

Some whaling men acquire a taste for the gamey dish. For a distinctly smaller beast such as a Mammoth, the effect would be retarded by the operation of square/cube law. But it should still have its parallel. The well insulated stomach contents should so ferment as to become unrecognizable.

Yet Mammoth carcasses are found in both Siberia and Alaska—lying in frozen jumbles of muck and tree trunks in the permafrost—their stomach contents undigested and unfermented. I am told that on one stretch of the Alaska Highway the bulldozer drivers who cut the roadbed were forced to work in gas masks. They turned up so many carcasses of various beasts, that when these were exposed to normal day temperatures the whole area stank like an uncleared battlefield.

The situation presents other puzzles. Trees simply cannot grow in the permafrost. The vegetation with which the bodies are mixed belongs to zones several hundred miles nearer the Equator.

Nor have I ever been prepossessed with the notion that the Mammoth wore hair to keep warm. Present surviving representatives of its family run their metabolisms at only three per cent the rate of smaller Mammals. Their idea here is to avoid an unseemly, messy end in an explosion of metabolic steam. Square/cube law again. Had the Mammoth needed to keep warm, there would have been no need to evolve a coat of hair: a slight lift to the thermostat setting would suffice. Come to it, how does a beast the size of an elephant find enough browse on the tundra? Would even the Taiga sustain him? Do we know any animal bigger than a rodent which grazes pine needles? Picture the tundral Mammoth, which, having picked its daily half ton of whortleberries one by one, goes on to gather a bed of moss. He must have this if he is not to sink through the ooze to the permafrost and wake up with rheumatism.

The fact is that I will be unsurprised to learn that there was a calamitous change in climate that "coincided" with a catastrophe which "just happened" to arrive at the time of the demise of the Mammoths.

Our old friend Sprague de Camp has expressed great skepticism on this point. When Cosmic Catastrophe and Calamity is mooted as an easy answer to an enigma, I, too,

am skeptical. Like the Missourian, I want the evidence in my hand to clinch the proof.

An ocean meteorite strike *could* be the explanation here. Two of them if you like. Asteroids sometimes "twin"; the Clearwater Lakes in Canada, one thirty and the other twenty kilometers across, resulted from a double strike. The question is not whether it *could* have been the cause but whether it *was*.

Answers to the following questions could resolve the matter:

1. What is the altitude above sea level and the proximity to the sea or otherwise of known finds of Mammoth carcasses? *Carcasses* if you please. Dry bones will be irrelevant. We know that the prototype carcass was found *at the mouth* of the River Lena in Siberia, on the shores of the Arctic Ocean.

2. *Precisely* what vegetation and what its habitat is found within the corpses delicti? Exactly what kinds of trees were jumbled with them in the permafrost, and what type of force is required to shear or uproot such trees like jackstraws?

3. Deep borings have been made in the ice caps of the Antarctic and Greenland. Have any surprises yet been provided by the counts and analyses of particles in any limited section of the drilled cores? What should be sought here is this: concentrations of rock dust and of spherules of sublimed rock and iron. These may total a depth of only a hundredth of an inch, perhaps a little less, in a core representing a decade's accumulation of ice. The iron particles would, of course, be magnetically separable from the ice-melt. The contaminated lengths as a whole might be separable from the column of cores on a conveyor belt basis, by optical methods.

4. There are known to be circularities on otherwise level and featureless ocean floors. What are the profiles of these, and can their ages be assessed?

5. Are there any widespread anomalies in the stratigraphical record of large coastal belts which are inexplicable by normal erosive and isostatic process?

You may well add questions to the list above. Significant contributions will foster the baby science of meteoritics.