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Dept. of External Affairs
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The workers employed in the Okrug's main agricultural industry, reindeer husbandry, look on this clash of weathers with concern. Sharp drops in the temperature have sometimes led to the loss of animals during periods when the ground becomes covered with ice. It is precisely that danger which has now arisen. An ice cover has covered the grazing grounds of three regions, Iml'ina, Provideniye and Chukotka. In the face of these threatened ice conditions, the Okrug agricultural association gave the State Farms permission to move their herds around freely, without any boundary restrictions.

AGRICULTURE AND FOOD PRODUCTION

Reindeer Meat Production Brings in Big Profits - Nenets Autonomous Okrug

On the "Kharp" ("Severnoe Siyanie") collective farm, reindeer husbandry is the main activity. Eleven work-brigades tend thirty thousand reindeer on the tundra. Winter is the time when meat is produced. This year the collective farm is planning to sell the State five hundred and forty tonnes of reindeer meat. Every year the farm makes a profit of more than six hundred thousand roubles from the sale of reindeer meat.

Pravda
2 February 1989

Oceans and Reindeer

The people living in the far north-east of the country never get used to the changes in the weather, when minus forty degrees Celsius alternates with thaws and rains. The region is affected by two oceans - the frozen Arctic Ocean and the warmer Pacific - which compete with variable success.

The workers employed in the Okrug's main agricultural industry, reindeer husbandry, look on this clash of weathers with concern. Sharp drops in the temperature have sometimes led to the loss of animals during periods when the ground becomes covered with ice. It is precisely that danger which has now arisen. An ice crust has covered the grazing grounds of three regions, Iul'tin, Provideniye and Chukotka. In the face of these threatened ice conditions, the Okrug agricultural association gave the State Farms permissions to move their herds around freely, without any boundary restrictions.

Reindeer Meat Production Brings in Big Profits - Nenets Autonomous Okrug

The herdsmen promptly led their herds into the forest, where the animals can easily find moss underneath the snow.

Sovetskaya Rossiya

24 February 1989

Page 6 (full text)

Pravda
2 February 1989

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ANTARCTIC

Supplies for the 34th Antarctic Expedition

The flotilla of ships of the 34-th Antarctic Expedition has reached the high southern latitudes. The new settlers disembarked at Soviet scientific bases of the White Continent and cargo required for their stay was unloaded. The modern "Vitus Bering", a multi-purpose, reinforced diesel-electric ice-breaking class ship had completed its second prolonged Antarctic voyage.

Our ship, constructed by the Kherson shipbuilders for operations under experimental polar conditions, acquitted itself well during the previous season in the extreme South. Now the crew, headed by the same captain, S. Sakhnov, continued this excellent tradition. The crew now had to ensure that a program of seasonal geological and geophysical investigations in the Western and Eastern sectors of the Antarctic were successfully carried out.

In Arkhangel'sk and Leningrad the vessels had taken on thousands of tons of equipment, supplies, provisions and barrels of fuel, containers of scientific equipment, tracked vehicles, three aircraft of various types and the same number of Mi-8 helicopters. Specialists of the "Sevmorgeologiya" Scientific and Industrial Society for the Antarctic landing also participated in the expedition.

Having completed the transoceanic voyage they entered the Weddell Sea. On the coast, near the 71-st parallel close to Nursel Bay, the Druzhnaya-3 geological field base has been operating on the Kuorisen shelf glacier for three years. Long before

the arrival of the ships of the 34-th SAE (before us the diesel-electric ships "Akademik Fedorov" and the "Mikhail Somov" had visited here) a group of participants in the expedition had been transferred here by aircraft. In November the group demothballed the small scientific city and set about making the first observations.

In searching for a suitable "harbor" they selected Tyuleniy Bay, located 80 kilometers to the west of Druzhnaya-3. Only there could the ship make fast near the glacial barrier, which was about six meters high. This allowed the Il-14 and An-2 aircraft, two Mi-8 helicopters, and a series of supplies to be transferred to shore. Working under difficult navigation conditions they carried out their first transport operation during a period of ten days.

The crews of the three ships transferred to the base personnel the necessary aviation technology, sufficient reserves of supplies, provisions, fuel... Thanks to this, almost 130 scientists and specialists were able to accomplish their seasonal combined geological-geophysical and other research operations.

The "Vitus Bering" resumed navigation in the waters of the high cold latitudes. They sailed a course in the Sea of Concord. One more large transportation operation is being carried out there at the Druzhnaya-4 seasonal geological base and at the Progress permanent station. Ahead are encounters with ships of the expedition and maritime geophysical investigations in the Southern Ocean.

Vodnyi Transport
16 February 1989
Page 4 (Slightly abridged)

ENVIRONMENTAL ISSUES

Public Opinion Can Help The Environment!

The stacks which rise in the centre of town, proudly crowned with a cap of acrid black or reddish smoke, cause feelings in all of us: resentment, indignation and finally anger. However, the managers of a number of enterprises still give precedence to meeting their production quotas over the health of thousands and thousands of people. In Novopolotsk, the administration of the protein and vitamin concentrates plant, having admitted the error of their ways on paper, have been in no hurry to "carry out air-pollution control measures". In Angarsk, however, the management of a similar plant has gone even further: at the protein-vitamin concentrates plant there, they moved the seals with which the health-inspection station had shut down the operation. What does health matter, if the planned quotas aren't being met?

The result of this rashness was a mass outbreak of allergic illnesses, which affected not only adults, but children as well. Incidentally, "rashness" can scarcely be used to describe what occurred. A much more accurate word to describe this action would be "crime".

Where can a way out be found? In people. At Pavlodar, for example, public opinion came out in favour of protecting the environment and a lot was achieved.

Sotsialisticheskaya
Industriya
7 February 1989
Page 2 (full text)

Environmental Concerns Delay Yamal Projects

Yamalo-Nenets Region: The Yamalo-Nenets Regional Committee recently confirmed a ban on construction projects in the areas around the gas-fields situated on the Yamal peninsula. The technical and economic substantiation documentation presented by the Ministry of the Gas Industry was acknowledged to be lacking, particularly with regard to the ecological aspects. The completion dates for the opening of the Yamal gas industry have thus been postponed by several years. However, the proprietors of the territory think that rash decisions could result in even greater losses.

Stroitel'naya Gazeta

5 February 1989

Page 3 (full text)

The Atom in the Fleet and Ecology

Nuclear energy is now at the center of attention. After the tragedy at the Chernobyl' AES it lost the confidence of the people. People now look suspiciously at anything associated with nuclear energy. The civilian nuclear fleet is no exception, and the family of nuclear-powered ships is constantly increasing. In the Murmansk shipping line four ice-breakers are operating - the "Lenin", the "Arctic", the "Sibir'", the "Rossiya", and the lighter tug "Sevmorput'". Nearing completion are four more ships - the "Yaygach", the "Taymyr", the "Oktyabraskaya Revolyutsiya" and the "Sovetskiy Soyuz". How safe are ships with nuclear energy power-plants onboard?

"Aleksandr Mikhaylovich, after the tragedy at the Chernobyl AES the attitude of the public has become negative toward the use of the atom for peaceful purposes, including its use in the commercial fleet. Confirmation of this is the protest of the public in the Far East against the arrival of the nuclear-powered lighter-tug "Sevmorput'" ("Vodnyy Transport told about this in its 9 Feb. issue of this year). How do you evaluate this situation?

"Earlier, all questions, related to the use of nuclear energy were of interest only to professional people. Now they are disturbing to the general public. We ourselves have come to the conclusion that it is necessary to work more closely with the public.

Not long ago a conference, dedicated to the problems of interacting with public opinion, took place abroad. There the question, "What are we actually afraid of?" was posed. It turned out that the majority is simply afraid of the word "radiation" itself, and when it is mentioned people literally begin to "tremble". This is a result of a lack of information. Actually, what we use as food is radioactive. We live in houses constructed from materials in which there are also radioactive elements. Americans began to check the level of radioactivity in their houses and detected that in certain buildings, where materials from bad quarries or mines were used, the radiation dose was 10 Rem. This is a great deal when compared to the exposure with the dose of professionals who might receive 5 Rem per year.

Radiation follows man everywhere. Whether he has an X-ray or whether he watches color television, he is exposed to radiation. Radiation is

not something strange to man, something with which he has never come into contact. All this information must be made available to the public, then situations similar to the one that took place in the Far East will not arise.

"Does this mean that advisability of nuclear-powered vessels should not be discussed?"

"I do not want to say that nuclear energy should consider itself above all the technologies. It has its place, where it is economical and justified. Let us take the power-plants on nuclear-powered ships. They are quite heavy because they are surrounded with biological protection in order to remove any effect of radiation on personnel and the environment. This weight results in a significant displacement of such ships. Therefore they are best-suited for ice-breakers and transport ships used on long voyages. In what way is nuclear energy good for the fleet? It eliminates the need for the frequent bunkering of fuel. And as is known, it is expensive and complicated to deliver fuel to the Arctic. Thus, only nuclear ships can provide year around navigation in the Western sector of the Arctic. Now shallow-draft nuclear-powered ice-breakers, such as those of the "Taymyr" and the "Vaygach" type, are coming into service. They are needed for the early freeing of the estuaries of the Yenisey from ice."

"All of this, certainly, is true. But what if you look at it from the point of view of biological danger?"

"The ecological threat of nuclear-ships is practically zero. Let us take the first ship of the nuclear-powered fleet - the ice-breaker "lenin".

Anatoliy Petrovich Aleksandrov recounted, that when the ice-breaker sailed across the Baltic Sea after the completion of its mooring tests, it was followed by patrol boats and helicopters of the NATO countries, and they took air and water samples. They found nothing because the vessel's biological protection had been designed in a reliable manner. Operational experience was accumulated on the first power-plant and certain flaws had been detected. These were corrected and an improved power-plant was designed incorporating specific changes. Modern nuclear-powered vessels are now equipped with the improved power plant.

On such power-plants, in principle, any leaks of radioactive cooling agents into the biosphere are absent, since the first circuit is airtight. The biological protection was well manufactured in contrast, let us say, to the Japanese nuclear ice-breaker "Mutsu". The Japanese, however, had an unsuccessful experience in the construction of nuclear-powered ships - as soon as they began to bring the reactor up to power, the biological protection system did not prevent radiation leakage and the ship could not operate, they had to put it in dock. Our levels of protection are such, that the level of background radiation is even several times lower than the accepted rated norms.

If a small amount is expelled into the atmosphere - then it is gas. The power-plant simply has neutron emission and in the air is argon, which is activated by neutrons. This radioactive argon-41, which has a half-life of a little more than an hour, is the only thing which is expelled into the atmosphere. But the amounts are very small and cannot in any way be compared with the emissions from AES (nuclear-power plants). The small amounts do not

even register on modern radiation monitors with which all the ice-breakers are equipped. There is a special panel for controlling the monitoring system, which records a variety of factors: how is the reactor working, are there leaks in the reactor and is the equipment airtight. And also many sensors stand at the emission point located near the mainmast. I myself have looked at the readings of these sensors on the panel, and they do not indicate anything, even though they are extremely sensitive. Thus it is not necessary to speak about any kind of ecological contamination of the environment by nuclear powered ships.

"You talk about the environment. But how about the people working on these ships? Isn't there harm to their health? Have such investigations been carried out?"

"Yes, investigations have been conducted. The Institute of Hygiene of Maritime Transport in Leningrad exists especially for such purposes. Specialists frequently and for a long time have travelled on board ice-breakers during their operation and measured all the levels of radiation to which crew members are exposed. With respect to the radiation factors, no deviations from the norm have been found. At the Murmansk base of the ice-breaker fleet they have even set up a stationary radiation counter for personnel. They check crew members when fuel transfer operations are taking place. Medical officials allow, that with respect to radiation norms, certain nuclides may be found in the body. This is most likely to occur during fuel transfer operations, when the cover of the reactor is opened, and in principle the possibility of increased radiation exists - not from the reactor, but from aerosols. When the cover is opened and the hermetic

seal is broken, aerosols can appear. As a rule, crew members suffer no internal contamination. I would like to add, that on the ice-breakers the system of individual dosimetry is well developed.

"By the way, where is the fuel transferred to?"

"The depleted fuel is transferred to special containers on board a "plavtekhbaza" (a floating technical base), alongside the ice-breakers. It is held in these containers for a certain time, then transferred into transport containers and shipped to factories for processing or for burial. In principle, such procedures differ in no way from those being carried out at nuclear power stations. Only there, the repositories for spent fuel are part of the power station. During the period of navigation there is no depleted fuel on the ship.

"There was such information about the nuclear-powered lighter tug "Sevmorput'": The air-leakage norm from the reactor compartment is a total of three percent. What kind of standards are these? And what are they for ice-breakers?"

"The lighter carrier, in contrast to the ice-breakers, is equipped with a protective shell system, which withstands increased pressure if depressurization of the first stage occurs. What are we always afraid of - leaks of the cooling agent beyond the limits of the first stage or of the reactor in general. Why is this dangerous? In nuclear reactors there is one disadvantage - for physical reasons we cannot immediately shut down reactor power. So called residual heat-release exists, which must be removed. If overheating of the fuel occurred, then there would be melt-down (which

occurred during the emergency at the Three Mile Island Nuclear, power station at Harrisburg in 1979), and radioactive particles would escape and carried by currents of hot air or steam, they would travel outside limits of the biological protection. Consequently, they would become for personnel and for the environment even more dangerous, because they would escape from under the concrete, the iron reinforcement, the water, i.e., from under the protection.

Then there is the standard of leakage. A protective shell, possessing increased airtightness, was first designed for the "Sevmorput,". During tests they "inflated" it to an elevated pressure and they examine how much of the medium leaked from the volume that had been pumped there during the course of an hour. They obtained three percent. On the ice-breaker there is no such highly airtight shell; there is, let us call it, a protective barrier. It is also metal and was designed for high pressure, but the percentage of leakage is greater than that for the "Sevmorput".

Recently the accident rate in the maritime fleet has increased. Lets suppose, that instead of "Admiral Nakhimov" which sank, it was a nuclear-powered ship. Is there any guarantee that we would be safe from a malfunction of the power plant in the event of a vessel sinking?

"Generally speaking, nuclear-powered ships are constructed in accordance with the highest safety standards prescribed by the Register of the USSR. Structural protection is mandatory in the region of the reactor room. Even a direct hit in the region of the nuclear compartment would not damage the nuclear power-plant. Boris Georgiyevich Pologikh, one of the

founders of the nuclear-powered fleet, loves to cite this example. When he was on the "Lenin", the nuclear ice-breaker struck an ice hummock on a shoal - a large underwater block of ice. Even after the impact the reactor did not stop, although the ice-breaker went dead in the water, like it was rooted there. Thus even if a ship is struck in the reactor compartment, the power-plant will not suffer.

"And what if an nuclear-powered ship sinks?

" An ice breaker or a lighter tug will not sink, even if any two adjacent compartments should be flooded. They will not go to the bottom like the "Admiral Nakhimov"

"But let us assume, that nevertheless the ship sinks....

"O.K. We will not rule out such a possibility. We began to study this problem ten years ago. At that time I was connected with the Academician Krylov TsNII (Central Scientific Research Institute) in Leningrad, which conducted independent research into the matter.

What would happen, let us assume, with a lighter carrier? It has a protective shell, which is equipped with a flooding valve. When the ship sinks, the valve operates, and the shell fills up with water. The reactor in this case automatically stops, because the control elements operate automatically, they do not need energy. That is, the reactor will be drowned. And we examined the flooding situation both in shallow water and in deep water. There are differences here.

In shallow water nothing should happen to the reactor. There are no forces which would create a non-airtight state, because in principle, it was designed to withstand accelerations and impacts. Due to the fact that everything is covered with water, heat transfer will be ensured. That is, the pressure in the first stage cannot increase, it will only fall. And then there begins the usual corrosion in sea water. But since corrosive-resistant metals are used, this corrosion cannot take place at a rapid rate; it will take tens of years. Furthermore, in shallow water the ship is accessible.

"Well, and what if nevertheless the corrosion has done its job?..."

"O.K., let us assume, that after a certain time the first stage has corroded through resulting in exposure to the environment. But in order for the radioactive particles to be able to enter the water, they have to get out of the first stage, and escape from behind of the protective envelope or shell. This process is very difficult in the scheme of physics. Because if only the diffusion processes are examined, then the radioactive nuclei will never get out, they are there and they decay. In order for them to escape it is necessary that something draw them out - some convective streams of water, some circulation loops must be established so that something from inside would be drawn outside, and the water from the outside would be drawn inside. That is, there must always be an exchange of water. Such an exchange, in our opinion, is nevertheless very small.

Nevertheless, we in our evaluations have made conservative assumptions: but should the exchange suddenly be larger - due to the currents and

the tides. Taking this factor of uncertainty into account, we have not detected any danger for the environment even on the closest approaches to the ship. As an example, it is possible to cite the American submarines, "Thresher" and "Scorpion" which have sunk. A few years ago there was a report that one of our nuclear submarine had sunk. I was not closely connected with this affair, but, undoubtedly, samples were taken in the zone of the sinking. And not once were there any reports either in technical literature or in the press; this means that nothing was detected. Otherwise our "friends" would not have given up the chance to proclaim this to the entire world. This is an indirect confirmation of our evaluation.

And here is one more confirmation. Until recently, radioactive wastes were "buried" in the Atlantic Ocean. At a specific point the containers of waste were cast into the ocean. But if radioactivity was observed in the Irish Sea, then it was only due to the fact that a factory in Winscaley was dumping its own waste through a three kilometer long pipeline directly into the sea. I do not want to say, that they exceeded the permissible levels; no, they dumped what the medical experts permitted. But nevertheless...

"Nuclear-powered ships, just like ordinary ships, are not permanent. Now the write-off period for the ice-breaker "Lenin" is approaching. Has the scientific problem, if it is possible to express it this way, of what to do with of ships powered by nuclear energy power-plants been solved?

With the ice-breaker "Lenin" the matter is still not resolved. Its service life has expired, and it should now be scrapped. But there is the idea

of making it into a museum - which would be the first one of its kind. With regard to the writing-off of nuclear-powered ships, we have been studying this question. Abroad, incidentally, there is already such experience - in the Federal Republic of Germany they have removed the nuclear power-plant from the ice-breaker "Otto Hann" and have re-equipped it for operation on dry land. What kind of a procedure is this? First they remove all the depleted fuel from the reactor because the main mass of the radioactivity is concentrated in the fuel. Then the housing of the reactor, together with the primary protection, is cut out and placed in a special repository. That is all. Thus it is possible to consider the problem of the utilization of these wastes technically resolved.

"I would like to go-back to the conflict related to the arrival of the "Sevmorput'" in the Far East. Was there any basis for this turn of events?"

"There was none. The entire matter, I repeat, was entirely due to the people's lack of information. The purity of the environment during the normal operation of the lighter tug; as well as all nuclear-powered ice-breakers, is absolutely guaranteed. We are operating below all medical and safety parameters. On our nuclear-powered ships the maximum permissible concentrations are never even reached with respect to the environment.

The one thing that we are afraid of is accidents. But here you must understand that there is a significant difference from nuclear power stations. Firstly, the power of a reactor on a ship is about 30 times less than that of the Chernobyl' reactor. The second advantage is that it is located on a means of transport. There are rules regarding

the entry of nuclear-powered ships into ports, including foreign ports. When a nuclear ice-breaker enters a port, a plan of emergency measures must be drawn up, it must be assigned a remote anchoring site and emergency measures must be specified. If the captain reports that he has some emergency situation with the power-plant on board, then within the limits of about two hours tugboats remove this ship to the remote anchoring site. This site, as a rule, is located several kilometers from the city and the source of the danger is moved clear of the port personnel and of the city.

"And what if there are emergencies on foreign civilian ships?"

"There have only been a total of three such ships built - the "Otto Hann" (FGR), the "Mutsu" (Japan) and the "Savannah" (USA). The biological protection on the "Mutsu" was poorly designed. (In this regard our chief designers are excellent young people and they are very well-informed and well trained in the handling of such situations). And right in the beginning of the testing process an emergency occurred. And it was necessary to lay it up.

"And why was the "Otto Hann" remodeled?"

"They considered, that it was no longer profitable for them. They removed the nuclear-power plant and installed an ordinary engine operating on fossil fuel."

"By the way, what about the profitability of this....

"I have already said, that the nuclear-powered fleet is good, where it is difficult to bunker fuel. Three-four years without bunkering - this is good. Or let us remember the year 1984, when there was an early winter in the Arctic and a caravan of ships got stuck. Only the "Sibir'" and the "Arctic" could get it out, or else it would have perished. This alone justified the construction of powerful ice-breakers.

"The accident at Chernobyl' occurred as a result of an error of the maintenance personnel. The same thing could probably happen in the fleet, somebody could overlook something, could become confused, and...

"Could this lead to a Chernobyl'? It is necessary to state that very much depends on the personnel. The Americans, before the accident at Three Mile Island in 1979, had also given little attention to the human factors. Only afterward did they look at the role of the operator, because it was the operators who had brought the reactor to the emergency situation. In essence, Chernobyl' and Three Mile Island were accidents of the same order, only the consequences were different. There everything was limited by the extent of the protective shell, and in our case, due to the absence of a protective shell on the PBMK reactors, radiation was scattered over a rather large territory.

Thus, the Americans began to study man-machine interaction. They began to examine the arrangements of the panels, so that the information that was given to man was not in generalized form, but in detail, and only that information, which is necessary at a specific time. The modern panels require a very high level of qualifications, so that

against the background of all these light bulbs and connected main lines it is possible to understand the situation, even though there are also warning lights which either glow or blink. But when man constantly looks at this ... This is the simplest example. On a ship there are tanks of feed water, through which flows water of the second stage. A level indicator light, is used, but when the ice-breaker is being tossed about and the water in the tanks is being swished around, the signal light, which indicates that the water level has fallen, is frequently activated. Naturally, man gets accustomed to this. This is an example of how from constant and continuous information man becomes fatigued and ceases to perceive it.

We too are now busy studying the operator problem.

You ask, can an operator bring about a Chernobyl' situation? It is not within his power. He can stop the power-plant, switch on the reactor when power is required. But he cannot speed up the reactor - which is what happened at Chernobyl'. Such a possibility is excluded. Theoretically he can switch up the power control elements as high as he wants, but the negative feedbacks will not turn up the reactor to full speed. Speaking more simply, the power is not under the control of the operator with respect to the physics of the reactor. This is the fundamental difference between the marine power-plants and the RBMK.

Now we have begun to study how an operator can deliberately disable a power-plant, because precisely deliberate actions are needed here.

According to our preliminary evaluations, the operator cannot cause any kind of catastrophic consequences.

"What can you say about the effectiveness of the supervision over the operation of nuclear powered ships?"

Right now the supervision of operations is actually carried out by two organs - the Register of the USSR and the Gosatomenergondzor. The Register looks after the technical side, the Gosatomenergondzor takes care of the personnel, the organization of nuclear safety and of the technology, which directly pertain to questions of safety. It is also responsible for its own inspection of the factories of the Minsudprom of the USSR, which also keeps track of nuclear safety. Nevertheless, it seems to me, that there should be a single supervisory organ, which would be a state organization, and the decisions of which would be final.

At the beginning of 1987 I participated in the work of an impressive committee of the CC CPSS, which analyzed the state of safety in the nuclear fleet. We became acquainted with the organization of the work at the maintenance base in Murmansk and we examined the documentation. The members of the committee had travelled on practically all of the ice-breakers, which were participating in navigation at this time. There were some remarks, certainly, but on the whole the conclusion drawn was that the fleet was operating well. And it was especially emphasized that personnel serving in the nuclear-powered fleet were highly qualified. The main concern expressed was that the continuity of personnel with such qualifications should be ensured.

"Where are personnel for the nuclear-powered ships trained?"

"In our technical institutes - the MIFI 9th Moscow Engineering Physics Institute, the MEI (the Moscow Power Engineering Institute), and the MVTU im. Bauman (the Moscow higher Technical School im. N.E. Bauman), and also in the OVIMU (the odessa Higher Engineering Nautical School), the NVIMU, the LVIMU (the Leningrad Higher Engineering Nautical School im. Admiral S.M. Makarov). Then they take a course at the Leningrad Higher Engineering Nautical School im. Admiral S.O. Makarov. After which graduates serve a probationary period on a nuclear-powered ship. And only after this are they ready for independent work.

"Are nuclear power-plants for the fleet?"

"Today's power-plant has performed well in operation and all the engineering decisions have been competently made. But, undoubtedly, the scientists are thinking about the creation of more powerful and safer power-plants. Such work is in the process of being carried out. After the Chernobyl' tragedy questions of safety became the corner-stone even at the expense of the economy.

"Aleksandr Mikhaylovich, couldn't you in conclusion comment on a question, which does not pertain to the fleet, but which is disturbing, I think, to everybody. I have in mind the report concerning the fact, that Sweden has made the decision to curtail the production of atomic energy.

"Actually, a referendum has been conducted in Sweden in connection with the fate of nuclear energy. The people have stated that they want to stop using nuclear power by the year 2020. However,

the concept of a safe reactor is continuing to be developed in the country. What then? An alternative variant is needed. The Swedish scientists have made an inspection of the resources of the country: hydro-, wind-, and solar energy, and also they have examined the possibility of importing it. They have arrived at the conclusion, that all these sources can cover only about five percent of the energy needed. It is only possible to replace the remainder with coal. (We also, perhaps, have gas. But nevertheless, fossil fuel, in my viewpoint, should be used in chemical production, and it is wasteful to burn gas in the furnaces of electric power stations).

Sweden also does not like electric power stations based on coal, because they give off soot and ash, and they do not want to ruin their environment with pollutants. I also understand, that the problem has not been finally solved. The scientists report their conclusions to the people, and public opinion will decide whether there will be nuclear energy or coal energy. It is necessary to state that solutions have been found to problems created by prolonged burying of radioactive wastes, by this I mean the burying of depleted fuel. In my view, not everything is clear as to what will happen in Sweden in this regard.

Vodnyy Transport

25 February

Page 2

MINERAL RESOURCES/MINING

"No One Knows How Much Phosphorus We Are Losing"

"It's hard to believe it, but it's a fact that the rich Khibiny field, which began to be intensively exploited in the mid-1960's, will be more or less exhausted by the year 2000."

"Tens of millions of tonnes of crushed ore containing valuable components are still being thrown away each year. I am convinced that we have come to a certain limit in our development, beyond which we cannot go. Any delay would be fatal."

"We must anticipate that the demand for our concentrate will fall in the near future. The proposed increase in ore prices and the transition of agriculture to genuine cost-accounting methods will inevitably cause demand to fall. This may be a tremendous blow to our single-product industry. And now we simply must make a break-through toward a more complete utilization of our raw material."

"Our production of mineral fertilizers, expressed in terms of feed units, is 82 percent higher than that of the United States. Here is yet another area where we have almost doubled the American figures..."

Izvestiya

1 February 1989

Page 3 (full text)

OIL AND GAS

The Oilmen Have Been Let Down By Their Partners

The workers employed by Glavtyumenneftegaz have established a rather depressing record - since the beginning of the year there has been a shortfall of five hundred thousand tonnes of oil in their production.

It had appeared that the consequences of the breakdown in the output of the Western Siberian fields during the period 1983 and 1985 would soon be totally compensated for and that the production arrears for the last Five-Year output period would be made up. But now, once again, there has been a failure. What exactly happened?

"The broadening of the rights of enterprises and the introduction of cost-accounting," your reporter was told by Yu. Vershinin, chief engineer of the Central Directorate. "These two factors made it possible last year to reduce non-productive expenses sharply and, with fewer workers, to produce more than our planned quotas called for. However, we were let down by our partners, who stopped supplying us with equipment, chemical reagents, fuel and lubricating materials. Since the beginning of the year, a thousand drill holes have been left unrepaired because we haven't received what we need to do the job. Because of the breakdown in deliveries of diesel fuel, 1960 oil-producing machines have been standing idle, and this in spite of the fact that we had sufficient financial resources. It's as if they are laughing at us when in the winter they ship summer brands of diesel fuel to the northern regions of Tyumen'."

However, the oilmen's main grievance is against the machine-building sector: there has been no section for which all the necessary deliveries have been carried out. Citing the cost-accounting process, many enterprises prefer to pay the trivial fines or refuse to conclude agreements altogether. Tyumen' often gets so-called "new items" which you would even be willing to pay more for just to have them sent back to the manufacturer. For example, the Sumy-based Frunze plant was supposed to supply five gas-lift compressor stations. However, the first of them, which was expected to come on line at Samotlor at the end of 1987, is still not working.

Today the majority of the offices of the Central Directorate are empty: once again you have to send out "arrangers" to the larger towns in order to get the equipment you need. Even work brigade leaders and master technicians at the fields know as well as the railway dispatchers exactly where on the line the tank cars loaded with fuel are, when they are awaiting the arrival of railway cars carrying "Christmas trees", chemical reagents and piping. Since the oilmen's output is all committed to meeting their state-order quotas, they cannot get along without their negligent partners. It is as if the machine-builders and other sub-contracting organizations do not understand that they are, in effect, sawing off the branch they are sitting on. When deliveries of oil break down, that means that there will be shortages of fuel and raw materials. Once again there will be an enormous drain on the resources and manpower of the entire country.

Sotsialisticheskaya

Industriya

22 February 1989

Page 1 (full text)

SOCIOLOGICAL ISSUES

Softening The Blows Of The Elements

At the beginning of January the settlement of Chokurdakh on the Indigirka river was faced with a misfortune. Gusts of wind knocked out the electric power transmission lines, the diesel electric power station stopped functioning, the pumps died and homes and other buildings stopped receiving heat. By evening about half the buildings in the settlement were frozen out, including the school, the kindergartens and shops. About fifteen hundred people were billeted in the remaining buildings. The pupils from the boarding school were billeted with families.

I happened to have taken part in the team which dealt with the accident at the Chernobyl' nuclear power plant and, evidently for this reason, it was suggested that I fly to Chokurdakh to deal with the situation which had developed there and to find out what could be done to help. I have to say that the whole of the Autonomous Republic was responding to the plight of the people of Chokurdakh. At Yakutsk they organized a central office to help the victims and airplanes began to fly in everything that was necessary for coping with the consequences of the accident. Brigades of volunteers - sanitary engineers and electricians - began arriving from the neighbouring regions.

What did I find when I flew into Chokurdah? Muddling around and confused local leaders who, in the face of danger, showed clearly that they were not competent to lead people.

First of all I had to find out what had actually happened. No matter how hard I tried I wasn't able to get a straight answer to this question. The first secretary of the regional Party committee, P. Kovalev, said one thing, the chairman of the regional executive committee said another. The chairman of the settlement council I. Struchkov (who, incidentally, was the most active person in the hours immediately following the accident and who took it upon himself to lead the work) told me something else again. No one even knew exactly what the force of the wind or the air temperature had been on that awful day. For some reason or other this information turned out to have been classified as a secret. After many tribulations I succeeded in getting the information from the local weather station. However, I got no further in my investigations.

The chairman of the regional executive committee himself remained ensconced in the cold building of his department, stubbornly refusing to move to the warm building of the regional Party committee. Evidently the enmity between Popov and Kovalev, which was openly talked about in the settlement, had something to do with this stubbornness. The main burden for coordinating the operations of the repair brigades had been taken on by the general director of the "Yakutzhilkomkhoz" Association, A. Popov, who had flown in from Yakutsk. But he too was often bound by the "collective" method of management, which the local authorities used to avoid any personal responsibility for the decisions which had to be made.

The staff met every day, but between meetings not even the most insignificant decision was taken. Materials and equipment which had been delivered to the airport sat there for three full

days, while the work brigades stood around with nothing to do. Finally, the sanitary engineers from Cherskii, who during the first, most difficult days, bore the brunt of the work, couldn't stand such disorganization and left for home.

The experts will evidently be able to work out what technical shortcomings led to such depressing results. However, something else disturbs me and that is the system which is used to manage the local economy, where the upper echelons manage in many stages, spreading responsibility among many of officials which results in the collective disowning of all responsibility.

I am a militant person and perhaps am too straightforward in my thinking, but in my opinion, without a single centre of economic management, one can no longer go on living under the difficult conditions which prevail in the Arctic regions. At the moment, however, responsibility for the region is divided between the Soviet government and the regional Party committee and if the chairman and secretary don't get on together, then the result is chaos. Today the situation has been made worse by the anarchy which has developed, since the regional committees no longer get involved in economic questions, while at the same time, the Soviet authorities do not yet have the authority among the economic planners. All of this became very evident during the time when they were trying to deal with the consequences of the accident.

Perhaps my letter is a little confusing, but everything I saw at Chokurdakh is disturbing my sleep. A concern for the people who ended up in the

polar night facing both the elements and the bureaucracy remains with me.

Izvestiya

10 February 1989

Page 1 (slightly abridged)

Divorce - Noril'sk Style

We know that every year in this country out of three million marriages, one million end in divorce. However, in the Noril'sk industrial region, for example, there are sixty five divorces for every hundred marriages. Something about divorce also came up at the first judicial session in the New Palace of Justice, the symbolic keys of which were recently handed to the Noril'sk legal authorities.

Sociologists who study this phenomenon have noted the negative effect of the particular way in which people usually come to Noril'sk. Most often the first to arrive to work is the husband, who may only send for his family after he has received an apartment. Not everyone can withstand the strain of separation, which may last for a year or two. At Noril'sk, over seventy percent of the divorce proceedings are initiated by women. Incidentally, at Noril'sk, alcoholism is relatively common among women, according to the newspaper Krasnoyarskii Rabochii.

Trud

23 February 1989

(full text)

TRANSPORT AIR

They Keep Seven Percent For Themselves

Over the last little while, work inspectors in the Tyumen' Oblast have started running into a new phenomenon. They find goods which have been hidden in a shop and when the inspectors ask the shop employees about this, they reply that the goods are theirs... by law.

The fact of the matter is that the head of the Central Trade Administration of Tyumen' Oblast Executive Committee, V. Shuglya, and the chairman of the Oblast Committee of the State Trade Workers' Union and of the Consumers' Cooperative, N. Varfolomeev, issued a joint order which authorized the heads of factory shops, workers' supply boards, shops and associations to sell seven percent of the incoming goods to their workers.

The Deputy Head of the Central Trade Administration of the Oblast executive committee, V. Khanykin, said in a telephone conversation that the order authorizing shop workers to buy seven percent of the incoming goods was necessary in order to tighten up controls over their personal purchases. He claimed that sometimes the employees of a shop get too much, when they acquire goods and produce for themselves. Scandals sometimes occur. Many people in Tyumen' will remember well the case where the customers caught the director of a municipal manufactured goods outlet, E. Suvorova, red-handed with a sack of imported shoes. At the time this was reported in the Oblast Newspaper. And now they have established a quota in order to distribute no more than seven percent of goods which are in short supply

among shop employees. At the same time, Khanykin stressed that the directors of shops not only have the right to sell scarce goods to their sales staff, but also to the employees of trade administration agencies.

You can imagine how the most influential of them start "bargaining" little by little and then they expand their activities to other stores. In a word, the shop employees have fenced themselves off from the work inspectors very firmly and have done themselves no harm in the process.

Trud

3 February 1989

Page 2 (full text)

To The Ice Islands

It is the busy season for the pilots of the joint Kolyma-Indigirka air brigade. Members of the brigade often carry out flights to the islands and drifting ice floes of the Arctic Ocean. The final destination of one of the longest air routes in the Arctic is the polar station Severnyi Polyus 30. These routes, which are already difficult enough, have suddenly become even more so.

The distance between the centre of the Nizhnekolyma region, the village of Chersk, and Severnyi Polyus 30 is approximately 1100 kilometres. The station was established a year ago on an ice floe which is ten kilometres long and five kilometres wide. The first landing this winter during the polar night was carried out by a crew, led by Yu. Klepikov,

which was very familiar with IL-14 aircraft. Soon, however, the huge ice floe made up of solid masses of pack ice, made a sharp change in its course. Instead of drifting quietly northward, as is usually the case, the ice floe quickly moved south, at a speed of up to ten kilometres an hour.

Probably the ice floe was caught up in a powerful current which suddenly arose in the ocean. Under the influence of this current the huge drifting field suddenly broke away. The airstrip which had appeared so trustworthy was destroyed. It's true that the fissures quickly sealed up, but, still, it is no longer possible to land an IL-14 there. Now cargo being flown in has to be dropped onto the tricky ice floe. Helicopters, however, can land there, but in the Arctic regulations require that they fly in pairs.

Helicopters carry everything that's needed from the island of Zhokhovo, making their way four hundred and fifty kilometres north-eastwards. Zhokhovo ranks second after Chersk when it comes to services offered to the Severnyi Polyus stations. A current saying in the Arctic is: "The North Pole begins at Zhokhovo Island". Zhokhovo is part of the De Long archipelago and was discovered by courageous Russian hydrographers, sailing on board the "Vaigach" and "Taimyr". The island was named after a member of that long-ago expedition...

By spring, the crew manning Severnyi Polyus 30 will have received quite a lot of food, various materials and fuel for the diesel power generator and for the AN-2 aircraft which will be based there.

...The air brigade operates in six regions of the most northerly autonomous re-public. The six regions are scattered through the basins of the

Kolyma, Indigirka, Yana, Lena and other rivers. Along with its other duties - serving the far-northern "Sever" expeditions, the polar stations and the regular job of transporting cargoes and passengers, the air brigade also carries out ice reconnaissance and guides sea-going ships in the ocean.

The experienced fliers accurately determine the thickness and strength of the ice, not only with the use of instruments, but also by its colour, fissures and by the amount of hummocking. Depending on these conditions, routes are established for ships. To the east, the brigade's fliers take ships "under their wing" off Chukotka and lead them to the Indigirka; in the west, they meet their ships off Severnaya Zemlya and Cape Kosisty and say goodbye to them off the Bering Strait. The fliers will note that a powerful north wind is driving the ice floes to the coast and they try to inform the ships' crews of the danger in time, so that the elements won't catch them unawares.

Operational information on the ice conditions helps save valuable resources. Once the sailors, following the advice of the hydrometeorologists, brought their convoy to the Yana and, via an open sea route, to the Indigirka earlier than usual and without being led by an icebreaker. As a result they were able to save half a million roubles.

"For the longest time they have been talking about the need for year-round shipping on the Northern Sea Route. In our sector of the Arctic, however, the shipping season, as always, lasts only

about two months," complains the first secretary of the Nizhnekolyma regional Party committee, V. Filatov. "It's time to move from words to deeds."

Pravda

22 February 1989

Page 1 (slightly abridged)

They've Learnt It All, Except For The Thing

Everybody knows that air transport was created for the convenience of passengers. However, when the time comes to think about holidays, fear strikes at your heart.

I live in the Far North, in the settlement of Cape Schmidt, a place, as they say that you can only get to by air.

The local airport organizes applications for plane tickets in advance and practically everyone does take advantage of this. Here we can even buy return tickets. They foresee everything, except for one thing.

When they sell us return tickets for flying back from the "mainland" to Cape Schmidt, they fill in the number of the flight and the date of departure, but only as far as Pevek. You fly in to Pevek from your holiday and there the trouble starts. People have tickets with open dates. A hundred and fifty or two hundred people gather, but if there is any kind of hitch with the Moscow flights or if the weather is bad, then you get even more people. Lists are drawn up, a kind of spontaneous

line-up. Everyone touts his rights. Then all hell breaks out. On top of everything we are criticized for not demanding that Cape Schmidt fill in advance on the return tickets the place, flight numbers and date to the final destination. How can we demand this when at the Cape Schmidt airport they reply that Pevek won't guarantee them the connecting flights? So we end up in a vicious circle.

Couldn't the two airports settle the problem of dispatching passengers?

Vozdushnyi Transport
14 February 1989
Page 2 (full text)

Mass Production Of The An-74 Aircraft Now Underway

At the Khar'kov-based "Lenin Komsomol" aircraft plant they have begun to mass-produce the light weight AN-74 cargo plane, which is specially designed to operate in the Arctic and Antarctic.

They have been waiting for a machine like this for a long time. It combines jet speeds with the reliability of the AN-2, the cargo-carrying capacity of the turbo prop AN-26 with the flight range of the piston-engine veteran IL-14. The men stationed in the polar regions over the winter, icebreaker captains and researchers employed in Antarctica, have all spoken of the need for a plane designed to operate in the northern and southern polar areas.

Created by the O. Antonov experimental design office, the experimental prototype of the AN-74 was at first operated several times in the Arctic to deliver cargoes to the drifting ice stations and as a backup for the Soviet-Canadian ski trek across the North Pole. From the end of last autumn, the new AN appeared in the Antarctic where it spent about three months. Readers of Izvestiya were able to read about these flights over Antarctica (Nos. 300 and 366, 1988). The leader of the group of aviation specialists of the experimental design office, A. Romanyuk now tells us about the performance of the new plane during those three months on the job:

"The AN-74 can be successfully operated under the harsh natural conditions which prevail in the Antarctic. This has been confirmed by the many flights we made in Antarctica, including those to the earth's cold pole. Four flights with landings on a frozen snow crust airstrip were carried out to "Vostok" station, which is near the cold pole."

"It is important that the AN be capable of delivering five or six times more cargo per flight, from the coast to deep within the continent, than an IL-14 mounted on skis. Incidentally, an AN-74 equipped with skis will be the next design assignment our team will undertake. This will make it possible to considerably extend the range of the new plane."

A. Myalitsa, the director the Khar'kov aircraft plant, had this to say:

"We mastered the procedures for the mass production of the new aircraft in an extremely short time. Of great help to us was the cooperation of the plane's designers. We got the technical

documentation from them and immediately set up the production line, while at the same time carrying out tests on the units and parts - there are about one hundred thousand of them on the plane!"

"We were able to reduce unproductive lost time to a minimum. We were running a certain engineering risk, but if we had worked in the old way it would have taken us at least five years to get production under way.

"The AN-74 has improved navigational equipment. Apart from the work stations of the navigator and the hydrologist, there are several others seats for official passengers and even two sleeping couches. On the other side of the bulkhead is the cargo section. The plane has been designed in such a way that the basic design can be adapted to create a whole family of aircraft, such as are very necessary for the country's economy."

Here is S. Chaichenko, one of the plant's test-pilots:

"I've had occasion to pilot twenty five different types of planes, all the way from jet fighters to TU cargo aircraft. I have, as they say, something with which to make comparisons. The new AN has a wide range of speeds, from two hundred to six hundred kilometres an hour. It also has excellent landing and take-off characteristics, which make it possible to use smaller airports. The machine handles well in the air and can easily make forty-five degree turns, which is valuable when one is flying ice-reconnaissance and when it is necessary to parachute cargo down to men stationed somewhere for the winter."

"The cockpit is comfortable, with good heating equipment and the small cabin is fitted out with a food counter for prepackaged food. These features will be particularly valuable when the plane is flying for long hours over the Arctic or the Antarctic.

The first mass-produced AN-12's will start operating in Yakutia.

Izvestiya
16 February 1989
(full text)

TRANSPORT WATER

Fire On An Icebreaker

Last Saturday the icebreaker "Vasilii Pronchishchev" left the docks of the Archangel port district in order to lead her next convoy through the ice. At 10:05 hours an emergency situation arose - a cylinder of the main diesel generator broke and the lubricating oil burst into flames. A fire broke out in the engine room.

A Ship-wide alarm was given. At that moment the leader of the engine room watch was V. Lyapin, the electrician was R. Mustafin and the engineer was A. Shpilevoi. When the rescue team broke through to them, it was too late. The three men had suffocated in the smoke. The team was able to put out the source of the fire.

The icebreaker is now being repaired at the "Krasnaya Kuznica" plant

"The actual cause of the accident still has to be uncovered," said the Deputy Minister of the Marine Fleet of the USSR, B. Yunitsyn. "We are waiting for a team of marine fleet experts from Leningrad and also for representatives of the Khar'kov plant which manufactured the engine. However, even now we can say that there are no complaints as to the way the rescue operation was organized or with regard to the conduct of the team during the fire."

Timber Rafting: Senior Management Resists Change

In earlier times timber raftmen kept their rafts, which moved with the current, in the middle of the river by working nimbly with enormous oars or by throwing down metal weights attached to long ropes. In this way they prevented their raft from being driven to the riverbank by waves or by the wind.

The years went by and steam-boat tugs appeared. However, they didn't have the power to guide a long raft on their own. Therefore, following in their tradition, the same raftsmen would guide the raft from behind. It's true that they no longer use the old-time methods, but instead use motorships which the rivermen lease to the raftsmen.

But is it necessary? For we raftsmen have to pay for the whole tugging operation - the main tug, the auxiliary and the day-hire ones. On our waterway alone every year we pay out four hundred thousand roubles for this. And, nevertheless, we are confronted by more and more new demands and the rivermen are forcing us to increase the number of ships involved in an operation.

By way of substantiation I give this information: in May of last year, on the upper Vycheгда river, twenty six raft tugs and seventy three ships were used to accompany our rafts and to carry out daily service work. We have begun to increase the size of the rafts, but nevertheless our overall transport costs remain excessively high.

Probably no other form of transport operates in such a strange way. It is impossible to imagine a train, which is pulled by a Ministry of Railways

locomotive, while "in the rear" it is pushed by a locomotive belonging to the owner of the freight.

We have tried to consider the situation in the light of the experience of other countries and of the Soviet railway industry, which run heavy freight trains with the aid of an unmanned locomotive in the rear of the train. It pushes a string of cars and is controlled by radio from the main locomotive.

Our design office created a similar ship-module, basically a radio-controlled pontoon, which would be attached to the back of a raft. The design is perhaps not perfect, but it is undoubtedly promising.

The rivermen also took part in test runs with this radio-controlled ship module and became convinced that in principle it is possible for one person, the raft tug operator, to control a raft. Ho, we sighed, finally everything will fall into place and there will be one person in charge of tug operations - the rivermen. They will find it necessary to look for efficient ways of carrying out their transport duties, ways of experimenting. And, when all is said and done, they will also succeed in speeding up the delivery of timber to the consumers, while reducing their losses.

However, rejoicing was premature. At first the rivermen who took part in the experiment praised us, but then they repudiated us. The Northern River Steamship Line rejected our proposals at a meeting of the technical council.

Why? By tradition they will not have to meet any extra expense arising from the operation of escorting vessels. We, the raftsmen, will have to

pay. For some of the managers at the Ministry of the River Fleet of the Russian SFSR, these proposals for more efficient towing procedures are also nothing more than a burden: ship modules will be needed, they will have to be serviced and men will have to be trained.

We have stated that we agree to solve these problems in joint consultation. We also agree that all expenses, for which we are not responsible in relation to the maintenance of escort vessels, will be included in the rates charged by the Ministry of the River Fleet of the Russian SFSR. However, time is passing and the rivermen are stubbornly silent.

Sotsialisticheskaya

Industriya

15 February 1989

(full text)

Hot Days In The Cold Latitudes

In January of this year our newspaper reported evacuation of scientific station "SP-28" with the aid of the nuclear ice-breaker "Rossiya". Our correspondent met with vice-president D. Zolotov of the State Commission at the Sovmin (Council of Ministers) of the USSR on Matters of the Arctic, who had participated in the complicated navigation, and asked him to respond to a number of questions.

"Dmitriy Kirillovich, why was it necessary for you to participate in the trip to the station and what useful information for yourself and, naturally for the commission as a whole, did you acquire while aboard the nuclear ice-breaker?"

In order to clarify this question right away it is necessary to explain that the commission at the Sovmin of the USSR on Matters of the Arctic was created for the supervision of the activity of the Ministry and the departments, especially in the sphere of coordination on Arctic problems. And in this case there was a good instance of cooperation between the MMF (Ministry of the Maritime Fleet, USSR) and the Goskomgidromet (State Commission on Hydrometeorology). On board the ship there was a scientific expedition of Goskomgidromet, which was preparing to evacuate "SP-28", and along the route it was carrying out investigations. It was also possible here to examine the teamwork. What went well, and what did not, where help was needed, and what kind of recommendations there were. I became acquainted with these questions firsthand, which means, I had hands-on contact with many of the problems. The commission will make decisions from this.

I would especially like to note, that the difficulties which arose were overcome jointly by the Captain of the "Rossiya", A. Lamekhov, and the deputy director of AANII (the Arctic and the Antarctic Scientific Research Institute) N. Kornilov. Everyday meetings were conducted on the meteorological situation and the conditions of the approach to the drifting ice-floe, variants were discussed, how to remove the equipment and people more quickly, for delay meant serious danger. In a word, the days were extremely busy, but there was no regret in participating in the difficult voyage.

Yes, the trip was completed and the polar explorers, we know, were taken to Murmansk. Is it possible to tell in a little more detail how the trip

went and how the nuclear ice-breaker performed? Perhaps you noticed something that, let us say, disappointed you.

"If captain A. Lamekhov were to be evaluated, then I would, without hesitation, award him a "five" (excellent) for this voyage. It was conducted in a very competent fashion. I must confess, that in the beginning there was some apprehension about whether it would be possible to pass through such thick ice. Although for the first thirty miles it was "young" ("thin") ice, but during the remaining 60 miles it became increasingly thicker. And when we approached the "SP-28" its thickness attained five meters, and the ice floe itself, on which the station itself was located, was seven meters thick.

As you will remember, the "Rossiya" had tried to break a channel through to it from the South. But it was not possible - to overcome the hummocky ice and to break through to the station itself! You must understand, this is seven meters of ice. And the captain made a very intelligent decision - to seek a "path" from the north side, so as not to ruin the ice-breaker. There is no denying, that it was completely possible to damage the hull and the propeller. And at this point aviation came to the assistance, ice reconnaissance was being constantly carried out... I myself in an Mi-8 flew for more than three hours, studying the situation from the air. From the north side we found a stretches of ice-free water and they facilitated our progress. When we had evacuated the station - we exited by an old, although somewhat frozen channel. I emphasize, again this was due to the intelligent actions of A. Lamekhov. I witnessed how the pneumatic blasting of the area around the ship's hull

helps. The snow hardly adheres and this reduces friction. I was also convinced, that the work of the navigation and of the mechanical services was carried out at a highly professional level. Their work was done in an extremely competent manner.

It is true, difficulties arose during the evacuation of the station. Imagine it being thirty-six degrees below zero and the wind blowing at 25 meters per second. There was a blizzard. In general, the conditions were Arctic! But it was necessary to hurry and to quickly transfer 200 tons of freight to the ice-breaker: equipment, fuel and the small living quarters.

Time was short and about 50 men from the crew participated in all of the operations. Nor did the scientific workers sit idly by. An antenna was quickly set up for communication with the "outside world." We had an efficient weather forecast and the necessary maps. In short, the work went ahead at full speed, it was not possible to delay - the ice-floe cracked and moved towards the drifting section.

One current was moving towards Greenland and the second towards Spitsbergen. Thus, if the ice-floe with "SP-28" moved towards Greenland - it would get into the pack ice. This would not be dangerous, but if it should move towards Spitsbergen, then it would get into the open water. This would mean its own destruction. We calculated that - after five days of drifting the ice-floe would be in the open water. This is why we had to evacuate.

So there we no disappointments! But it is known that sailors on nuclear ice-breakers, on the one hand entoll the virtues these ships, while on the

other hand they complain to the shipbuilders about some facets on their operation. Have you had conversations on this theme?

Certain. It is not possible to close one's eyes to the deficiencies. Well, for one thing, in creating such a powerful unit for the ice-breaker fleet, it would be possible to make it with much higher quality. What do you have in mind? You know that there are many different brands of pumps on the nuclear ice-breakers and from many different factories. This creates difficulty in their repair and maintenance. Their layout should be more convenient. In particular, the TSPU (the Central Control Panel) station itself needs more comfortable conditions.

The crew has been operating the nuclear ice-breaker for more than three years, and all this time the crew has been improving and reconstructing various things. But, actually, this is not the business of the sailors; their responsibility is the operation of the mechanisms and the equipment. They complain about the quality of the pipes in which flaws and rust have cropped up. The pipe laying itself was not thought out to the end. When it is necessary, let us say, to replace pipes, this is a rather complex undertaking. Generally speaking, the ship is very complex and it could have been constructed better. These deficiencies, first and foremost, are a disappointment to the sailors.

"Tell me; here we are talking about a nuclear ice-breaker; does not the reactor itself have a harmful effect on the environment?"

This has been eliminated. Reliable protection has been a factor beginning with the nuclear ice breaker "Lenin". The operation of

subsequent ice-breakers has demonstrated that the reactors are absolutely safe for the ecology and generally for the environment. This has been confirmed by experience and by many years of practical application. The ship is full of automatic equipment, which monitors all parameters and registers the most minute variations. Thus, protection is very "dependable."

There is no danger for the people working there. I was convinced of this when I visited the central point of the reactor. In order to enter or leave the area, it was necessary to comply with extensive safety procedures: it was mandatory to take a shower, to pass through radiation detectors and to wear two radiation monitors.

"Dmitriy Kirillovich, the reason I inquired about the reactor is because recently the nuclear ice-breaker "Sevmorput'" went into operation. In certain ports people were anxious and alarmed, they wonder whether the vessel presents a danger?"

"I am confident that there is no danger, not even the slightest. The hull of the "Sevmorput'" is of the classic ice-breaker type and incorporates design standards 200 times stronger than the minimum requirements. The double sides, the triple bottom and the protective shell protect the reactor in the case of the most severe emergency. As is known, the effectiveness of its biological protection has also been checked. Running tests under diverse loads have shown that: the level of emissions outside of the room does not exceed the readings of the normal earth background. Thus, the requirements imposed on the "Sevmorput'" are in conformity with the International Code of Safety for nuclear merchant vessels.

It is not possible to forget, however, that we are working with nuclear energy, and this demands that the all precautions called for by the technical specifications for observed.

I am confident, that the "Rossiya", the "Sevmorput'" and the other nuclear-powered vessels will serve the national economy well in the mastery of the Arctic.

Vodnyi Transport
18 February 1989
Page 2 (Slightly abridged)

MISCELLANEOUS

Chukotka And Alaska Are Neighbours

On the 21st of February, representatives of a Soviet delegation flew from Magadan via Anadyr' to Anchorage in Alaska. They will be taking part in a ten-day festival of Soviet - American Friendship, which is taking place simultaneously on both sides of the Bering Sea.

Part of the Programme of the festival is the traditional winter holiday of the peoples of Alaska. This year it is dedicated, as is being particularly noted here, to the "restoration of good-neighbour relations between the USSR and the USA". At Anchorage, the capital of the state, there will be two days of concerts with stars of the American and Soviet stage and appearances by amateur performance groups from both Alaska and Chukotka.

At the same time there will be working discussions between representatives of the Magadan Oblast and of the most northerly American state. The talks will deal with the question of establishing contacts in the fields of Arctic research, agriculture, transport, communications and tourism.

The festival will end with a visit by an American delegation to Anadyr'. The delegation will include representatives of the community, business, employees of the state's gold-mining enterprises and journalists. The delegation will be led by the governor of Alaska, Steve Cowper.

At Anadyr' the starting day for the Soviet-American "Bering Bridge" Expedition will be marked. The members of the expedition - six men from

each country - will make their way on skis and by dogsled to Cape Dezhnev and will then cut across the Bering Strait over the ice. They will end their trek in Alaska. The expedition is headed by D. Shparo.

Vozdushnyi Transport

23 February 1989

Page 1 (full text)

Unwilling "Polar Bears"

In the backwater of the Ob'-Irtysk Steamship Line's Khanty-Mansiisk port a bulldozer sank to a depth of four metres. Through a miracle, the operator, A. Medvedev, and captain of the suction dredge, A. Baranovskii, escaped with their lives.

Nothing on that wintery January day presaged a disaster. The bulldozer operator, A. Medvedev, under the direction of convoy captain, P. Trifonov, was clearing ice roads in the backwater. At noon, when all the work was finished, the convoy captain dispatched the bulldozer to the depôt. However, Medvedev never made it here because on his way he encountered A. Baranovskii, the captain of the suction dredge, who persuaded him to turn off to the suction dredge in order to take some heavy wheels off to the workshop. The tractor then turned off the ice road and headed for the suction dredge through deep snow. However, the ice gave out and the tractor, along with Medvedev and Baranovskii, plunged under the ice.

According to eyewitnesses, about thirty seconds later the frightened tractor operator appeared and two minutes after that the arm of the

suction dredge captain was spotted in a crack in the ice. Some rivermen ran up and helped him to get out onto the ice. What saved the two men who had broken the safety rules was the fact that the tractor didn't turn over but went upright to the bottom of the river.

This crass disregard for the safety rules and the unsatisfactory way in which the work is organized at the Khanty-Mansiisk port almost led to the loss of two workers. But, you know, a few years ago at the same port, there was similar emergency situation which ended more tragically. It would seem that no one learned from that bitter lesson. Pity!

Vodnyi Transport
23 February 1989
Page 4 (full text)

The "Cold Pole" - Is Where a Soviet-Italian Expedition is Heading

This event has aroused the interest of many people who live at Yakutsk, for it was from here that the Soviet-Italian expedition started out for the "cold pole" Oimyakon.

It was at Oimyakon that the coldest temperature ever recorded on earth occurred-minus 67.8 degrees Celsius - that being a place where men live and work. The expedition consists of four Italians and the same number of Soviets and it is being led by Jacek Palkiewicz, an Italian of Polish origin. The expedition will first make its way to the settlement of Topolinyi, where the material it

will need is being shipped. From Topolinyi these daring men will proceed to their destination using reindeer and horses.

"I have long dreamt of making such an expedition," said Palkiewicz, who, incidentally, speaks Russian well. "The purpose of our undertaking is more of a scientific nature, that is, to carry out medical research during the trek. This will include an investigation of the problems involved in the adaptation of man to harsh conditions and of man's functional capabilities under extreme natural conditions. In Moscow I had to "push" the expedition for a long time and without success, until the Soviet press agency "Novosti" became interested in my idea. The group will receive support en route, that is, local team drivers will lead the reindeer teams to Oimyakon. During the journey we are intending to feed ourselves on stroganina (sliced frozen fish or meat), reindeer meat and other food, which the local people along our route have."

The expedition members anticipate that their trek will last until the eleventh of March.

Stroitel'naya Gazeta
16 February 1989
page 4 (full text)

Soviet-Italian Arctic Expedition

Horses were used symbolically for the start of the Soviet-Italian expedition, which has set off for Oimyakon. Then, however, at the state farm settlement of Tanda, where the group arrived from

Yakutsk aboard trucks, having travelled along a two-hundred kilometre long ice road, the men really had to switch to teams of horses. The travellers covered a seventy-kilometre long route on horseback through the frozen taiga to Bayaga, the next settlement.

"It didn't take long for the adventures to begin and that was probably because we didn't have a shaman along with us," joked the leader of the expedition Jacek Palkiewicz. Not long before we got to Tanda the front-wheel hub of our truck broke. We had to get out of the back of the truck, where, huddled close together in warm reindeer skin clothing, we had felt fairly comfortable. Since we were without any means of transport, we decided to make our way to the village on foot. After three kilometres in our heavy clothing, it was like being in a Turkish bath. The hospitality of the local people gave us a great deal of pleasure. At Tanda many of the locals invited us to spend the night in their homes. I accepted the invitation of Ivan Nikonov, a Yakut livestock expert. My comrades spent the night with other families."

The group spent the second night in the winter quarters of the horse-breeders, alongside of which the herds of Yakut horses had pawed up the snow to find fodder for themselves. At Bayaga the travellers were introduced to the creative work of folk-craftsmen.

"Now we are proceeding to a musical accompaniment," smiled Jacek, trying to play a khomus, an ethnic stringed musical instrument played by mouth, which he had been given as a gift. I'm only sorry that it can't be played when it's cold, because your lips stick to the metal."

As far as the cold is concerned, this is first time that Roberto Lorenzoni, the chief instructor of the survival school, has experienced such temperatures. When the group were riding in the covered back of the truck on spurs of the Verkhoyan ridge, Lorenzoni's feet were slightly frost-bitten - he was let down by heated Italian boots made of synthetic material. Fortunately everything turned out all right, but the Italians took no further risks and put on high boots made of reindeer skin and just in case, they also acquired real Russian felt boots en route.

Approximately fifty kilometres before they got to the reindeer herdsman's settlement of Topolinoe, which was to mark the starting point of the most difficult part of the route, the travellers encountered sagging guard towers and half-rotten wooden barracks, enclosed by rusty barbed wire. Sinking into the snow up to their waists, Palkiewicz and his comrades went nearer. It turned out that there had once been a prisoners' camp here...

"Some of my fellow-countrymen" remarked Jacek, "think even now that "Siberia is a one-way ticket", that is, it is only used for exiling people. But the time of Stalin's labour-camps has long been over. the abandoned camp which we found is a symbol of what was a terrible period for the Soviet people. As we are finding out for ourselves, Siberia is region of cheerful people, inspired by the plans for the great perestroika programme."

At Topolinoe settlement, the main farm centre of the "Tomponskii" State Farm, the members of the Soviet-Italian expedition collected extensive material on the everyday life and culture of the northern peoples. Their hosts presented the guests

with every facility for rest and recreation before they tackled the difficult route to the "pole". They also supplied them with the necessary foodstuffs, helped them to repair their clothing and equipped their reindeer teams. Now the names of two more participants in the expedition became known, the young team drivers Andrei Struchkov and Dmitrii Efimov. They set up a training camp some seven kilometres from Topolinoe, where the travellers spent two days living under mountain tundra conditions.

Every morning started with the team searching for and catching the reindeer which wandered off for the night in search of reindeer moss. Not being used to this exercise, the Italians had some difficulty catching the animals with the aid of a leather lasso. But they had already learned how to chop wood, to chop up ice for boiling and to ride reindeer sleds. The lessons learned at the training camp were soon put to good use.

Accompanied by the sounds of the tambourines and songs of the "Maranga" folk ensemble, the expedition started off on fifteen reindeer sleds for Oimyakon. A head of the men lie seven hundred kilometres of unknown country, the river Tompo and its tributaries caught in an icy grip and hiding treacherous ice traps, the mountain passes of the Verkhoian range, the taiga wilderness and the windswept tundra areas.

Women's Ski Trek Reaches Goal

Antarctica, February 8, 10:00 hours Moscow time. "Metelitsa", the women's ski team, reached the southern geomagnetic pole.

The unparalleled Antarctic trek is over. Although the scientific and sports data produced by the team still has to be studied, it is already possible to say that these women, who are the first to have conquered Antarctica, have demonstrated they can work under the extreme conditions which exist on the sixth continent on an equal footing with men.

Valentina Kuznetsova and her comrades feel very well and they are in an excellent mood. The team is now at "Vostok" Station. "Our trek is coming to an end and we're sorry to be leaving Antarctica," wrote the team's chief doctor, Irina Gur'eva, in a radiogram.

The skiers will stay at "Vostok" for three or four days before flying off to "Mirnyi".

Izvstiya

9 February 1989

Page 6 (full text)



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