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At Vostok Station with the 35th Soviet Antarctic Expedition

by Stephen Warren, February 1991

Tarragon, basil, sage and paprika: the drug-sniffing dog at Christchurch Airport showed no interest in Tom's turkey spices as we boarded the Royal New Zealand Air Force's cargo-plane for Antarctica. "The Russians don't celebrate Christmas," we had been told, "but they will if you bake them a turkey!"

Tom Grenfell and I joined the 35th Soviet Antarctic Expedition to work three weeks at Vostok Station, December 1990-January 1991. Vostok is one of only two permanent stations on the high interior plateau of Antarctica (the other is South Pole). It sits on a flat snow surface at elevation 3500 metres at 78°S, 107°E, in the centre of East Antarctica. ("Vostok" is indeed the Russian word for "east", but the station was named instead after a ship in Bellingshausen's expedition of 1820.)

Antarctica is friendly international territory, so I abandoned my passport and wallet when I set out for Vostok: all my identification papers stayed behind in my desk drawer at South Pole station. Tom and I joined six other foreigners on the flight to Vostok; Walter Tape from Alaska and Gunther Konnen from Holland came for six weeks to study ice crystals and halos; Laurent Augustin from France and John Kiddon from Rhode Island came for six weeks to build a storage shed for ice cores, and Scott Workman and Charlie Hansen came for just a few days from McMurdo Station to wire the temporary

building we erected to house our own experiments.

Our visit was scheduled for the hottest time of year, when the "Vostochniki" were shedding their winter clothes (and eager to sell them!), but we stayed bundled-up: we hadn't been conditioned by the winter, so the -30°C summer didn't seem all that warm to us. Last July I had talked Robert Asher out of his splendid down pants, and on my long treks to collect snow samples I was a walking puffball. But the Russians did admire our new red jackets in comparison with their faded blue ones: the Russian word for red (*krasnyy*) resembles the word for beautiful (*krasivyy*).

The Vostochniki

Our stay was pleasant and comfortable, and the Russians were good to us. They were eager to communicate, so they were patient with our language difficulties, willing to wait when we needed the dictionary.

The four Americans had all studied Russian language, but in my case not since 1972. Three of the Russians could speak some English, but two left on the tractor-train shortly after we arrived. The third was the station manager, Yevgeniy Kononov, who had even translated a textbook on radiowave propagation from English into Russian. But he preferred to let us struggle in Russian until we got really stuck before he would admit to knowing English.

Vostok has a winter population of 27, all men, most of them married with children. This year they all came from Russia (most from Leningrad, where the Mining Institute and the Arctic-Antarctic Institute are located), but in the past some have come from Ukraine, Byelorussia, and the Baltic States.

There were three drillers, three in the power plant, four radio engineers, one cook, two doctors, two meteorologists, three ionospheric physicists, two atmospheric sounders, and four graduate students (two glaciologists, a magnetologist, and an "ozonologist").

Aleksandr Novosyolov (the aurora man) and Oleg Sorokin (the radiosonde man) had made careers on polar stations on the Arctic coast of Siberia.

The leader of the power plant, Aleksandr Kir'yanov, also painted Antarctic and Russian landscapes on canvas which he sold to the American flight crews.

The electrician, Vasiliy, also played the music for Christmas and New Year parties. We memorized the old favorite song "Moscow Nights", and he learned some Christmas carols.

Mikhail the magnetologist and Yevgeniy the station manager were mountaineers; they showed us pictures of their climbs in the Caucasus.

The liveliest "zimovshik" (winterer) was a young student, Lyokha, who always had



Above: Overview of Vostok.

Left: Thermometer that recorded the world's record low temperature -89.2°C .



Station Centre.

his snowmobile ready for excursions.

Several years ago the station doctor developed appendicitis and performed his own appendectomy. Ever since, two doctors are sent to each Soviet station, but their only job here is to look after the health of 27 healthy men. One of them was Dr. Yevgeniy Mel'nikov, who lent his bedroom to Tom and me and slept in his surgery.

Travel

The "zimovshiki" had left Leningrad by ship in November 1989, spent two months on the ocean and had been 13 months at Vostok when we arrived. At the end of January (after we departed) they flew out to the coast, exchanging places with the 1991 winterers, and their ship finally returned them to Leningrad in March, 16 months after departure.

The personnel are flown up from the coast, but the supplies come by tractor train. About ten tractors were in town when we arrived, and two days later we watched them depart down the Great North Road, two weeks and 800 miles across the snow to Mirny. That was a romantic event which appealed to my wanderlust: that trip must be one of the world's great travel adventures. The drivers even invited us to come along, but we had other work to do.

Old Number Eleven, a tractor from the first expedition in 1957, sits retired in its place of honor beside the entrance gates at the start of the road.

Tourism

Vostok set the world's record for cold temperature, -88°C in August 1960, then broke it in July 1983: -89.2°C . So the thermometer at the weather station was naturally our first tourist goal on arrival.

The other tourist attraction was the drilling rig of the Leningrad Mining Institute. Vostok is the site of a world-famous research project, drilling to extract ice cores which tell the history of the atmosphere back to 160,000 years ago (so far). Each day it takes four hours to collect a three-metre-long cylinder of ice (eleven centimetres in diameter), representing over 100 years of snowfall. The ice core is analyzed at Grenoble, to determine the history of carbon dioxide, sulfate, dust, and oxygen isotopes. The drill was stuck at 2500 metres in September 1989, and the new core (their fifth hole) was down to 1250 metres when we arrived. The drilling shack reeks of kerosene, used (in a mixture with freon) to fill the hole and prevent the glacier-ice from flowing in to collapse it.

Science

Our research was also related to climate. We were repeating an experiment we had done in 1986 at South Pole to understand the solar energy budget of Antarctica: measuring the reflection of sunlight by the snow surface, how it varies with wavelength, and how it is controlled by the size of the snow grains. We wanted to claim that our measurements from South Pole could

represent the entire Antarctic Plateau, and here was an opportunity to test that idea by examining a site 800 miles away. We also were collecting samples of falling snow to learn what controls the oxygen isotopes in snow and to find out how sulfate gets into snow, for use in interpreting measurements from ice cores.

Three weeks was just right for our work: we were able to accomplish just what we had planned. There were no impediments to working efficiently at Vostok.

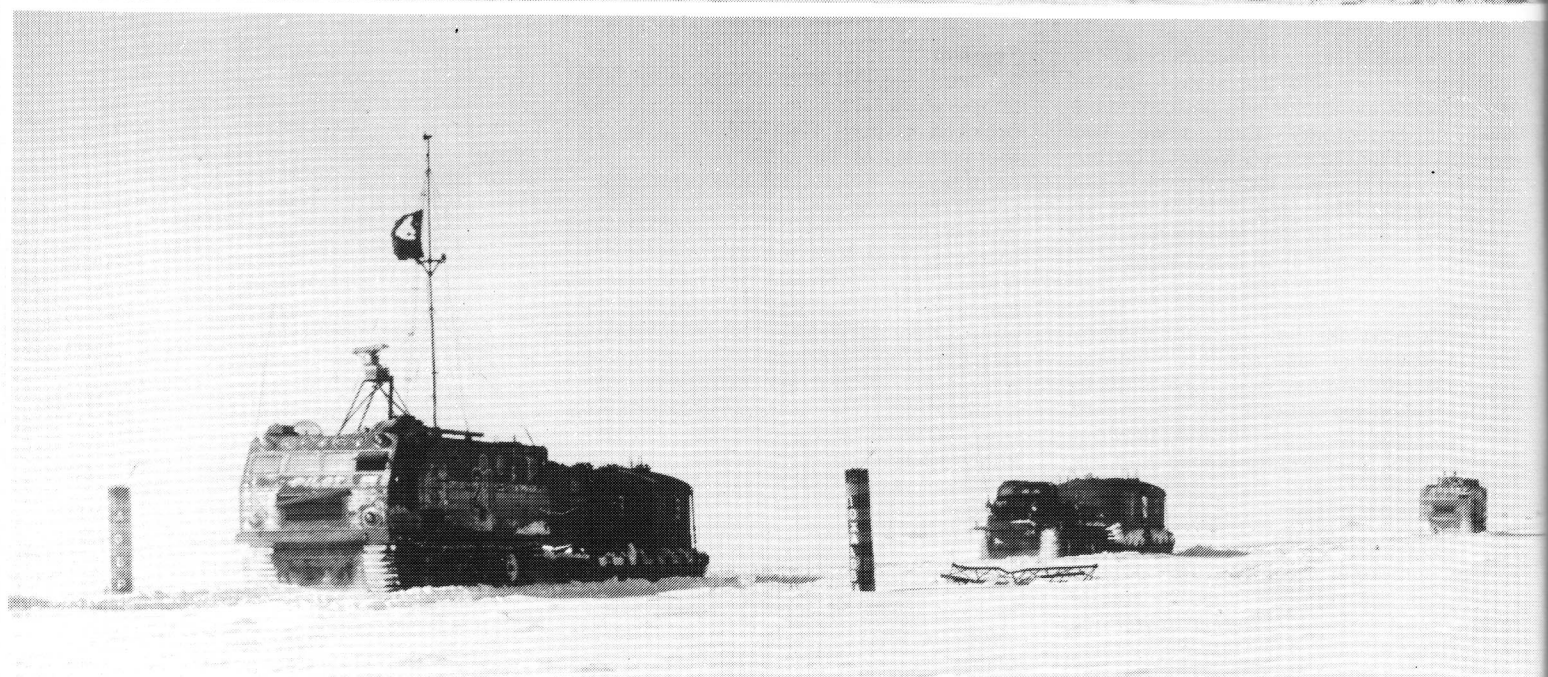
Our work was mostly outside, much of it at a distance from the station, so we were able to savour the environment. It is beautiful. There are no airplanes, no birds, no plants. But the sun is shining, the wind is blowing, the snow is drifting. Often low water clouds appear and quickly pass by. They sometimes suddenly crystallize and dissipate, giving a shower of "diamond-dust" which creates beautiful colored halos and arcs. Sometimes in the evening when the sun glides low along the southern horizon the wind calms and it's very peaceful: my own breath makes the only sound.

Vostok Town

By comparison with its sister station on the Antarctic Plateau, what Vostok lacks is: a fork-lift, a xerox machine, post office, store, bar, gym, shower, and women. And what Vostok has that South Pole Station lacks is *windows!*

Three buildings, about six years old, sit

Tractor Train from Mirny.



Departure of tractor train to Mirny.



Departure of tractor train to Mirny.

on short steel substructures above the snow. Every room has windows, many with window-boxes growing tomatoes and other greenery. The buildings have triple doors that don't close and triple windows with broken panes. The rooms are overheated so, for air-conditioning, holes are cut in the walls!

Some old drilling buildings are also used for bedrooms and laboratories. And a favorite retreat was a large igloo built more than a year ago. Inside are delicate strings of frost crystals hanging like those wintering monarch butterflies at Santa Cruz, fluttering briefly in response to puffs of breath.

Stories from winters past

I would hesitate to stay for the winter because of the grim tales we heard. About ten years ago the Vostochniki were starving, apparently because an unscrupulous ship's captain had sold much of the food in Africa en route to the Antarctic. And in April 1982 a fire in the generator shack shut down the power and heat, forcing most of the men into a drilling building where they huddled around kerosene-burning smudge-pots until November, emerging with permanently blackened faces.

Cuisine

The meals were adequate and routine. Breakfast was porridge, brown jam, and tea. For lunch we ate rice, meat, pickled tomatoes, pickled cucumbers, bread,

canned peas, and kompot (cooked fruit). Supper was greasy soup, greasy meatballs, canned peas again, and bread. On weekends we sometimes had a special breakfast of new bread and coffee, or cheese and hot chocolate.

The funniest thing was the bread. Sergey the cook was able to bake excellent bread at the station, but he made it only for special occasions. For most meals we instead had bread that had been baked in Leningrad in October 1989 and preserved by soaking in alcohol. It was edible only if its taste could be disguised by a thick coating of jam or mustard.

New Year

We had arranged with Sarah Krall at McMurdo Station to send along some exotic foods: chocolate powder, cookies, crabmeat, gourmet cashews, apricot jam (the label from Knott's Berry Farm raised lots of questions about pounds and ounces), and of course the turkeys. They came in on the second flight, which was to return the electricians to McMurdo. The flight was delayed until after Christmas, so we baked the turkeys for New Year's Eve. The stale bread from Leningrad was ideal for stuffing the four turkeys.

The party started at midnight, and continued for four hours (until midnight in Moscow), and the turkeys were a great success: hands reached in to rip off legs and wings faster than Tom could carve them.

I opened the tins of cashews but they

were ignored at first: the Russians didn't recognize them as food. There was no entry for "cashew" in my small dictionary, but in the big dictionary it was translated as "vid dereva", which means "a kind of tree"! But the first bite was persuasive; soon the Vostochniki were emptying the cans into their turkey-plates. There was even a tug-of-war for the last can.

Cultural difference

The westerners were used to dining socially and bathing in private. But (except for parties) the tradition at Vostok was the opposite. Most ate with scarcely a word to their neighbors, finishing in five or ten minutes. When they stood up to return their empty bowls to the kitchen they muttered the Russian equivalent of "bon appetit" to the forlorn foreigner left at the table.

But bathday was a social occasion, even to the point of issuing invitations. Every ten days water is heated in the bathing room in the generator shack and everyone takes baths and washes clothes on that day. They cook themselves in the sauna, roll in the snow outside, and beat themselves with birch twigs imported from Russia.

Talking

A lot of our talk was about science, but the Russians were uninhibited about talking on any subject. They are concerned about the Soviet economy, and some of them will have to look for jobs when they return. They made jokes about Gorbachov, perestroika, the KGB, and Greenpeace.



New Year's Party.



Russian Snowmobile.

They must be greatly relieved not to have to hide what they're thinking now. They were a delightful contrast to the wary and inhibited Russians that Donna and I met in Siberia in 1972. They also know more about western culture than, for example, the stewardess on the Trans-Siberian Railway who asked us: "If I were to visit the U.S., what language should I learn? You speak German there, don't you?"

Business

Westerners are wealthy by Russian standards, so the Vostochniki were eager to sell us anything they could. They wanted dollars not roubles. But Lyokha once carried it too far. He took me for a 20 kilometre ride in the snowmobile to collect snow samples at a remote site and wanted to charge one dollar per kilometre (he jokingly called a snowmobile a "taxi"). So in response I jokingly wrote out a ticket, for the same total fee, for his airplane trip to McMurdo which the Americans would be providing. [The Soviets were unable to get their planes to Antarctica, so they asked the U.S. for help in the annual crew rotation.] A fair exchange!

Presents

Besides the turkey and cashews, we left maps of the USSR, a calendar with pictures of Washington State, postcards from California, Hawaii, and the South Pole Station, badges from the US Antarctic Program, and recent copies of *Pravda*, *Izvestiya*, and *Ogonyok* bought in Seattle. Tom brought the special issue of *Playboy* on "The women of Russia". I brought some color pictures from home to pass around, labelled on the back in Russian, of my relatives, friends, house and travels, which generated hours of questions. It was hilarious to the Russians that only three people lived in my house.

Radio

We had little need to communicate with the outside world, but we did talk on the radio every Sunday with our graduate students (Von, Rich and Susan) at the South Pole. When the plane was coming for us at the end of our three weeks, we took turns sitting by the radio giving weather updates. We had to be able to convert among the time zones for McMurdo, Greenwich, and Vostok. But the clock on the wall gave none of these: it was set to Moscow time!

The End

Tom has now gone off to New Zealand and Seattle, but I'm back with the students for another month at the South Pole Station, this special place on the planet, the very centre of the Southern Hemisphere, where it's always noon!



Drill Tower.