area's uniqueness.

These 2800 square miles of Columbia Basin scablands are very puzzling. Here the loess (supposedly wind-deposited material) has been stripped off and the volcanic basalt surface scoured on an enormous scale. The Scablands are streaked with a gigantic system of abandoned channels. Some of these rock basins are more than one hundred feet deep and ten miles long. What caused such scarring?

"The most interesting feature of these channels," admitted geologist John Shelton, "is the evidence that their origin was almost certainly dominated by one or more GIGANTIC FLOODS of short duration rather than erosion at normal rates by rivers of normal size" (*Ibid.,* p. 344).

Huge gravel bars 100 to 150 feet high occur in expected places — at the mouths of tributaries or just below obstructions. Granitic boulders as large as 20 feet across have been found 50 miles downstream from their place of origin.

Ripple Marks — Evidence of Vast Flooding

Even more shocking is the following:

"Many of the gravel bars bear giant ripples on their surface — asymmetric wavelike undulations up to 20 feet high and 300 feet from crest to crest" (*Ibid.,* p. 348). At various places along Clark Fork in western Montana gravel bars bear giant ripples up to 50 feet high and as much as 500 feet from crest to crest.

At present little is known about the relationship of ripple amplitude and wavelength of ripples to velocity of generating current. It was admitted that

the current must have been "enormous."

Shelton discussed the "strong probability that only COLOSSAL FLOODS could produce such effects" (*ibid.*, p. 348). Currents peeled off entire layers of jointed lava. They scooped out miles-long basins in solid rock. The currents left immense bouldery gravel bars bearing "elephantine ripples."

"Can we find reasonable circumstances and mechanisms to account for them?" geologist Shelton asks on page 348. How *can* we find a "reasonable" explanation for a calculated discharge that may have reached a maximum of well over ONE HUNDRED TIMES flood stage on the lower Mississippi?

Catastrophic Flooding Only Answer

Shelton summarizes on a catastrophic note.

"The sheer magnitude of the whole scabland complex and the many ways in which it EXCEEDS the bounds of normal stream action erosion and deposition seem to justify, if indeed they do not DEMAND, an outside agent operating under extraordinary conditions" (*ibid.*, p. 351).

This piece of evidence stands as irrefutable proof that all things have not gone on as they do today. It shows that the present is NOT always the key to the past. Vast natural calamities on a scale not occurring today have wrecked and devastated the earth in the time of man.

The Proof of Worldwide Catastrophe

We have, of course, come to the crux of the matter. The worldwide fossil evidence makes it quite clear that worldwide flooding, land depression, mountain uplifts, volcanic eruptions, earthquakes, tremendous winds, enormous amounts of precipitation, and in some places sudden formation of ice combined to wipe out whole genera of animal life worldwide.

Are these facts worthy of catastrophic thinking? The answer, after examining a tiny portion of the evidence can only be, "Absolutely!"

So striking is this evidence, that it led scientist Rhodes W. Fairbridge to make the following statement in *Scientific American:*

"A deluge such as that described in the Book of Genesis occurs in the legends and folklore of almost every ancient people. . . .

"Such agreement among the legends of so many peoples living in distant parts of the world has caused scholars in modern times to wonder WHETHER mankind did in truth experience the worldwide catastrophe of a deluge" (Rhodes W. Fairbridge, "The Changing Level of the Sea," *Scientific American,* Vol. 202, No. 5, May, 1960, p. 70).

But few people, it seems, have thoroughly looked into the Genesis account to see what it really says. Prehistorians would be amazed to find the Bible actually explains many aspects of the geological record which seem paradoxical.

Genesis and Geology

For example, prehistorians do not understand why so many land animals became extinct. When one takes the Genesis account into consideration, the answer becomes obvious.

We read in Genesis 7:22 that "ALL in whose nostrils was the breath of life, of all that was in the dry land, died." In other words, all breathing creatures perished except. . .

Except for the fact that Genesis tells us about the great commission of Noah. He was told to take "of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee; they shall be male and female" (Genesis 6:19).

This clearly explains WHY so many mammals became extinct. Noah took representatives of various mammal groups — but certainly NOT every variety. We have, for example, certain species of elephants with us today — but not all the different species. The woolly mammoth and mastodon, relatives of the modern elephant, died in the flood. Representatives of elephants which Noah took on board the ark simply have not diversified back into those earlier varieties.

What about mountain building, earthquakes, volcanoes so often evident in the geological record? Again, the Genesis account mentions them — however briefly: "In the six hundredth year of Noah's life . . . were all the fountains of the great deep broken up" (Genesis 7:11).

However, David in the book of Psalms refers to this worldwide upheaval and flooding more completely.

"The waters rose over the mountains; but they retired at thy rebuke . . . never to pass thine appointed bounds, or cover earth again; THE MOUNTAINS ROSE, THE VALLEYS SANK to the place thou madest for them" (Psalm 104:6-9, Moffatt translation).

There is no doubt, the Bible account clearly agrees with the evidence cited in this article. The facts of geology and paleontology continually reaffirm the details recorded in the book of Genesis — of the watery catastrophe of universal proportions.

For more proof that the Bible agrees with the true facts of geology and paleontology, request our free literature: "The Day the Dinosaurs Died," "Dinosaurs Before Adam?," *Does God Exist?* and the *Proof of the Bible.* □