

Tunguska Event

A strange event that occurred in a remote swampy area of Siberia in 1908 even now, nearly a century later, continues to spark wonder, controversy, and theories of widely varying plausibility.

At 7:15 AM on June 30, a blazing white light was seen descending over the forests in the northwest of Lake Baykal near the Stony Tunguska River. It was so bright that it cast shadows on the earth beneath it. As it plummeted, it leveled trees and smashed houses, finally detonating with such explosive force that seismic shocks were registered around the world. An enormous "pillar of fire" rose straight up and was seen hundreds of miles away. As huge thunderclaps sounded through the air, a searing thermal current tore through the area, igniting fires in forests and towns. At least three shock waves followed the thermal wave. The destruction was massive, extending as far as 375 miles. Thick, dark clouds rose above the detonation site, and a black rain composed of dirt and particles fell on central Russia. That night the sky remained eerily bright all through northern Europe.

Presumably the mysteries surrounding this astonishing manifestation could have been solved had scientists been able to go to the site immediately. But Russia's unstable political situation, a few years later to explode in war and revolution, kept scientists' attention focused on more immediate matters. The first expedition, led by Leonid Kulik of the Russian Meteorological Institute, did not reach the area until 13 years later.

Expedition members expected to find a meteorite crater but were surprised to discover nothing of the sort. Instead, they found that the trees had been damaged from above. Moreover, those closest to the impact site were still standing, though devoid of bark and branches. Trees farther away were flattened and pointing away from the site. Kulik and his companions searched diligently but unsuccessfully for meteorite fragments.

Nonetheless Kulik, whose work continued until the outbreak of World War II (in which he would be killed), remained convinced that a meteorite was responsible. A colleague, Vasili

Sytin, disagreed; in the absence of evidence for extraterrestrial causation, he argued, logic required an earthly explanation: an unusually violent windstorm.

Extraterrestrial Hypotheses

In the wake of the atom-bomb attacks on Hiroshima and Nagasaki the year before, Soviet science-fiction writer A. Kasantsev published a story in the January 1946 issue of *Vokrug Sveta*. In the story a Martian spaceship is vaporized in an atomic explosion over Tunguska.

Though the story was fantasy, Kasantsev was attacked by Soviet scientists for proposing what they believed to be an absurd explanation. Nonetheless, the suggestion of a spaceship crash would have a lasting impact on the popular imagination, first of the Soviet people and later of the world. Two maverick Soviet scientists, Felix Zigel and Aleksey Zolotov, championed it in later decades, with the latter even claiming to have detected "abnormal radioactivity" at the site. Tests by other scientists, however, provided only ambiguous confirmation. In 1976 a popular book, *The Fire Came by*, championed the spaceship hypothesis, but the idea has little if any support from Western or Russian scientists.

Today most speculation focuses on meteorites, comets, and asteroids. It is almost universally agreed that the object, possibly as large as 200 yards in diameter, never struck the earth but exploded in midair owing to the air pressure piled in front of it as it descended.

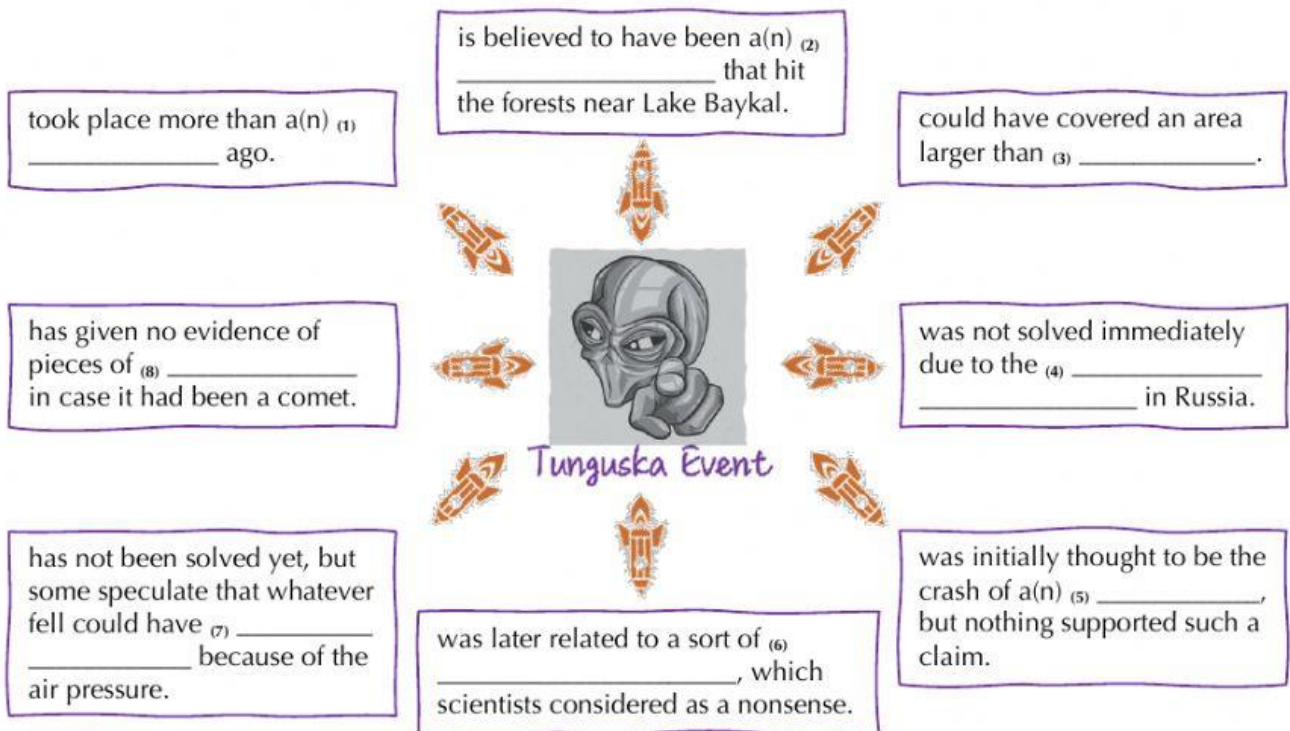
"Had the Tunguska object been a comet," Stephen P. Maran writes in *Natural History*, "the failure to find fragments of rock or iron from the explosion would be understandable. Any cometary ice that reached the ground probably would have melted before the first scientific expedition reached the site.... [I]f the Tunguska object was an asteroid or meteoroid and thus made of stone and iron ... either there are fragments, which have been overlooked by repeated Soviet scientific expeditions, or ... the incoming object ... shattered totally into dust in the explosion." (Text taken from Clark, J. (1993) *Unexplained*. Visible Ink Press. Detroit, US)

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Reading Section

A. Complete the mind map below using information from the previous text. USE **NO MORE THAN THREE WORDS AND/OR A NUMBER** in each gap. (8 points, 1 each)



B. Read the text again. Answer the questions below. (4 points, 1 each)

9. How long did it take Russian scientists to start the investigation of the event in Tunguska?

10. What three explanations were given to uncover the mystery in Tunguska?

11. To what extent could this event fit in the category of an unexplained phenomenon? Why?

12. How could war issues have led the scientific research to explain the event?
