BACKGROUND EVENTS

The party left Sverdlovsk by train on January 23rd. Several of them hid under seats to avoid buying tickets. They were in high spirits—so high that on a layover between trains Krivonishchenko was briefly detained by police for playing his mandolin and pretending to panhandle in the train station. We know these details because there was a communal journal, and many of the skiers also kept personal journals. At least five had cameras, and the pictures they took show a lively and strikingly handsome group of young people having the adventure of their lives—skiing, laughing, playing in the snow, and mugging for the camera.

After two days on trains, the party reached Ivdel, a remote town with a Stalin-era prison camp that, by then, held mostly criminals. From there the group travelled another day by bus, then in the back of a woodcutter’s truck, and finally by ski, guided by a horse-drawn sleigh. They slept in an abandoned logging camp called Second Northern. There Yuri Yudin had a flareup of sciatica that forced him to pull out of the trip. The next day, January 28th, he turned back, while the remaining nine set off toward the mountains. The plan was to end up at the tiny village of Vizhai around February 12th, and telegram the U.P.I. sports club that they had arrived safely. The expected telegram never came.

At first, the U.P.I. sports club assumed that the group had just been held up; there had been reports of a heavy snowstorm in the mountains. But, after several days passed, families of the group began placing frantic phone calls to the university and to the local bureau of the Communist Party, and, on February 20th, a search was launched. There were several search parties: student volunteers from U.P.I., prison guards from the Ivdel camp, Mansi hunters, local police; the military deployed planes and helicopters. On February 25th, the students found ski tracks, and the next day they discovered the skiers’ tent—above the tree line on a remote mountain that Soviet officials referred to as Height 1079 and that the Mansi called Kholat Syakhl, or Dead Mountain. There was no one inside.

The tent was partly collapsed and largely buried in snow. After digging it out, the search party saw that the tent appeared to have been deliberately slashed in several places. Yet, inside, everything was neat and orderly. The skiers’ boots, axes, and other equipment were arranged on either side of the door. Food was laid out as if about to be eaten; there was a stack of wood for a heating stove, and clothes, cameras, and journals.

About a hundred feet downhill, the search party found “very distinct” footprints of eight or nine people, walking (not running) toward the tree line. Almost all the prints were of stockinged feet, some even bare. One person appeared to be wearing a single ski boot. “Some of the prints indicated that the person was either barefoot or in socks because you could see the toes,” a searcher later testified. The party followed the prints downhill for six to seven hundred yards, until they vanished near the tree line.

The next morning, searchers found the bodies of the mandolin player Krivonishchenko and the student Doroshenko under a tall cedar tree at the edge of the forest. They were lying next to a dead fire, wearing only underwear. Twelve to fifteen feet up the tree were some recently broken branches, and on the trunk bits of skin and torn clothes were found. Later that day, a search party discovered the bodies of Dyatlov and Kolmogorova. Both were farther up the slope, facing in the direction of the tent, their fists tightly clenched. They seemed to have been trying to get back there.

The four bodies were autopsied, while the search for the others continued. The medical examiner noted a number of bizarre features. Krivonishchenko had blackened fingers and third-degree burns on a shin and a foot. Inside his mouth was a chunk of flesh that he had bitten off his right hand. Doroshenko’s body had burned hair on one side of the head and a charred sock. All the bodies were covered with bruises, abrasions, scratches, and cuts, as was a fifth body, that of the recent graduate Slobodin, which was discovered a few days later. Like Dyatlov and Kolmogorova, Slobodin was on the slope leading back to the tent, with a sock on one foot and a felt bootie on the other; his autopsy noted a minor fracture to his skull.

By now, a homicide investigation was under way, led by a prosecutor in his mid-thirties named Lev Ivanov. Toxicology tests were done, witness testimony taken, diagrams and maps made of the scene, and evidence gathered and forensically analyzed. The tent and its contents were helicoptered out of the mountains and set up again inside a police station. This led to a key discovery: a seamstress who came to the station to do a uniform fitting happened to notice that the slashes in the tent had been made from the inside.

Something had happened that induced the skiers to cut their way out of the tent and flee into the night, into a howling blizzard, in twenty-below-zero temperatures, in bare feet or socks. They were not novices to the winter mountains; they would have been acutely aware of the fatal consequences of leaving the tent half dressed in those conditions. This is the central, and apparently inexplicable, mystery of the incident.

Four bodies remained missing. In early May, when the snow began to melt, a Mansi hunter and his dog came across the remains of a makeshift snow den in the woods two hundred and fifty feet from the cedar tree: a floor of branches laid in a deep hole in the snow. Pieces of tattered clothing were found strewn about: black cotton sweatpants with the right leg cut off, the left half of a woman’s sweater. Another search team arrived and, using avalanche probes around the den, they brought up a piece of flesh. Excavation uncovered the four remaining victims, lying together in a rocky streambed under at least ten feet of snow. The autopsies revealed catastrophic injuries to three of them. Thibault-Brignoles’s skull was fractured so severely that pieces of bone had been driven into the brain. Zolotaryov and Dubinina had crushed chests with multiple broken ribs, and the autopsy report noted a massive hemorrhage in the right ventricle of Dubinina’s heart. The medical examiner said the damage was similar to what is typically seen as the “result of an impact of an automobile moving at high speed.” Yet none of the bodies had external penetrating wounds, though Zolotaryov’s was missing its eyes, and Dubinina’s was missing its eyes, tongue, and part of the upper lip.

A careful inventory of clothing recovered from the bodies revealed that some of these victims were wearing clothes taken or cut off the bodies of others, and a laboratory found that several items emitted unnaturally high levels of radiation. A radiological expert testified that, because the bodies had been exposed to running water for months, these levels of radiation must originally have been “many times greater.”

On May 28th, Ivanov abruptly closed the investigation. His role was to determine whether a crime had been committed, not to clarify what had happened, and he concluded that homicide was not a factor. Ivanov ended his report with a non-explanation that has bedevilled Dyatlov researchers ever since: “It should be concluded that the cause of the hikers’ demise was an overwhelming force, which they were not able to overcome.”

In classic Soviet style, a number of officials who had little to do with the tragedy were either punished or fired, including the director of U.P.I. and the chairman of its sports club, the local Communist Party secretary, the chairmen of two workers’ unions, and a union inspector. The investigative files, photographs, and journals were classified and the area around Dead Mountain was placed off limits to skiers and outdoor enthusiasts for years. The tent was stored but eventually became moldy and had to be thrown out. The saddle in the mountains which the skiers were heading for but never reached was named the Dyatlov Pass.

The victims’ families were left deeply dissatisfied. Many of them wrote to officials, including Khrushchev, demanding a more thorough investigation. But nothing more was done, and the mysterious deaths of the nine skiers subsided into relative obscurity.

In 1990, the prosecutor Ivanov, who had retired, published an article in which he claimed that, while compiling his 1959 report, he’d been pressured not to include his views on what happened. The article, titled “The Enigma of the Fireballs,” said that the skiers had been killed by heat rays or balls of fire associated with U.F.O.s. In his original examination of the scene, Ivanov had found trees with unusual burn marks, which “confirmed that some kind of heat ray, say, or a powerful force whose nature is completely unknown (to us, at least) acted selectively on specific objects”—in this case, people. The last photograph in Krivonishchenko’s camera showed flares and streaks of light against a black background.

By then, the official files had been released and, in the decades since, the case has become one of the most celebrated mysteries of the Soviet era. It has generated dozens of books and documentaries, along with a slew of Web sites and message boards on which Dyatlov obsessives trade scores of theories—the official count of the Russian Prosecutor General’s office lists seventy-five—about what happened. In 2000, relatives and friends of the victims established the Dyatlov Group Memorial Foundation, whose purpose is to honor the memory of the skiers and seek the truth.

AVALANCHE

Johan Gaume and co-author [Alexander M. Puzrin](https://geomechanics.ethz.ch/people/puzrina.html), a geotechnical engineer at ETH Zürich, used historical records to recreate the mountain’s environment on the night of the Dyatlov incident and attempt to address these seeming inconsistencies. Then they simulated a slab avalanche, drawing on snow friction data and local topography (which revealed that the slope wasn’t actually as shallow as it had seemed) to prove that a small snowslide could have swept through the area while leaving few traces behind.

The authors theorize that [katabatic winds](https://www.britannica.com/science/katabatic-wind), or fast-flowing funnels of air propelled by the force of gravity, transported snow down the mountain to the campsite.

“[I]t was like somebody coming and shoveling the snow from one place and putting it on the slope above the tent,” Puzrin explains.

Eventually, the accumulating snow became too heavy for the slope to support.

“If they hadn’t made a cut in the slope, nothing would have happened,” says Puzrin in a [statement](https://www.eurekalert.org/pub_releases/2021-01/epfd-ust012621.php). “[But] at a certain point, a crack could have formed and propagated, causing the snow slab to release.”

A simulation tool, coupled with [data from cadaver tests](https://www.wired.com/2010/08/how-a-cadaver-made-your-car-safer/) conducted by General Motors in the 1970s to determine what happened to the human body when struck at different speeds, enabled the pair to show that heavy blocks of solid snow could have landed on the hikers as they slept, crushing their bones and causing injuries not typically associated with avalanches. If this was the case, the pair posits, those who had sustained less serious blows likely dragged their injured companions out of the tent in hopes of saving their lives.

[Jim McElwaine](https://www.dur.ac.uk/research/directory/staff/?mode=staff&id=11594), a geohazards expert at Durham University in England who wasn’t involved in the study, believesthat the slabs of snow would have had to be incredibly stiff, and moving at a significant speed, to inflict such violent injuries.

McElwaine adds that the research “doesn’t explain why these people, after being hit by an avalanche, ran off without their clothes on into the snow.”

He continues, “If you’re in that type of harsh environment it’s suicide to leave shelter without your clothes on. For people to do that they must have been terrified by something. I assume that one of the most likely things is that one of them went crazy for some reason. I can’t understand why else they would have behaved in that way unless they were trying to flee from someone who’s been tracking them.”

The two Swiss researchers believe that the snow slab probably caused the terrible injuries to three of the skiers found at the snow den, but this remains unlikely, given the distance of those bodies from the tent. The nine skiers retreated downhill, taking shelter under the cedar tree and building a fire. Because the young trees nearby were icy and wet, someone climbed the cedar to break branches higher up—hence the skin and scraps of clothing found on the trunk. The fire they built, in these extreme conditions, was not enough to save them, however. The two most poorly dressed of the group died first. The burned skin on their bodies came from their desperate efforts to seek warmth from the fire. This would suggest that the piece of flesh Krivonishchenko bit from his finger was probably a result of the delirium that overtakes someone who’s dying of hypothermia, or perhaps from an attempt to test for sensation in a frostbitten hand.

The surviving skiers cut the clothes off their dead comrades and dressed themselves in the remnants. At some point, the group split up. Three skiers, including Dyatlov, tried to return to the tent and soon froze to death as they struggled uphill. The other four, who were better dressed, decided to build a snow den to shelter in overnight. They needed deep snow, which they found in a ravine a couple of hundred feet away. Unfortunately, the spot they picked lay above a stream, a tributary of the Lozva River. The stream, which never freezes, had hollowed out a deep icy tunnel, and the group’s digging caused its roof to collapse, throwing them onto the rocky streambed and burying them in ten to fifteen feet of snow. The pressure of tons of snow forcing them against the rocks caused the traumatic injuries found in this group. The gruesome facial damage—the missing tongue, eyes, and lip—probably resulted from scavenging by small animals and from decomposition.

**INFRASOUND**

As part of technological theory there have been suggestions that an infrasound might have been responsible for sudden unpleasant feelings among the hikers. New research into rare weather phenomena has suggested that a 'perfect storm' could have struck the campers in the night, panicking them so much that they would have fled the tent, and fallen victim to the brutal cold before they came to their senses. Donnie Eichar, who spent five years researching the incident, and undertook the dangerous trek himself, believes that a wind phenomenon called a [Karman vortex street](https://en.wikipedia.org/wiki/K%C3%A1rm%C3%A1n_vortex_street) could have produced a terrifying, powerful sound which is proven to induce irrational fear in humans. Due to the unique topography Dead Mountain (all mentions of Dead Mountain instead of Mountain of the Dead refer to [Donnie Eichar's book](https://books.google.at/books/about/Dead_Mountain.html?id=DlWjBxs45O0C)), which is a perfect dome shape, the fierce winds that blow through the pass could have been warped as they struck the blunt surface. The wind, which was blowing in a straight line, would be twisted into a series of small but powerful tornadoes which would tear down either side of the pass. The tornadoes, spinning fast enough to tear the roofs off buildings, would have created a deafening noise, even if they missed the tents, as Eichar's theory suggests. But under certain circumstances they could also produce a more subtle and terrifying phenomenon known as infra-sound. The opposite of ultrasound, infra-sound is a type of vibration in the air which has a frequency so low it cannot be picked up by the human ear. But a succession of studies has shown that it can have marked effects on the human body, including loss of sleep, shortness of breath, and extreme dread. Eichar, backed by scientists at the National Oceanic and Atmospheric Administration in the U.S., believes that the combination of the effects on infra-sound, the deafening noise of tornadoes, and the claustrophobic, pitch black tent could unseat even the most steady-minded adventurer.

Though the science sounds incredible, Eichar believes it is the only logical explanation for the situation in which the bodies were found. Although Dead Mountain is so remote and inaccessible that the weather phenomenon cannot be directly observed there in the winter, it has been observed in similarly-shaped locations, including the rock of Gibraltar and an array of other peaks.

In the right conditions, a flow of wind can be directed in such a way that it creates a vortex. These vortices are created in sequences by the moving air, and travel away in a fan shape. With sufficiently high winds and the correct angles, these vortices of wind could form powerful tornadoes, with the potential to emit large amounts of infra-sound, as well as cause damage by themselves. Eichar's theory supposes that the Dyatlov hikers' tent was directly downwind from the peak of the mountain, and far enough away that the whirling winds themselves did not strike the tent. But they would have been close enough for the effects to be felt – and heard.

Infrasound, vibrations in the air which are too low for humans to hear, was first observed in the 1960s. The waves, defined as anything below human hearing range of 20 hertz (the upper range is around 20,000), can be made by man-made objects as well by natural phenomena. Vladimir Gavreau, a French scientists, first noticed the effect of infra-sound on his body thanks to a badly-designed fan. When his lab assistants began suffering nausea for no obvious reason, he discovered that the discomfort was cause by the motor of a large fan, which was emitting the sound waves. A 2003 study in the UK found that a fifth of people exposed to infrasound reported feeling anxious, scared or unable to breathe properly. Another theory holds that the waves are linked to ghost sightings. Eichar's hypothesis for the Dyatlov pass holds that the whirling tornadoes would have been able to produce infra-sound in sufficiently high levels to induce panic in the slumbering hikers, after which the Siberian weather did the rest.

**MANSI**


Vladimir Korotaev and Mansi questioned in the case

Since there were no prison breakouts from the local Ivdelsky corrective labor colony, the next in line suspects for the culprit were the indigenous Mansi people living in Khanty–Mansia, an autonomous district within Tyumen Region in Russia. At the second week of the investigation the prevalent theory was that the evil Mansi hunters who often camped in Mount Kholat Syakhl committed the crime on the night of the February 1. The information we have on the Dyatlov Case can be mostly attributed to the work of St. Petersburg investigator Evgeniy Vladimirovich Buyanov. What made native Mansi people strong candidates to be the perpetrator:

* There was Mansi [chum](https://dyatlovpass.com/resources/340/gallery/Dyatlov-pass-1959-search-020.jpg) ([definition](https://en.wikipedia.org/wiki/Chum_%28tent%29)) North-East from where Dyatlov group pitched their tent on the night of January 30th. A trail leading to the chum was passing 200 feet from where Dyatlov group camped. So they had an opportunity. [read more »](https://dyatlovpass.com/redirect.php?lid=1&pid=12881&flp=1#chum)
* Mansi knew the area and definitely had the skills to hide their ski tracks and hunt the hikers into the woods. The MO (method of operation) is so unusual that can be easily attributed to somebody very used to hunt down and kill animals.
* Mansi are proud and secluded people. They consider these mountains their hunting grounds. If the Mansi told them that they should be there, and the hikers took it the wrong way a verbal confrontation could easily escalate into physical.
* Ethnographers knew of Mansi holy places scattered across the Northern Urals - mysterious stones and pagan prayer houses. In general, the mysticism and unknown made Soviet atheist prosecutors suspicious and fueled their desire to blame the crime on the Mansi. Common belief was that nothing not endorsed by the official law enforcement can lead to something good. It doesn't come as a surprise that the first and only coherent hypothesis in the course of the formal investigation is the involvement of Mansi hunters in the hikers' death.
* Rumors were circulating of a woman geologist that was tied and thrown in the lake in the 30s. The motive was desecration of Mansi shrines. We don't know if this is fiction and/or what exactly happened. There are no documents introduced to backup this story.

The Mansi make offerings of game animals to local forest spirits (*menkvi* ) for success in hunting. The sometimes foolish exploits of these spirits are commonly recounted in folklore. Before human beings were on earth, it is thought, they descended from the sky into the sea and then worked their way up the Ob and Sosva rivers into areas where Mansi now live. Various features of rivers and lakes—whirlpools, river mouths, etc.—were considered sacred sites associated with the water spirit, Vit-khon, and his daughter, Vit-khon agu. Groups that were particularly dependent on fishing gave regular offerings to these spirits. There were also regular sacrifices to them three times a year: after the breakup of the ice (usually in April), in August, and again in October.

Mansi shamans, *nah* or *naitkhum* (*khum,* "man"), men or women, healed the sick, determined the types and colors of sacrificial animals, and in some cases participated in sacrifices, told fortunes, and sought to determine the results of productive activities. Among a few groups of Mansi, shamans used drums and had special costumes (usually a cape).

**SPECIAL FORCES**

The theory is that Dyatlov group stumbled upon a military testing area and were either killed by Soviet soldiers protecting the area or were scared into fleeing by the sounds of nearby explosions.

One possible scenario is that of power struggle and illegal use of military equipment, helicopters in particular, by high ranking officers. This theory was put forward in September 2011 by Alexander Gulikov. During the time of the incident the 21st Communist Party Congress was taking place in Moscow, and the enhanced service mode was enforced by the Interior, the Navy, the KGB, etc. respective ministries. It was strictly prohibited for any military equipment to leave its location, any personnel training connected with the taking out of military hardware is cancelled, soldiers cannot go on leave, neither can officers go on leave, and commanders are on round-the-clock duty. In this environment military officers who were friendly with at least one of the top Moscow bosses had gone hunting in the valley of the Auspiya river. A group of Mansi beaters would act together to flush out wildlife and game towards the line of approaching hunters. The return from the hunt was planned for 1 February 1959. For their return they used a military helicopter. Gulikov speculates that the KGB were fully aware of what was happening and the plan was put into action under instructions from certain party bosses in Moscow in order to discredit another party boss. The hunt was filmed with a dated film. The camera was sealed. Clothes marked with radio isotopes were to help with detecting the location of the camera.

The operator had to leave the sealed camera wrapped in the radioactive clothes near the Dyatlov cache site. The appointed operator was Semyon Zolotaryov. In Gulikov’s opinion, this was not a man called Zolotaryov at all. We have to point out that the camera found around Zolotaryov's neck was not the same camera that he was showing off the the days before the accident. The reason for elimination of the whole group is that Zolotaryov was spotted taking the photos. The operation began with ensuring that the Dyatlov group appeared in the taiga by a certain date when the helicopter would be there. In Gulikov’s opinion, information about the date of the helicopter flight was brought to the 2nd Northern by a Mansi hunter. The group had started making good progress but after Yudin had left to return and the group had left the 2nd Northern, further movement was surprisingly slow. Zina Kolmogorova wrote in her diary for 30 January about ‘slowly getting up’ in the morning. The group resumed their journey only at about 10 am or even later. Trails were everywhere in the area as the Mansi were preparing the hunt for the military officers. On 31 January the Dyatlov group left the ski track and moved up to the edge of the forest, moving away from the Auspiya and wading through virgin snow, then they returned back to the river valley. This maneuver was evidently going around something. The ‘something’ was the military officers. The supposition is that Zolotaryov was seen taking photographs as the helicopter was in the air. As the helicopter returned to Ivdel, Zolotaryov (and maybe one more person – possibly Dyatlov) quickly returned back to the group.

The group then packed everything and in great haste moved to another, less convenient place, making a camp at the foot of Kholat Syakhl in the hope they would not be found. Zolotaryov did not hide the camera with the isotope-marked clothes, his task was to leave those things near the cache site.

On their return, the officers realized that photos have been taken of their illegal use of the helicopter. They send trusted men back in the helicopter to find the group and do whatever it took to bring the cameras back. These men found the hikers’ camp on the mountain slope on 1 February, at some distance from the place where the group had been noticed earlier. The helicopter landed either at the Lozva river from where they went to the tent following the ski trail, or nearer, on the slope. Even though the instructions were to do without bloodshed, they probably met with resistance by the group, who did not understand what was happening, except for Zolotaryov and probably Dyatlov. The military men were well versed in unarmed combat and knew how to kill without leaving external marks. The military men could not have known that the operation involving the taking of photographs was under the control of the KGB. Zolotaryov would have felt assured of the strength of the organization behind him and did not want to give them the camera. Events probably got out of hand very quickly and when the military men saw that they had overdone things, their decision was to leave no one alive. Gulikov estimates that at about 6-7 am the next day (2 February), these men returned and, using their broad skis, they cleared up leaving no tracks in the soft snow. They found the dead bodies, but not all in one place. It was then that they searched out the bodies of Dyatlov and the other two, Krivonischenko and Doroshenko, under the cedar. They found Dubinina and Zolotaryov still alive and killed them by pressing on the carotid artery with the use of puttees, then threw them down the snow den. One of these puttees was later found near the cedar and another one in the gulley. The military officers and their men, along with the helicopter crew, felt they were in deep trouble. The issue of the illegal use of the helicopter was now about to be disclosed. On top of this, all the members of the Dyatlov group were dead. It was therefore in the interests of everybody concerned, the various services and ministries, to hush up the whole story. The situation with regard to the power struggle in Moscow was shifted to the back burner. The party leaders did not want the story to become known to the general public and, worst of all, to be leaked to the foreign press. The top military leaders wanted to find the camera but they didn’t know where it was. The KGB wanted to find the camera, but without the interference of the military. Gulikov felt that Lev Ivanov knew how the Dyatlov group had been eliminated and who had killed them. However, he was given a categorical order to close the case.