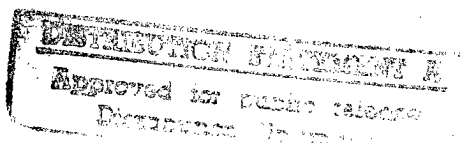


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USSR Report

TRANSPORTATION

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12 March 1984

USSR REPORT

TRANSPORTATION

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CIVIL AVIATION

COMPUTER SYSTEM FOR DOMODEDOVO AIRPORT OPERATIONS

Moscow VOZDUSHNYY TRANSPORT in Russian 8 Dec 83 p 1

[Report by correspondent G. Strunin: "The Machine That Knows Everything"]

[Text] Installation of the new YeS-1033 electronic computer has been completed in the Domodedovo Production Association. The checkout of its terminals and a trial run of the unit in the overall airport control system are proceeding at full speed. The day is not far off when the powerful "thinking" machine will provide full and objective data to all services.

We descend the steep steps to the premises where the computer center has been located and where the sensitive heart of the new EVM [computer] is beginning to beat with A. Toropov, deputy chief of the scientific-production center of the association, candidate of technical sciences, and one of the creators and developers of the automated system. The unusual, really sterile cleanliness in this world of electronics is a pleasure to the eye. It seems that the huge hall has been filled with it. After the incessant din of the airport, it is unusually quiet here. Adjustment is in progress. The installers are talking in muffled tones:

"Let us check the display units."

"I'm turning them on."

"All right. One more time."

"How is it now?"

"Standard."

A. Toropov tells us:

"Our automated system of airport control has a history already. It has been 10 years since it was introduced in our association. Much has changed in the work of all services since that time."

"To begin with, we looked after the production traffic service of the enterprise. The new control equipment was examined right here.

"Today Domodedovo controllers are working with the aid of the SM-2 computer. When the technical service had worked out the plan for the automated system, creating an operational network was put in the foreground. In fact, the most complex and difficult things to control in the work of a complicated organism such as the Domodedovo Airport previously were the problems of organizing the passenger and mail-cargo flights, as well as the operational preparation of flights. The lack of coordination in specialists' activities often brought turmoil into the work of associated services.

"Everything is proceeding differently now at Domodedovo. Take the control of passenger flights as an example. The most accurate information relentlessly 'accompanies' a person from his first steps in arriving at the airport. He is notified on time of an airliner's arrival, about the beginning and end of registration, and about the flight's takeoff. And all this is done by the computer. At precisely determined time it will communicate with the nearest airport, make an inquiry in the inflight food service section, at the fuels and lubricants warehouse, and at the commercial loading service of the aircraft. At the necessary time the computer will turn on a signal panel and send a signal to a display or a television receiver.

"But that is still not all. Registration of passengers with the aid of displays is now being introduced. The machine is assigned to fill out flight-following documentation.

"Electronics is coping with the problems of mail and cargo flights just as successfully. It follows the transfer of cargo and at any time is ready to give a response to what is located where. Daily plans of flights and the commercial loading of flights and many other operations are put together on the computer.

"V. Bugayev, deputy chief of the association; L. Beskodarov, chief of the production traffic service; A. Yatsenko, chief of the passenger service; and A. Pimashkin, chief of the cargo service, have made their contributions to creating the operational network of the ASU [automated control system]."

And this is how the controllers comment on the ASU:

"It is very convenient and reliable in the work. But the main thing is that the system has taken on itself all the basic functions of the controller. It remains for a person to monitor its activities," says V. Mashentsev, a recent graduate of the MIIGA [Moscow Institute of Civil Aviation Engineers], who is at the control panel of the ASU.

...And one more step has been taken at Domodedovo--a new computer is going into operation. It is replacing the obsolete M-4030. Processing of a so-called package network [paketnyy kontur], where all data on ground servicing has been included, has been put into its program. The capabilities of the new equipment

are truly unlimited. It simultaneously provides data on several parameters. Let us say that you are interested in information on the operating time in the service life of an aircraft--the computer is at your service. This is very important for the maintenance services of the base to know in order to make any aircraft operational for acceptance within a time limit. The machine can find out how the plan for transportation of passengers, mail and cargo is being fulfilled. It also knows about consumption of fuels and lubricants. It knows everything about the status of ground-based equipment. And the computer will provide the needed data about the brigade method at any time.

The machine is being installed by employees of the computer data-processing center and the technical department of the association headed by Chief Engineer V. Siyapin, together with representatives of the manufacturing plant and the Moscow Scientific Research and Planning Institute of Systems Planning and Control. Leading engineers G. Prokhorov and A. Olekhovich, who applied a great deal of inventiveness and creativity to the work, should be mentioned in particular. This also made it possible to complete installment of the machine on time.

But how will the ASU be developed further?

"The employees of our association's technical service, together with the GosNII GA [State Scientific Research Institute of Civil Aviation] already are thinking about improving the control system," A. Toropov says. "On the agenda are problems of operational management of the airport during service interruptions and the development of indicators under conditions of further production intensification."

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CIVIL AVIATION

OPERATIONS, FACILITIES AT YEREVAN'S NEW EREBUNI AIRPORT

Moscow VOZDUSHNYY TRANSPORT in Russian 8 Dec 83 p 4

[Report by special correspondent V. Deyev: "Erebuni Takes Off"]

[Text] From here, the position of the ground controller, the broad panorama of the Ararat Valley opens up. In the distance, on the horizon, the classic mountain peaks topped with snow. And directly in front of us the vast territory of the Yuzhnyy Airport. All its features--the ramp, aircraft parking areas, the runways, the hangar, the taxiways--are spread before the eyes.

Yerevan's new air terminal complex began operation in April this year. The second air terminal in Armenia's capital is an attractive, impressive structure of original architecture made of glass, metal and concrete. In plan it forms a triangle, the base of which provides a view toward the city, and the tapered top faces the airfield. It resembles the prow of a ship, the stem of which has been turned toward the rocky wave of the Caucasus' mountains.

On the fourth floor of the "stem" is located ground control. With the aid of powerful marine binoculars our "forward lookout" --Ground Controller M. Babayan--is observing through the rain that has just begun the landing of an Mi-8 helicopter hovering over the far end of the runway.

In several minutes we meet the commander of this helicopter, A. Nikogosyan, and the copilot, M. Galstyan. They are engaged in service for the GAI [State Motor Vehicle Inspection] today.

"We are patrolling the highways in the region of Yerevan, Ashtarak, Oktemberyan and other populated areas," the pilots say. "We have already been flying for 3 hours and 20 minutes since this morning. We are now refueling, and we'll be on our way again. The roads in the cities are wet. For this reason, we are stepping up observation of vehicle transport traffic and drivers' adherence to safety regulations. We will be working for another 2 to 2.5 hours. We think we can handle the job. As they say, the situation requires it: both the weather and the fact that traffic safety over the past months has improved, as our customers have noticed.

And the pulse of the Yuzhnyy Airport continues beating in an efficient, intensive work rhythm. An An-2 aircraft with the side number 71301 soars into the air after a short takeoff run. Its crew, headed by V. Yurin, has to conduct chemical treatment operations in the region of Sisian-Goris. The aircraft took off at 9:55.

And in 10 minutes a Yak-40 aircraft landed after completing flight Ye-61/62. It returned from the Kafan airport, practically the farthest south in the republic, with 22 passengers. In addition to passengers, several hundred kilograms of mail are carried to Kafan on this route every day (there was a half-ton today). This route, the main purpose of which is to serve the needs of workers of the Kadzharan Copper Ore Combine, is the most productive in the second Yerevan aviation enterprise, as attested by aviation specialists.

...So the famous Zvartnots air terminal complex has a younger brother, which will be called Erebunias of 1 January 1984. The main airport of Armenia serves long-distance flights. But Erebuni is intended for "coastwise air navigation," if it may be expressed this way. The aircraft taking off from here carry passengers to populated areas of the Armenian SSR, as well as to Sukhumi, Ordzhonikidze and other "neighboring" cities.

The Yuzhnyy Airport is inferior to its older brother, of course. But only in scale: it is expected to serve 300 passengers hourly. As far as passenger service [aviaservis] is concerned, the Erebuni beginning here in the future will be fully able to handle "a large amount." Thus, for example, in the new air terminal complex, the ground floor has been set aside for arriving passengers and the first floor has been set aside for departing passengers, that is, opposing passenger flows have been eliminated. The second floor is a waiting room, or, to use the current term, the operations room.

"Next year," Eduard Robertovich Papikyan, the commander of the aviation enterprise says, "we will complete renovation and lengthening of the runway. And then our airport, from which more than 10 flights depart on a union schedule and flights depart for nine MVL [expansion unknown] airports today, will be able to accommodate third-generation jet aircraft. Our aviators are waiting with particular anxiety for the An-28 aircraft to be based here..."

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CIVIL AVIATION

ALL-UNION AIR TRAFFIC CONTROL CONFERENCE IN MOSCOW

Moscow VOZDUSHNYY TRANSPORT in Russian 15 Dec 83 p 2

[Text] The other day the Second All-Union Scientific-Practical Conference Devoted to Air Traffic Control Problems was held in Moscow. The conference was organized by the presidium of the USSR Academy of Sciences, the Ministry of Civil Aviation and the Moscow City Council of Scientific and Technical Societies.

Representatives of many scientific collectives of different ministries and departments and representatives of civil aviation administrations and the central staff of the Ministry of Civil Aviation took part in it. They discussed problems of air traffic organization and planning, analysis and simulation of UVD [air traffic control--ATC] processes and systems, the ergonomics and analysis of controllers' activities, problems of training specialists, and development and experience in operating technical facilities for air traffic control, navigation, landings and communications.

The tasks being systematically resolved by ATC systems are continually becoming more complex, which requires improvement in organizing air traffic in airport areas and on airways, the development and introduction of new ATC methods and procedures, the creation and introduction of new technical facilities, improvement in the level of automation of ATC processes, and training of highly skilled specialists. The measures indicated should contribute to further improvement in the levels of safety, flight regularity and fuel economy. T. G. Anodina, chief of the NETs AUVD [Scientific Experimental Center for the Automation of Air Traffic Control], doctor of technical sciences and professor, spoke of this in her report at the plenary session.

Conference participants discussed the resolution of fuel economy problems by improving the structure of the airspace system, ways and means of achieving optimal flight operations for aircraft, and the introduction of systems for planning flights on EVM [computers], taking actual weather conditions into account.

Thus, for example, introducing nonconflicting standard flightpaths for climbing and descending in airport areas makes it possible to save aviation fuel by reducing the time for a landing approach and departure from airport areas.

Automation of ATC processes is aimed at increasing the system's capacity, reducing the workload of controller personnel, reducing the number of errors, and so forth.

The measures developed by the government to further improve the Unified Air Traffic Control System in the country in connection with the introduction of the new Air Code of the USSR, as is well known, have been approved by the Politburo of the CPSU Central Committee.

Conference participants stressed the importance of the measures indicated for improving flight safety, regularity and economy.

Conference participants shared experience in introducing and operating technical facilities for air traffic control, navigation, landings and communications and familiarized themselves with innovations in this field.

Results of the scientists' research have made it possible to work out a number of valuable recommendations. In future issues, VOZDUSHNYY TRANSPORT will acquaint its readers with the most interesting experience of the advanced collectives represented at the conference.

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MOTOR VEHICLES AND HIGHWAYS

IMPROVEMENTS AT GORKIY MOTOR VEHICLE WORKS

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 10, Oct 83 pp 1-2

[Article by Ye. P. Tsiberev, S. V. Lyakhov, Yu. S. Temirov, and V. D. Aksyutin of the Gorkiy Motor Vehicle Works and the NIITavtoprom [Scientific Research Institute on Technology for the Automotive Industry]: "Experience in the Introduction of a System for Preparing for Production at the Gorkiy Motor Vehicle Works" under the heading: "Economics and Organization of production"]

[Text] The Gorkiy Motor Vehicle Works carries out a broad and complex program for creating new or modernized models of the motor vehicles it produces. Its personnel are striving for an elevated technological level, for quality and reliability in the motor vehicles, for their efficient use in the national economy, and for the fullest satisfaction of the growing demand. During the 10th Five-Year Plan alone, the plant mastered the production of 12 new models and modifications of GAZ [Gorkiy Motor Vehicle Works] vehicles.

Thanks to steady work on raising the technological level of production, labor consumption and the consumption of rolled steel has been substantially reduced. The average coefficient of the utilization of metals for the plant as a whole reached 0.73 and for the GAZ-53A motor vehicle, 0.76. The period of service before the first major overhaul of the GAZ-53A has been increased from 200,000 kilometers to 250,000 kilometers and, for the GAZ-24 taxi, from 300,000 to 350,000 kilometers. The amount of production having the higher category of quality has grown. Right now, more than 61 percent of production has the State Mark of Quality. Because of the increased quality, reliability, and endurance of the vehicles produced during the 10th Five-Year Plan, more than 200 million rubles were saved.

Still more serious and crucial tasks have been planned for the 11th Five-Year Plan. They are being resolved successfully. For instance, in 1982 industrial production began on a new model of the GAZ-3102 "Volga" car, on the GAZ-53-12 truck of increased capacity, on trucks operating on compressed natural gas, on the new "Shkol'nik" children's bicycle, and on the preparations for producing a new generation of diesel trucks. As a result, the range of articles being mastered in the 11th Five-Year Plan will exceed those mastered in the 10th by more than double. Also envisaged are: an increase in the operating life of the motor vehicles, a reduction in their fuel consumption, and a curtailment (by 15 percent on the average) of requirements for spare parts and periodic maintenance. Thus, the problems which are

being solved on GAZ motor vehicles (and which will be solved in the future) are rather complex. The success, or lack of it, in many respects depends on the level of the preparations for production. Precisely because of this, the collective has welcomed with great interest the placing into effect of the standards, translated into reality by the Ministry of the Automotive Industry in 1981, for the industry's system of preparing for production (OSPP); namely, OST [General Standard] 37.002.0626-80 "Industry System of Preparing for Production - Basic Provisions", OST 37.002.0627-80 "Industry System of Preparing for Production, Preparing for production in Enterprises (and Associations) - Basic Provisions", and others which establish the purpose, structure, content, and procedures in the functioning of OSPP. These standards provide the enterprises of the industrial sector a unified (systematic) approach to the organization and management of the process of preparing for production. They enable the use of automated methods and means for preparing for production and the creation of automotive equipment and other articles which measure up in their technical and economic qualities to modern requirements and the achievements of scientific and technical progress.

In 1982 at the Gorkiy Motor Vehicle Works, a plant system of preparing for production (an SPP) was developed and introduced in accordance with the standards, methodological instructions, and directions of the OSPP. Its normative basis is comprehensive, embracing 19 organizational and technical standards of the enterprise including the STP [Enterprise Standards]:

- "Procedures for developing the design of articles for production at the stages of engineering specification, engineering design, and prototypes which regulate the whole set of operations in developing the design of an article"

- "Technological preparation for production - Basic provisions"

- "Technological preparation for production - General rules for the development of production processes"

- "System for automated design and preparation of tooling - The design and preparation of dies for master models using the digital and graphic information of an electronic information processing machine."

- "Technological preparation for production - Developing the bodies and interiors of motor vehicles for productive effectiveness - Provision for assembleability - General provisions."

- "Technological preparation for production - The design of production tooling", and others.

In the process of developing and introducing the system, the existing system for preparing for production was analyzed and then, on the basis of the analysis, it was elaborated in accordance with the basic principles and requirements of the OSPP. In so doing, the main attention was paid to developing the automation of the processes of preparing for production. While in 1975 the number of SPP problems solved by automated methods was 20, in the period 1976-1978 it increased by 10 annually, and by 1979 the increase was 20. In 1985 it will be 100. Among these problems are:

- Developing articles for productive effectiveness
- Designing production processes
- Management of the technological preparation for production
- Estimates of material consumption, productive capacities, tooling needs, and others.

Work is being done successfully on introducing a comprehensive system for the automated design (CADS) of motor vehicle bodies, body dies, and the manufacture of dies on machine tools having ChPU [Numerically Programmed Controls]. In particular, automated systems have been developed and are working in the design of stamping equipment and tooling for processing the parts of a cam differential and a method for controlling the geometry of curved pipes and shapes using an electronic measuring device and a computer. In the development stage are automated methods for designing pipe bending machines and a system for the manufacture of flat templates and other articles having a curved contour by mechanized removal of them from three-dimensional articles with subsequent manufacture on machines having ChPU.

Automated design, as experience shows, reduces the time for developing production tooling by a factor of 10-12 and the time for the technological preparation for production by a factor of 1.5 to 2. On the design of complex gear processing tools, on the optimization of the adjustment of gear-cutting machines, and on analyzing and forecasting the quality of a geared transmission without cutting the gears, the ES-1020 computer spends 5 minutes of working time; whereas, with the traditional methods, this work would have taken two designers a month. An automated system for designing the production process for automatic lathes producing round bars reduces design time by a factor of 4 to 6 and increases by 25-30 percent the productivity of the automatic tool (because of efficient cutting conditions and optimized set-up construction).

At the works, in the course of introducing automated systems for designing, about 1,700 production processes have been developed. An example is the technology for the automated preparation of control programs for milling machines having ChPU. It includes: the selection of parts and the types of machine tools, the production analysis of the drawing, the listing and codification of parts in CADS language, the printing of the perforated tape, calculation on a computer, checking on a coordinatogram, and working out the control program on the machine tool. The economic gain from the use of the technology is 24,200 rubles. No less typical are the problems which have been solved with the aid of an ASU [Automatic Control System] in tooling production and the problems which remain to be solved. For instance, in this production the following problems already are solved:

- keeping records of production tooling, of the tooling in the pattern shop, and also of its movement into the central tool storage (TsIS),
- calculating the annual need for and the norm for the stock of cutting tools in the TsIS for basic production,
- calculating the annual need for tool steels, and inventory according to the stocks of the TsIS,
- calculating the productive capacity of mechanical and assembly shops having a production-line organization, and the capacity of the heat treating shop and the metal coating and paint-drying sections. The following problems remain to be solved:
- operational accounting for the receipt or removal of tools at the TsIS,
- the composition of orders for the manufacture of tooling,
- calculation of the norm of expenditures for tools for each

part and of the annual and monthly expenditures for the manufacture of parts for the basic production,

- the creation and introduction of files of information on tooling specifications, and

- the formation of a portfolio of orders and monthly plans for the tooling shops.

The introduction of the system for preparing for production has permitted the plant in 1981 alone to develop and introduce advanced technological processes and means for production yielding an economic gain of 338,500 rubles. For example, the introduction of the electrochemical method of processing forged etchings and the straightening dies of press forms, and the electrical erosion method of broaching and processing the complex contours of materials that are difficult to finish. The economic gain from the introduction of only one electrochemical tool amounted to 15,000 to 20,000 rubles and of the electrical erosion machine, 10,000 to 15,000 rubles. The amount of manual work by mechanics was reduced by 50-80 percent, and 35-50 percent respectively. The productivity of labor in stamping operations rose by a factor of 2 to 2.5.

At the works, together with TsNIIavtoprom, a technological process was introduced and the equipment was installed for applying vacuum plazma wear resistant coatings on metal cutting tools made of high-speed cutting steels and hard alloys. The equipment is a semiautomatic model-2865 unit for the ultrasonic cleaning of parts, and the vacuum, plazma-ion installation "PUSK" for applying coatings. The economic gain from their introduction is 360,000 rubles. In 1983, six more "PUSK" installations will be introduced and in 1985 - ten. An experimental installation has been started for coating piston rings with a nitride of molybdenum which increases their durability by a factor of 3 or 4. The processes of powder metallurgy, electric slag remelting, cold heading and rolling, precision stamping, and others are receiving further development.

Work being done at the works on the introduction of fundamentally new technological processes based on the application of highly concentrated sources of energy should be noted especially. For instance, plastic deformation of parts is being used instead of processing by cutting, giving a saving of about 900,000 rubles a year. In so doing, the quality and the durability of the parts being processed is significantly increased (for example, surface roughness is reduced by two classes), and a tool being used turns out to be more durable (the durability of knurling machines is higher than the durability of a cutting tool by a factor of 50 and amounts to being able to process 100,000 parts, and their durability is greater than that of planers and amounts to about 120,000 parts). The introduction of plastic deforming freed up 32 gear processing machines and 21 planers.

Machine tools with numerically programmed control are being used more and more widely at the Gorkiy Motor Vehicle Works. Their use reduces the time of preparing for production by a factor of 1.5 to 2, and lowers labor consumption in processing parts not less than 30 percent. While in 1976 there were 5 such tools, in 1980 there were 58. In 1985 it is planned to bring their number to 155.

Great attention is being given to comprehensive unification and standardization of production tooling. It is sufficient to point out that from 1976 to 1980, 214 enterprise standards were developed and introduced at the plant including 14 for cutting tools, 16 for measuring tools, 171 for dies and press forms, and 13 for accessories and auxiliary tools. The introduction of the STP [Enterprise Standards] accelerates the development of production documentation, it accelerates or even eliminates the stage of developing drawings, reduces the products list of tools, it permits manufacturing standard or typical parts earlier in lots, it permits replacing special tooling with standard (by purchase), and it reduces the repair time for machine tools (standard parts are replaced from a supply).

The facts presented above conclusively prove that the introduction of the basic principles and propositions of SPP have noticeably improved the organization and management of the process of preparing for production, and have increased the qualitative indicators and technical level of the GAZ motor vehicles which are being produced, assimilated, and further developed. For example, thanks to the increase in the reliability and durability of such well known motor vehicles as the GAZ-24 and GAZ-53A, the normative requirement for spare parts for them has been substantially reduced - for the GAZ-24, by 17 percent in cost and 25 percent in metal consumption, and for the GAZ-53A, 11.2 and 15 percent respectively.

The improvement in the design and application of advanced fuels and lubricants, reduced labor consumption in the maintenance of the GAZ-24 by 22.5 percent and the GAZ-53A by 20 percent. And one more fact - the GAZ-66 and GAZ-53A trucks and the GAZ-24-01 car (taxi) were awarded the State Mark of Quality, and all other models are being produced in the first category of quality.

The personnel of the Gorkiy Motor Vehicle Works do not consider that the improvement in technical preparations for production is already completed.

Testimony to this is the plan containing measures for:

- raising the level of organization and management,
- improving systems for assuring the productive effectiveness of designs,
- the development of standard production processes,
- the automation of engineering and control tasks, and
- further improvement in the planning, coordination and organization of work on the development of new models of motor vehicles. Its realization will bring a worthy contribution to the solution of the problems put before the industry by the 26th CPSU Congress and the May (1982), November (1982) and June (1983) Plenums of the CPSU Central Committee.

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MOTOR VEHICLES AND HIGHWAYS

CHIEF ON DEVELOPMENT, ACTIVITIES OF 'SOVTRANSAVTO'

Moscow AVTOMOBIL'NIY TRANSPORT in Russian No 10, Oct 83 pp 15-16

/Interview with V. S. Ten'kov, chief of the Sovtransavto Main Administration, by correspondent G. Tarakanov: "With the 'Sovtransavto' Emblem" /

/Text/ Trucks and buses with the Sovtransavto emblem can be seen at any time of the year on the roads of many foreign countries. Sovtransavto services foreign and Soviet foreign trade associations and other customers with the hauling of freight and passengers.

Our correspondent met with the chief of the Sovtransavto Main Administration, Valeriy Semenovich Ten'kov and asked him to talk about the work and prospects for developing hauling of foreign trade freight.

"Motor vehicles with the Sovtransavto emblem," V. S. Ten'kov said, "appeared on the roads of Western Europe 15 years ago. It was then that Soviet transportation began to accomplish foreign trade freight hauling internationally, mainly for CEMA member-countries. The creation of our administration in 1968 was associated with the expansion of socialist economic integration and the broadening of business contacts among fraternal countries.

Today, freight hauling is accomplished in 27 countries of Europe, Asia and the Middle East. Compared with 1968, the traffic volume has increased 10-fold and freight turnover--30-fold. Along with foreign trade or, as we call it, general freight, Sovtransavto hauls freight of third countries in transit through the USSR. Jointly with foreign partners, we also have organized hauling of small batches of freight over 20 regular lines--to Helsinki, Stockholm, Paris, Basel, Copenhagen, London, Rotterdam, Milan, Vienna, Budapest, Sofia, Belgrade and other cities of Europe.

Sovtransavto has at its disposal a substantial industrial and technological base, motor transport enterprises and specialized subdivisions, modern domestic and foreign-made rolling stock, and highly qualified engineering and technical and worker personnel. There are production associations in Moscow, Leningrad, Brest, Bryansk, Rostov-on-Don, Mineralnyye Vody and other cities. In order to provide maneuverability of the rolling stock, truck and bus parks are efficiently arranged at motor vehicle enterprises of the RSFSR, Ukraine, Belorussia, Azerbaijan, Estonia, Latvia, Lithuania and Uzbekistan.

The Association of Soviet International Motor Transport Carriers /ASMAP/ was created on the initiative of Sovtransavto to strengthen and expand contacts with motor transport carriers of foreign states. In 1974 the association was made a full and equal member of the International Road Transport Union. Sovtransavto belongs to other international organizations, is a party to many agreements and treaties on international motor transport and is developing mutually beneficial economic and commercial relations with over 100 foreign firms.

All of this is indicative of Sovtransavto's extensive, multifaceted relationships and of the fact that Soviet motor carriers enjoy well-deserved prestige and confidence."

/Question/ What kind of freight does Soviet international motor transport haul and how does our economy benefit from this?

/Answer/ By no means is it economically advantageous to haul all freight over long distances by motor vehicle. But there are certain goods which it is warranted and convenient to deliver by trailer trucks, for example, movie, camera and radio equipment, perfume and cosmetic products, medicines, perishable food products, clocks, books, display exhibits, precision instruments and electronics. High-power trailer trucks also haul machine tools, spare parts, construction materials and many other kinds of freight.

Unfortunately, not all our departments and organizations have assessed the advantages of motor vehicle service in international transporting of freight. After all, with motor transport the product is delivered, as they say, "from door to door." Moreover, the number of loading-unloading operations is reduced, which makes it possible to increase the safety of the freight and does away with bulky and expensive packing.

Sovtransavto has rich experience in the rapid transfer of construction freight from rail to motor vehicle transport at construction projects. Foreign customers make widespread use of our motor vehicles in such shipments. There is a substantial amount of motor vehicle freight hauling from Austria and Italy for the Belorussian Metallurgical Plant under construction in Zhlobin. We transport freight regularly and in large volumes from Yugoslavia, for example for the hotels under construction in Sochi and equipment for the Urengoy-Pomary-Uzhgorod gas pipeline. We deliver this freight not only by direct motor vehicle traffic, but also via combined transport--sea--river--motor vehicle.

The use of our transport means by foreign consumers is a graphic example of the efficient operation of Sovtransavto's motor vehicles.

/Question/ Besides freight hauling, Sovtransavto services international tourist routes. Tell us about them.

/Answer/ We began transporting passengers and tourists in the international motor vehicle service in 1970. Today, Sovtransavto buses serve over 200 tourist routes and also many international fairs held in the countries of Western Europe and youth festivals. Our drivers transport tourists to European socialist countries, Austria and Finland. Passenger lines have been operating regularly

for many years: to Rumania--Chernovtsy--Kishinev--Bucharest; to Bulgaria--Odessa--Varna; to Czechoslovakia--Mukacheva--Kosice, Uzhgorod--Presov; to Hungary--Mukachevo--Debrecen.

In 1982, Sovtransavto buses carried about 200,000 passengers and tourists on international service. By 1985 this number is projected to increase to 250,000.

Working actively with travel bureaus of socialist countries, Sovtransavto participates in combined air-motor vehicle and rail-motor vehicle passenger transport. Jointly with the All-Union Joint Stock Company /VAO/ "Inturist" and the bureau of international youth tourism "Sputnik," it promotes the development of tourist exchanges among countries.

/Question/ Sovtransavto's prestige is obvious. Is this explained not only by the high technical degree of equipment of the motor vehicle enterprises, but also by the professional skill of the drivers, their discipline and sense of duty?

/Answer/ Of course, it is mainly people who ensure success. In 15 years we have put together a solid collective. I would especially like to note the selfless labor of the drivers. Presently there are nearly 6,000 drivers working at the administration's enterprises. I will say frankly that their work is not easy. The physical as well as nervous stress on a long trip is considerable. But this is no obstacle for strong, determined and qualified specialists. They are well trained for their work, both morally and professionally, know the rules and regulations of international transport and are able to speak foreign languages.

Many former frontline soldiers work on the international lines. Pavel Sergeyevich Kramar' is one of them. During the Great Patriotic War he helped liberate Hungary. At Lake Balaton the brave machine-gunner completed his fighting journey. His entire postwar life has been on peaceful roads. In recent years he has been delivering freight to Hungary, Czechoslovakia, Belgium and the FRG. A former soldier--aviator Vyacheslav Stepanovich Abramov--in the years of working for Sovtransavto has driven his trailer truck over the roads of nearly every country of Europe. Side by side with the veterans, their young colleagues who have already served in the Soviet Army work excellently. They always come to the assistance of their comrades, and on a long run that is necessary sometimes.

Once Aleksandr Nikolayevich Buchin, private chauffeur for Marshal of the Soviet Union G. K. Zhukov during the war, was driving his trailer truck with his partner through Yugoslavia. In the mountains they saw that a trailer truck driven by a crew from the Sovavto-Minvody Motor Transport Enterprise had an accident. Important cargo was in jeopardy. Acting resourcefully and selflessly, the four Soviet drivers managed to repair the damaged vehicle in a short period of time and the cargo was delivered on time.

Over 100 of our drivers have been awarded Honorary Diplomas of the International Motor Transport Union for successful and accident-free work and for their great contribution to the development of international transport.

/Question/ What are the future prospects for the work of Sovtransavto?

/Answer/ We have developed plans for international transport up to 1990. For example, such a qualitatively new type of service as small-batch hauling with storage and preparation of freight at our own warehouses similar to the Sovtransavto handling facility at Butovo near Moscow are promising.

International contacts expand with each year. Recently, freight transport of Sino-Soviet trade began in both directions on mutually acceptable terms.

In conclusion I would like to say that Soviet international motor vehicle transport, by successfully solving its production tasks, is also a reliable bridge linking the peoples of various countries together. It also helps to get to know its mutually beneficial trade partners better and serves the cause of peace and progress.

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MOTOR VEHICLES AND HIGHWAYS

1ST SEGMENT OF MOSCOW-KHARKOV-SIMFEROPOL HIGHWAY OPENS

Moscow IZVESTIYA in Russian 13 Nov 83 p 3

[Article by A. Blokhin: "The Crimea Will Be Nearer".]

[Text] The first section of the new motor vehicle expressway from Moscow to Kharkov to Simferopol has been opened.

Muscovites, of course, remember what an unusual and exciting structure the transportation trestle at the Savelovsk station seemed to be in its time. Traffic was on three levels. Such no longer exists on the capital's avenues. I involuntarily remembered that while observing the grand new roadway structure officially called the intersection of the Moscow circumferential motor vehicle road (MKAD) with the Varshavskiy highway. Here begins the first segment of the new motor vehicle expressway of general state importance which runs from Moscow to Kharkov to Simferopol. Without exaggeration, the road is unique in both its technical and economic, and transport operations characteristics. The committee on internal transportation of the European Economic Commission of the UN considers that this road belongs among the first class international expressways.

The complex structure for avoiding grade crossings meets the MKAD with interwoven concrete bands. Essentially, for us, this is the first "cross road" in the country for out-of-town roads with traffic on three levels. It consists of several overpasses, a 250-meter long trestle, and 18! access ramps.

As do all expressways built for the future, the finished first section of the route has a large reserve throughput capacity. For the first 28 kilometers the roadbed width is 43 meters and on the by-pass around the city of Podolsk it is 61 meters. On the remainder of the stretch to the Serpukhov region it is 36 meters. The number of traffic lanes is six and four respectively, but on the Podolsk by-pass it is eight.

A subdivision of Glavdorstroy [Main Administration for the Construction of Motor Vehicle Roads] of the USSR Ministry of Transportation Construction built the road. Powerful, complex machines of the "Avtoreyd" type were used here which permit, in one pass, the preparation of the earthen roadbed and the laying of the upper roadway topping of cement concrete. It certainly is unnecessary to weary the reader with numbers about the amount of work done -

the numbers are huge. Also huge are the capital investments. But here is what V. Subbotin, chief of Glavdorstroy, says:

"The total cost of building the segment amounted to 183 million rubles for an average cost of 2.37 million rubles per kilometer. The sum is very very substantial, but it will pay for itself in less than five years - the estimated time is 4.3 years."

The economic aspects of roads are numerous and often difficult to express in terms of money. But specialists now have learned how to calculate that which formerly seemed not to yield to calculation. The profit from a road is directly proportional to its quality. It is clear that a car on an ideally level road - and this segment is precisely that as will be the whole route to Simferopol - running without stops will wear out less and use less fuel. Drivers, feeling more confident on the wide roadbed will be less tired - a guarantee of safety. And the preservation of vehicles and freight - this also is a saving.

The sum total of all these components gives the convincing result that the cost of delivering a ton of freight on the segment from Moscow to Serpukhov is reduced by a factor of more than two.

Speed especially must be mentioned. The new expressway is designed and constructed with assurance of guaranteed safe movement, under all conditions, at speeds up to 150 kilometers per hour. The route by-passes populated regions. Crossings of other roads and railroads are made at different levels.

Together with the road, sets of structures were built for the roadway maintenance department and for stations and shops for the repair and maintenance of machines for snow removal and the struggle with ice. The construction of service stations is being completed, and, every two kilometers, call boxes are being installed with which to communicate with the nearest GAI [State Motor Vehicle Inspection Center] to call for emergency first aid or technical assistance.

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MOTOR VEHICLES AND HIGHWAYS

GOSPLAN OFFICIAL ON STATE INVOLVEMENT IN URBAN HIGHWAY DEVELOPMENT

Moscow PRAVDA in Russian 15 Nov 83 p 3

[Article by V. Isayev, deputy chairman of USSR Gosplan: "The Roads of a City" under the heading: " 'Pravda' has spoken out. What was done?"]

[Text] USSR Gosplan has considered the problems raised in the social and economic survey entitled "The Roads of a City" (PRAVDA, 23 May). In it, important questions were broached which are connected with the construction and maintenance of city roads. It was noted that the lag in their construction leads to unnecessary transportation costs and substantial expenditures of time in transporting passengers and freight. In this connection, the necessity is pointed out of state planning for the road system in cities, and for enlisting in this business the means of the industrial enterprises to improve the material and technical provisions for building and repairing city streets with asphalt by means of machines and mechanisms, and also for increasing the role of scientific investigations on this matter.

For strengthening a planned beginning in the building of city roads, USSR Gosplan intends to instruct the gosplans of the Union Republics, during the preparation of assignments for the 12th Five-Year Plan, to resolve the question about introducing, into the state plans for the economic and social development of the Union Republics, a separate line assigning the building of city roads to the executive committees of the local Councils of people's deputies.

As to enlisting the means of industrial enterprises in the building and repair of such roads, the USSR ministries and departments were authorized to compile the estimates of expenditures for the building of roads, overpasses, and other engineering structures and the estimates of expenditures for a proportionate share of the development of city surface transportation. These compilations will be made at the same time as the working out of the summary estimates for the construction of large industrial enterprises situated away from the residential tracts of cities. The financing of the indicated expenditures is realized from capital investments set aside for the development of the corresponding sectors of industry.

Projections for the development of the petroleum producing and refining industry show that in the next few years it is not possible to envisage a substantial increase in asphalt production. In this connection, the resources of asphalt for constructing and repairing city roads may be found by the Councils of Ministers of the Union Republics only within the limits of allotted stocks.

USSR Gosplan is taking steps to procure the material resources for the production of machines for cleaning and maintaining streets of cities.

Work is being done by Minstroydormash [Ministry of Construction, Road, and Municipal Machine Building] on the development of fundamentally new kinds of equipment including machines for shaving cement and asphaltic concrete surfaces, and a set of machines for thermally reworking old asphaltic concrete, and others. Series production of them is projected for the 12th Five-Year Plan.

To solve the problems of the maintenance of city highways at present, the problem of organizing production of multipurpose machines for the repair and cleaning of streets by enlisting the countries who are members of the SEV [Council of Economic Mutual Assistance] is being worked up by USSR Gosplan.

The question about the creation of a scientific research and planning institute on city transportation, highway, and street networks has been considered by the USSR State Committee on Science and Technology and received basic approval. USSR Gosplan is supporting the proposal, expressed in the social and economic survey "The Roads of a City", about organizing such an institute and entrusting to it scientific research and planning work for all the transportation problems of the cities.

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MOTOR VEHICLES AND HIGHWAYS

MORE INTENSIVE DEVELOPMENT OF RURAL ARMENIAN HIGHWAY SYSTEM URGED

Yerevan KOMMUNIST in Russian 14 Dec 83 p 2

[Article by R. Atabekyan, chief of the department of road maintenance of the Ministry of Construction and Motor Vehicle Road Maintenance of the Armenian SSR: "The road to a new Martiros" under the heading: "Mountain Regions: Problems and Prospects". Sentences between slant lines printed in bold face.]

[Text] "To expand construction of motor vehicle roads in rural areas by connecting the regional centers and the central farms of the kolkhozes and sovkhozes with motor vehicle roads for general use. To improve the quality, construction and care of roads....."

From the basic directions for the social and economic development of the USSR in the years 1981-1985, and the period up to 1990.

There were 50-60 old houses many of which were on neglected, narrow, curved by-streets which were becoming useless in the rainy weather So appeared the village of Martiros of the Azizbekovsk region several years ago.

It was impossible in a village situated in an inconvenient mountain locale to change the way of living or to improve the peoples's mode of life. The eight-kilometer road connecting the village with other populated points in the region, because of being in a dangerous landslide zone, and because of the impossibility of major repair, for a long time had been in a stand-by condition. Residents gradually fled the approaching decay of the village.

But Martiros has been transformed into a different place. An excellent asphaltic concrete road has been laid up to it which is three kilometers shorter than the former one, and the village came to life right away. Migration from the city practically stopped and, what is more, residents who had left earlier, began to return. Thus an economy was preserved where there were 102 hectares of cultivated land, several hundred head of cattle, gardens and pasture.

/Martiros is one of the numerous populated places which, having been forgotten in the mountains. was reborn in recent years thanks mainly to construction of a modern road./

Motor vehicle roads have played and continue to play an important role in the development of the national economy of Armenia especially in the mountain regions. Therefore, today, when the Republic is covered by a thick network of roads, construction of them is continuing.

Motor vehicle roads still have great importance for the development of the national economy and for the solution of social and economic problems. This is because, for us, maritime and river transportation are practically nonexistent and railroad transportation under the mountainous conditions cannot compete with motor vehicles. Ninety percent of the Republic's internal transportation falls on the latter.

/Item. In prerevolutionary Armenia there were 1,530 km of roads and a total of 30 percent of them had a hard surface. Today, there are 7,500 km of general-use roads and 89 percent have a hard surface. This means that in any 1,000 square kilometers of the Republic's territory there are 165 km of roads which is higher by a factor of ten than the average for the Union. /

Over the years of the 10th and 11th Five-Year Plans, the Republic's Ministry of Motor Vehicle Roads built or modernized 3,200 km of roads. Such very important motor vehicle highways as that from Megri to Kadzharan, having a 50-kilometer length, were put into service. Laid across the Merginskiy pass at an altitude of 2,535 meters above sea level, it has reduced the distance between these populated places by a factor of four. The road from Berd to Krasnoselsk brought Berd closer to Yerevan by 70 km. The principal transportation arteries of the Republic have been completely modernized; namely, Yerevan to Leninakan, Yerevan to Kirovakan, Yerevan to Artashat and Vedi, Sevan to Martuni, and others.

Many roads were built in the mountainous regions of the Republic. On balance, the road systems of our Ministry of Roads are of local importance; that is, the 4,500 km which connect the populated places of the region are. This is 60 percent of all the general-use motor vehicle roads. While in 1976 we had 65 populated places which did not have bus communication with regional centers because of badly built roads, at present, there are 21, and by the end of the Five-Year Plan a total of 10 will remain.

/ In recent years roads have been built which restored life in such distant mountain villages which were approaching decay as Karindzh, Agindzor, Shamut, Lorut, Atan in the Tumanyansk region, Nerkin, And, Shishkert, Sznak, Karachiman, Shabadin in the Kafansk region, Sers, Bartsruni, Gomur in the Azizbekovsk region, Lichk, Gashtun in the Merginsk region, Soflu, Murkhuz in the Sisiansk region, and other regions of the Republic. /

Our motor vehicle roads are being built on an ever rising scale. /But, today, a village needs not simply roads, but modern ones that can be driven on the year around. / While, up to 20-30 years ago, based on traffic intensity and the weight characteristic of vehicles, a crushed-stone or gravel surface would have been satisfactory, today, asphaltic concrete surfaces are required not only on expressways but also on roads to very distant and little populated places.

According to statistical data, the productivity of motor vehicles on roads with gravel and dirt surfaces is lower by a factor of 1.5 to 2 than on asphaltic concrete roads. Because of poorly built roads, on a country-wide scale, there is an annual overconsumption of 6.5 million tons of fuel and the losses to the economy from the reduction of the quality of milk and vegetables during their transport on rough roads amounts to 2 and 3 rubles on each 100 kg. In the Republic the motor vehicle road network, of course, has been better developed than the average in the country; nevertheless, its losses are not small.

Roads are called upon to fulfill various social tasks as well as economic ones.

"The development of transportation and road networks bringing the village nearer to the city will, in large measure for instance, promote holding people in a village" said Comrade Yu. V. Andropov in his speech at the triumphal conference celebrating the 60th anniversary of the USSR. "This, of course, will help in solving a large social problem - the efficient and flexible use of labor resources."

Roads of local importance have been and will be built, especially in the mountain regions. The question in another region is, is it possible to build them to those populated places where they formerly have not existed?

Mountain villages still without roads are 21 in number, for instance, Areg in the Talinsk region and Arzhis in the Gorissk region. Officially we are doing reconstruction and major repairs there, but basically we are building them anew. This is because for years maintenance of these roads was unsatisfactory and we were unable to repair them because of lack of funds.

While the Ministry receives all necessary materials for capital construction, for road repairs it receives only 40-50 percent of the requested amount. /Such an approach to the problem by the planning bodies leads to hundreds of kilometers of roads not being given timely repair./ And, like a living organism, they age and need care. Each overdue repair requires still larger amounts of material and financial means. If such a practice is continued, after several years the roads we are building today will be reported to be in deplorable condition.

/Item. Annually, from the allotments of the enterprises of important Republic cities approximately 25 million rubles are directed to the construction and repair of motor vehicle roads of general state and Republic importance. And from the allotments of the kolkhozes and sovkhoses and enterprises of the cities and villages of regional subordination, about 10 million rubles go to the construction of rural roads./

In recent years road construction has been substantially accelerated thanks, in many respects, to a change in the procedure for accumulating and spending funds. Formerly, allotments to the fund for road construction could be used only within the limits of a given region. It turned out that thickly populated, developed regions were far better off than poorly developed mountain-

ous ones. For example, for the road system of the Oktemberyansk region where there is a well developed road network, about 730,000 rubles is allotted annually, but for the Gukasyansk region, very much in need of roads, a total of 150,000 rubles is allotted. In order to resolve the paradox and to assist the needy regions, the Ministry of Motor Vehicle Roads obtained the right to spend all accumulated funds at its discretion. Next year, for instance, in the Oktemberyansk region almost 350,000 rubles less will be spent than last year, and in the Gukasyansk region, 300,000 rubles more.

Moreover, for the development of roads in mountainous regions the Ministry assigns a supplementary 2.5 to 3 million rubles, in addition to the above listed funds, from the budget.

/Nevertheless, despite the total amount of work being done, to solve the problem of providing mountain villages with good roads by means of the efforts of the Ministry of Motor Vehicle roads alone is impossible./ The proprietor of the roads up to a village is our road organization but, in the villages themselves, it is the Ministry of Agriculture. Many roads are subordinate to the local Councils.

Not at all detracting from the importance of the roads connecting villages with the rest of the world, it must be said that for village residents it is more important that all the roads in the populated places themselves be well built (they do not drive out of the village every day). Good intravillage, country, and intrafarm roads connecting production bases with the agricultural complexes of the kolkhozes and sovkhozes are needed.

/While 7,500 kilometers of roads are under the management of our ministry, about 30,000 km are under that of the local Councils and the Ministry of Agriculture. It is easy to see that our partners have the lion's share of the roads and therefore the solution of the problems depends on them in many respects./

Sometimes, according to an order, we build roads which later on, by mutual agreement, are transferred to our system as, for instance, was the road to Martiros. But this rarely takes place. / The annual sum set aside by the Ministry of Agriculture for the construction and repair of roads amounts in all to 600,000 or 700,000 rubles which, of course, is very little for providing the villages with improved roads. / And while the dirt roads leading to eylagi [?] and fields and farm structures are used only seasonally, vehicles deteriorate rapidly on them and parts get broken.

Practically every year before the beginning of agricultural operations much money is spent on all the farms putting these roads in order. But because of the half measures, the lack of specialists, equipment, and the necessary materials, by winter they are again out of service. It seems that despite the shortage of funds, expenditures are thrown to the wind. Moreover, because of the lack of good roads, drivers frequently seek new ways to their destinations going straight through fields and pastures damaging crops.

At present in the Republic's Ministry of Agriculture they are working on an inventory of their roads in order to define the magnitude of the operations and the content of a program for their further development. A question naturally arises: who will become their manager and to whom will their maintenance be entrusted?

The interests of the developing national economy require the concentration of the construction and maintenance of motor vehicle roads in united hands - the hands of the Ministry for the Construction and Maintenance of Motor Vehicle Roads. / It is time, we think, to begin broad operations on the construction of general-use motor vehicle roads in mountain villages and to implement their gradual transfer to a specialized department. /

9136

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RAIL SYSTEMS

VL80K ELECTRIC LOCOMOTIVE PROFILED

Moscow GUDOK in Russian 18 Sep 83 p 4

[Article by engineer V. Volkov: "The VL80k Electric Locomotive".]

[Text] Recently at one of the stations I saw a VL80k electric locomotive built in 1966. They say that this is a good, reliable engine. Tell us, please, what kind of locomotive this is, who built it and where, and what are its design features.

A. Aleksandrov, engine driver,
Penza.

The first VL80k electric locomotive was built in 1963 by the Novocherkassk Electric Locomotive Works. Serial production of these engines was in progress for six years from 1966 to 1971. Beginning with this series of locomotives, rectifier installations with silicon valves began to be used instead of ignitrons.

The VL80k is a two-section, eight-axle freight locomotive with a one-hour rating of 6,520 kW and a continuous rating of 6,260 kW with a voltage of 25 kilovolts at the trolley contact system. The designed speed is 110 km/hr.

Alternating current delivered at the trolley contact system at the nominal 25 kilovolt voltage, through OTsR-5000/25V and VUK-4000 rectifier installations, is transformed into direct current at a lower voltage and this is fed to the traction motors (in each section of the locomotive there is one transformer and two rectifiers). The transformer has one winding which provides alternating current for auxiliary purposes such as the electric motors driving auxiliary machinery and for heating the machinist's cabin.

On each locomotive there are eight NB-418K traction motors. These are six-pole machines with compensated windings. With a nominal 950 volt rectified current and a constant 4 percent weakening of the excitation, their one-hour rating is 790 kW, and the continuous rating, 740 kW. Each pair of traction motors is connected in parallel and is powered from its own rectifier.

The locomotive's speed is regulated by changing the voltage fed to the traction motors by switching taps on the traction windings of the transformer. The parallel connection of the excitation resistors and inductive shunts to the windings provides for weakening the excitation in three steps.

Forty kilowatt, AS-82-4 asynchronous squirrel-cage motors drive the compressors and cooling fans. The locomotive's control circuits are powered with 50-volt direct current from a transformer through a rectifier. When the transformer is not working, a 42KN-100 battery with a 100 ampere hour capacity is the source.

The bodies of each section of the locomotive are welded. Automatic couplers are installed on the ends of each section. The pulling and braking forces are transmitted from the trucks to the frame of the body through the king pins. The minimum radius of a curve that the locomotive can negotiate at speeds up to 10 km/hr is 125 meters.

In the process of producing the VL80k locomotives the plant introduced some design changes. In 1967, on twelve of the engines, a cradle suspension was used. On locomotive No. 078, the VUK-4000 rectifier was replaced with the VUK-4000M, and on No. 352, it was replaced by the VUK-4000L which has avalanche rectifiers. On locomotive No. 625 and succeeding units, instead of OTsR-5000/25V transformers, the ODTsE-5000/25B began to be used. They are one ton lighter and the losses in them are lower.

9163

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RAIL SYSTEMS

VL80T ELECTRIC LOCOMOTIVE PROFILED

Moscow GUDOK in Russian 23 Oct 83 p 4

[Article by engineer V. Volkov: "The VL80t Electric Locomotive" under the heading: "You Ask - We Answer".]

[Text] Recently the article: "The VL80k Electric Locomotive" was published in GUDOK. It is very good that you have begun to tell about the locomotives in our newspaper. I request that you continue with further reports about the variants of this locomotive; namely, VL80t, VL80r, VL80a, VL80b, VL80v, VL80rif, and VL84.

G. Prytkov, assistant engine driver,
Simferopol

Two of the VL80t electric locomotives were built by the Novocherkassk Electric Locomotive Works in 1967 to a design developed by VEINII [All-Union Scientific Research, Planning, Design, and Technological Institute for Electric Locomotive Construction] jointly with the MEI [Moscow Order of Lenin Power Engineering Institute]. In design they were similar in many respects to the VL80k. There were some changes in the bodies which were connected with the installation of the braking resistors and the system for cooling them, and trucks with cradle suspension were used.

In the pulling mode of operation the VL80t locomotive is no different from the VL80k. During rheostatic braking, the excitation windings of the traction motors are disconnected from the armatures and all eight are connected in series with a static semiconductor exciter which receives current from the low-voltage winding of the transformer. The armatures of all the traction motors are connected to individual braking rheostats. In this mode the traction motors operate as generators with independent excitation. In so doing, the mechanical energy of braking, after its conversion into electrical energy and then into heat energy, is dispersed in the atmosphere by the rheostat cooling system.

To reduce weight on these locomotives, light-weight PK-3.5 compressors and transformers were installed and the axles of the pairs of wheels were hollowed.

In 1969 five more VL80t units were built. On these, ODTsE-5000/25B transformers, NB-418KB traction motors, a VOV-25-4M main switch, a VUK-4000T rectifier, a 42KN-125 battery, and a KT-6EL compressor were installed.

Centrifugal fans driven by AE-92-4 electric motors cool the braking resistances.

Serial production of these locomotives was organized in 1970 and continued until 1975.

In 1971 it was decided to relinquish the manual control which had duplicated the automatic regulation of braking force on all engines built in the years 1969-1970. The capacity for a prolonged braking condition was increased which permitted an increase in braking force.

In the process of producing these locomotives the plant introduced some design changes. On VL80t units No. 806 and 810, NB-504A traction motors were installed. VL80t no. 712 was built with NB-455A phase splitters. Ten locomotives were equipped with capacitive starters for the auxiliary electric motors.

The VL80t electric locomotives produced after 1973 were awarded the Mark of Quality. In 1974 a group of specialists of the Novocherkassk Electric Locomotive Works, the VEINII, the MEI, and the Ministry of Railways received the State Prize of the USSR for developing and mastering the serial production, and organizing the maintenance of these locomotives.

9136

CSO: 1829/113

RAIL SYSTEMS

VL80R ELECTRIC LOCOMOTIVE PROFILED

Moscow GUDOK in Russian 27 Nov 83 p4

[Article by engineer V. Volkov: "The VL80r Electric Locomotive".]

[Text] Assistant engine driver G. Prytkov, engine driver A. Aleksandrov, and other readers asked the editor to tell about the modifications of the VL80 electric locomotive. On 18 September 1983 a description of the VL80k was published, and on 23 November, a description of the VL80t. Today we tell about the VL80r.

The first VL80r electric locomotive left the gates of the Novocherkassk Electric Locomotive Works in 1967. It was built to the design of the All-Union Scientific Research, Planning, Design, and Technological Institute for Electric Locomotive Construction. Its working part, the traction motors, and the auxiliary machinery did not differ from those units on the VL80k, but the bodies were somewhat different.

Special transformers and four VIP-1760 rectifying-inverter converters with semiconductor thyristor controls were designed and manufactured for the VL80r. This improved the pulling characteristics of the locomotive by means of floating voltage regulation at the terminals of the traction motors. In the converter installation, type TL-200-6 thyristors of the seventh class were used which were designed for a 200 ampere current.

In the braking mode, direct current generated by the traction motors is converted into 50 Hertz alternating current. This current is fed to the traction windings of the transformer and, through its primary winding which acts as a secondary winding in the braking mode, returns electrical energy to the trolley contact system. In so doing, on the first locomotive the amount of energy returned amounted to 10.3 percent of that expended in pulling.

In 1969 two more VL80r locomotives were produced on which ODTsE-5000/25A transformers were installed and type VIP-2200 rectifying-inverter converters with type TL2-200 thyristors of the eighth and ninth classes.

In the cooling system for the ballast resistances, the two axial fans were replaced with one centrifugal fan, and the axial fans cooling the converters were replaced with paired Ts8-19-6.5 centrifugal fans. Instead of the phase splitter, a condenser splitting system was used.

In 1973 one more VL80r locomotive was built to a modified design having a redesigned electrical system. Installed in it were ODTsE-5000/25 transformers and VIP2-2200M rectifying-inverter converters with T2-320 thyristors of the 14th and 15th classes. Also the capacity of the power-supply units and the input amplifiers was increased. This required carrying out several changes in the control and protective arrangements. As a result, the returned energy was increased to 12 percent.

In 1974 and 1975, a group of VL80r locomotives was produced. On one of them, No. 1506, T-500 thyristors designed for 500 amperes were used. This reduced by almost a factor of three the number of thyristors in the converter installation.

Since 1979 the Novochoerkassk Electric Locomotive Works has proceeded with the serial production of the VL80r. Today these powerful engines haul trains in the regions with the most rugged relief. The first of them worked in the Bataysk region. Now they appear on the Far Eastern, Krasnoyarsk, and Sverdlovsk railroads in the Smolyanino, Bogotol, and Yelansk locomotive depots.

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RAIL SYSTEMS

ALMA-ATA METRO DESIGN WORK CONTINUES

Moscow PRAVDA in Russian 28 Oct 83 p 6

[Article by PRAVDA correspondent G. Kasenov from Alma-Ata: "The Alma-Ata Metro"]

[Text] The designs are being worked out by the Alma-Atagiprogor [Alma-Ata State Municipal Design] Institute for the architecture of the stations in the future Alma-Ata subway.

This stage has been preceded by a competition. Decisions have been found which establish an individual appearance for each station.

In the office of the head of the Section for Supervising the Designing and Construction of the Subway under the Alma-Ata Gorispolkom, N. Ploshay, hangs a diagram which designates the first line of the underground system.

"Its direction," explains Nikolay Georgiyevich [Ploshay], "is along Furmanov Street from the intersection with the Prospect imeni 50-letiya Oktyabrya to Abay Prospect and then along the prospect to Sain Street. Here are the station names: Oktyabr'skaya, Dostyk (Druzhba [Friendship]), Almaly (Yablochnaya [Apple]), Dzhetyssu (Semirechenskaya), Kommunisticheskaya, Baykonur, Tulpar, Alatau, Sayran, Molodezhnaya and Aksay and these lie along a route over 13 km long. Some of them have received the first prize of the competition.

At present, the design specifications are being carried out involving the most important stages in the future underground work. Designs have been completed for moving the existing utility lines which will run under the metro stations and for rebuilding the road and transport network of the first section. Close to completion is the designing of the car electric depot. These jobs are being carried out by the design institutes of the republic capital: Alma-Atagiprogor, Kazgiprokommunkhoz [?Kazakh State Design Institute for Utility Systems], Alma-Atagiprotrans [?Alma-Ata State Design Institute for Transport] and others.

According to the technical and economic background study worked out by the Moscow Metrogiprotrans [State Design Institute for Subway Transport] for designing and construction, for building the subway line in this section they will use a deep laying method. Great difficulties are expected in removing the

earth which is rubble-gravel deposits formed as a result of mudflows. As yet, they have not determined the final method for excavating them or the types of mechanization for the underground work. The efforts of specialized design bureaus will be involved. There are plans to employ structural elements designed for additional stresses due to the region's increased seismicity. All these particular features have necessitated the additional studies.

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RAIL SYSTEMS

ROLE OF 'DINAMO' PLANT IN SUPPLYING METRO SYSTEM EQUIPMENT

Moscow GUDOK in Russian 28 Dec 83 p 4

[Article by T. Pigareva: "Guaranteeing Quality"]

[Text] The "Dinamo" Plant imeni S. M. Kirov, one of the oldest in the Soviet Union, immediately strikes one with its grandioseness and scale. Along with the chief designer of traction equipment, Vladimir Matveyevich Kesayev, I walked through its bright shops which produced products for the subways. The assortment was the most diverse. At present, 380 sets are being produced here. By the end of the five-year plan, they should make 450 sets of more than 30 product types.

All of this will be delivered for the subways of the USSR, Prague and Budapest.

I walked into the second equipment shop for traction equipment where they make rheostat controllers for the cars. This is one of the most complicated devices the quality of which determines the normal operation of the rolling stock.

"The rheostat controllers switch the start and stop resistors. And the cam elements switch the resistors, changing the strength of the current delivered to the traction engine. This increases or decreases the speed of the underground trains," said V. Kesayev trying to explain as simply as possible. "The line contactors are the main contactors in the subway cars. These close or open a power electrical circuit. When there is a short circuit in any circuit, the automatic breakers of the AV-8 type break the electrical circuit. A PKG group position switch is used for switching the engines from a tandem connection to a parallel one. Four engines are connected in tandem and then in parallel. Many multistrand cables run to the cam elements. Previously there often were instances of the rapid wearing out of the contact pairs of the PKG cam elements. Now the device has a semiconductor diode and the contact pairs have begun to use currentless switching. Now their operation," said Vladimir Matveyevich, "does not limit the service life of the PKG."

I went into the armature shop. The copper collector plates for the subway motors gleamed brilliantly in the electric light. Automatic lines manufacture the shafts of electric machines, DC engines the weight of which reaches 750 kg. Only after a careful inspection for all the technical parameters at a testing station are they sent out to customers.

Many articles of the "Dinamo" Plant workers in terms of their quality surpass foreign models. Product costs have also been noticeably reduced. The "Dinamo" Plant has repeatedly shown its exhibits at the USSR Exhibit of National Economic Achievements, foreign exhibits and fairs in Hungary, Bulgaria, Libya, Yugoslavia, Poland and the GDR.

The process of improving the plant's products for subways is continuing. Now the blue expresses in our country travel faster than subway trains in New York, London, Paris and Tokyo. With such a rapid increase in speeds, equipment quality assumes particular significance. And the "Dinamo" workers have been able to lengthen the guarantee life for traction engines from 1 to 2 years. Under the sections of the chief designer, they have set up a special group which studies operating conditions and works out recommendations for improving the quality of the produced equipment.

The reconstruction of the "Dinamo" Plant will make it possible in the next few years to produce traction electrical equipment for subway cars on the basis of new circuitry using mechanization, automation and robotization of production. New insulating materials employing synthetic films and enamels have helped to reduce the weight and size of electrical equipment, to increase its operational reliability and lower the labor intensive winding work. In 1983, the plant introduced 170 rationalization proposals the economic effect of which was 100,000 rubles.

The plant has a council of innovators. Many enterprise workers have been awarded Orders of Lenin, the Order of the Labor Red Banner, the Honor Badge and the medals "For Labor Valor" and "For Labor Excellence." The titles of Hero of Socialist Labor have been received by the assembler of electrical machines V. Telegin and the foundry foreman A. Petrovichev. The plant has been pointed out as one of the best in the area of work with rationalizers and inventors. It also does a great deal for its youth. Under the "Dinamo" Plant, they have established an affiliate of the All-Union Correspondence Polytechnical Institute. Under the plant is the All-Union Scientific Research and Design Institute for Crane and Traction Electrical Equipment (VNIPTI) and this is now incorporated in the "Dinamo" Production Association. At present, this production association with a number of VUZes, scientific research institutes and design organizations is developing a new type of cars with thyristor, that is, electronic, devices which will control the work of the traction engines. The use of such equipment will make it possible to increase the reliability of the subway rolling stock. The new cars should be delivered to the Moscow Subway in 1987.

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RAIL SYSTEMS

MOSCOW METRO CHIEF ON OPERATIONS, PROBLEMS, PASSENGER SERVICES

Moscow SOVETSKAYA ROSSIYA in Russian 23 Nov 83 p 6

[Interview with Yu. V. Senyushkin, chief of the Moscow Subway, by M. Krushinskiy: "Metro at the Peak Hour"; date and place of interview not given]

[Text] [Question] Yuriy Vasil'yevich [Senyushkin], each Muscovite from childhood is accustomed to consider his metro as some sort of example or standard of preciseness, efficiency and coordination of all its units. At the same time, recently there have been failures here.

[Answer] Allow me to interrupt you, but why, actually?

[Question] What do you mean why?

[Answer] The bus, streetcar and trolley bus are not a standard but the subway is one. Do you feel that some special, hothouse conditions have been created for us? Nothing of the sort. We work like everyone else and the problems that confront us in principle are the same which confront the other types of transport. With the sole difference that there are more of them.

[Question] More of what?

[Answer] Passengers. And, therefore, more problems. In 1935, when the Moscow Subway began to operate, 95 percent of all the passengers in the city moved by streetcar while we had just 2 percent. Now there is 44 percent.

[Question] But still, how can you explain that in the daily operations of the once ideal Moscow Subway hitches have begun to appear? Many readers have written about this. I recently myself traveled during a peak hour from the Nogin Square Station to Polezhayevskaya Station and the train remained 2 or 3 minutes in the tunnel before coming into each station.

[Answer] What date was that?

[Question] I don't remember precisely. But it was an unpleasant feeling....

[Answer] Here is our accident log. For example, let us take yesterday: Nogin Square. 1800 hours. Some citizen dropped a toy baby carriage on the

track and left without saying anything to the person on duty. The carriage fell on the contact rail, causing a short circuit and caught fire. The engineer of the approaching train Zhukov discovered this. He radioed the dispatcher and received permission to shut off the voltage. Then, having taken safety measures (don't forget that there are 850 volts!), he removed the foreign article and again contacted the dispatcher.... He acted quickly but still the operation took 5 minutes. The result was that two trains were 5 minutes late and another two had to be taken off the line.

[Question] Do you imply that a majority of the accidents are caused by the passengers themselves?

[Answer] I want to be correctly understood. Of course, there are shortcomings in our work and we do not conceal this. We are not afraid of criticism as healthy criticism always helps things. But the train traffic schedule is now so intense that even a 5-10-second delay reflects lamentably on it. If someone has held the doors of a car then you already have a "hitch" along the entire line. Certainly there must be maximum mutual understanding between the passengers and the subway employees. Particularly now when the people have begun wearing overcoats.

[Question] What importance is that?

[Answer] During the winter a car can carry several-score fewer persons than in the summer. Don't be surprised as you must consider such fine points.

[Question] Do you have any complaints against the readers, that is, against the passengers?

[Answer] We generally do not have any complaints for we serve the people but we do have requests. For example, observe caution on the escalators. It happens that the hems of coats and other foreign articles get caught on the "comb" in coming off. During a day there are more than a score of escalator stops and all of this leads, on the one hand, to their breaking down and, to the other, to the piling up of passengers at the stations and ultimately to the disrupting of the traffic schedule. One other request: do not cross the control line on the platform as this is dangerous. An approaching train can catch someone with the rear vision mirror on the engineer's cab.

[Question] In Leningrad at some stations the platform is completely isolated from the trains and the car can be entered only through sliding doors in a special wall....

[Answer] This is not a solution to the problem because again it leads to a loss of precious seconds. A line where there are such stations handles several trains fewer per hour.

[Question] Possibly it is worth looking into foreign experience? Certainly there are subways now in many countries....

[Answer] In 68 cities in 28 countries. We study their experience carefully and with good reason the Moscow Subway represents the nation on the International Subway Committee. We endeavor to use anything useful. But realize that traffic intensity is highest in the world in our system.

[Question] Nevertheless, the Moscow Subway is not the largest.

[Answer] In terms of the length of the lines we are in fifth place after New York, London, Paris and Tokyo. But in terms of passengers carried we are in first place with some 2,377,200,000 persons a year. As a comparison: in Tokyo there are 1,826,000,000, in Paris 1,432,400,000 and in New York 1,074,900,000. Our throughput capacity is the highest with 45 pairs of trains an hour (considering both directions). During peak hours, trains arrive at an interval of 80 seconds and in New York (in second place) every 90 seconds.

[Question] Still, during peak hours sometimes more than one train must pass before you can get in a car!

[Answer] Unfortunately, the subway is expanding not as quickly as the demand for it. Moscow is really growing! Incidentally, there is another way to "eliminate" the peak hour: to spread out the time for the start and stop of the working day at different enterprises and institutions. Already much is being done in this area and the subway workers feel this very much.

[Question] Among the complaints of our readers against the metro is the one of a great deal of noise.

[Answer] There are studies for reducing the noise level and some of these are already being introduced. For example, shock absorbers under the rails have been installed on one of the sections of the just-completed Serpukhov Line. The new design of subway cars envisages hydraulic and rubber shock absorbers which make the ride of the train smoother and at the same time will absorb surplus noise. But realize that we are operators and at times are forced to be satisfied with what the enterprises of the different ministries supply us with.

[Question] Hence, little in improving the underground system depends upon you?

[Answer] That is completely wrong! A very great deal depends on us and something is being done. A fresh example: you certainly have traveled on the Zhdanovskiy-Krasnopresnenskiy Line. As of 1 October, we have begun running 8-car trains instead of the 7-car ones, that is, in an hour it is possible to carry 6,000 passengers more. The work required was enormous as certain stations had to be fundamentally reequipped. But the main path is the introduction of automation. In collaboration with scientists we have worked out, tested and introduced a system making it possible to continuously monitor and automatically limit the speed of the trains in accord with safety requirements. This creates an opportunity to handle up to 48 pairs of trains an hour and this is a first. The Serpukhov Line in particular, is equipped with this system. As a whole in recent years, the throughput capacity of the lines has increased by an average of 25.6 percent.

[Question] Forty-eight an hour. Hence a train every 75 seconds. An even greater frequency is possible, at least in principle.

[Answer] I feel that this is the natural limit. Beyond this too high inertial loads begin in accelerating and braking. The solution is to expand the subway

and build new lines. This is being carried out at a rapid pace. As for complaints against us from the passengers, it seems to me that any misunderstandings are easier to resolve in a situation of publicity. Any information, even the most unpleasant for us, is better than rumors.

From the Editors. The operation of the Moscow Subway involves much more than the Muscovites. And not only because hundreds of thousands of people every day arrive in the capital from all corners of the nation. There are subways operating in seven other Soviet cities and they are being built or designed in a number of other ones. The problems arising in Moscow sooner or later will involve them too. For this reason, we are hopeful that the discussion of the problems of the underground lines will attract the attention of the concerned ministries and departments.

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RAIL SYSTEMS

SNOW REMOVAL EQUIPMENT SUPPLIED BY ENGELS PLANT

Moscow GUDOK in Russian 22 Nov 83 p 4

[Article by S. Kasatiy, GUDOK correspondent: "Efforts Against Snow Drifts"]

[Text] It is difficult to imagine how the railroads could get along without the fleet of snowplows and snow removers which operate on practically every line and division, in transport enterprises of various ministries and administrations. Barriers have been erected along thousands and thousands of kilometers of rails: permanent fences, temporary snow barriers, and other construction and devices to protect the railroad against drifts. But still the snowplows are necessary, and it is in the city of Engels, on the left bank of the Volga, that they are produced.

The Engels Factory of Transport Machinery Construction, the only such factory in our country, manufactures these machines that are so vital to the rail system. The building in which the shops and other lines are located is the former Pokrovskoye Steam Locomotive Depot. It had spread out through the years, various additions being built, rebuilt and expanded so that finally it attained the necessary design for production operations.

The factory's deputy manager, V. Zolotov, is making me acquainted with the enterprise. Here stands a brand new SDPM snowplow, all shiny with fresh paint and ready for shipment, a production model. It's true that workers and designers redid the front plate, for now it rises vertically. This makes the machine more durable and reliable in service. Accumulations of heavy wet snow are reflected off the plate, and it will handle any depth of snow. Behind the blue-orange "face" are hidden hundreds of details and complex assemblies, the very same points, disks, cylinders, shafts, couplings and fastenings that are made in the plant's machine shops.

Few railroad workers know how snowplows and snow removers are manufactured--besides, the factory actually produces for half of Europe: transport ministries in Bulgaria, Poland, Czechoslovakia, the GDR, Romania and other countries purchase its machines. And the high praise of specialists comes here to the Volga's banks.

The factory uses up to 50 tons of different metals in a 24 hour period, and in a year it produces 80 snowplows. And add to this dozens of the SM-2 snow

removers which, because of their size, are referred to as trains. In front of us now are these trains: four sections of the machine without locomotive, a length of 1,000 meters and consisting of 12,000 assemblies and parts.

Let's go to the assembly shop now. Here are two middle sections and one front section of a production model snow remover. The unusual configuration of its separate parts, its filigree finish and complex "innards" present a pleasing picture not only of strength but also of a unique construction.

"Some 70 percent of our machines," explains Vyacheslav Aleksandrovich Zolotov, "are shipped to various roads in the rail system. The rest go to industrial enterprises. And in addition, our machines perform quite well in the mining sector; in quarries and on spur tracks they are able to remove not only snow drifts but also debris, to load spills from hopper cars, clear off coal, slag and ore from tracks--in a word, they are the roads' janitors."

Life doesn't stand still. Current snow removal machinery may not be satisfactory tomorrow, unable to satisfy the demands of the time. Therefore the plant's workers and planners are seeking better solutions and trying to apply them to actual conditions. The SM-2, for example, will be replaced by a self-propelled snow remover, one that can operate without a locomotive. This means that a specialist having at least the skills of a diesel engineer will be needed to operate this complex machine. In addition he'll need to know snow removal procedures very well, the complex mechanism and parts of the machine.

The finished SM-3 model is being tested on the Anisovskaya division of the Volga Railroad. Builders with the help of railroad workers on the section are doing all to perfect the SM-3 before beginning production. We have reason to hope that the machine will be reliable and unfailing while operating in all climatic zones both in our country and abroad.

And the new SDPM plow is ready to be used. Soon workers at the Pokrovsk station, which is adjacent to the plant, will give it the go ahead and send it to work on the network's lines. The new plow, in contrast to those currently produced, can throw snow and debris in two directions and can operate on dead-end tracks (the snow throw in front). And such a plow can be used on single-track and double-track lines.

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RAIL SYSTEMS

SARANSK LOCOMOTIVE REPAIR PLANT RECONSTRUCTION LAGS

Moscow GUDOK in Russian 27 Oct 83 p 2

[Article, under the rubric "Why It Is Taking So Long to Rebuild the Saransk Locomotive Repair Plant", written by Vl. Matsepuro: "Years Have Passed By..."]

[Text] Buildings of contemporary design are going up on the northern edge of Saransk, right next to the city's energy center, the TETs-2. And not too far from them, in an area intersected with spur lines, one sees the smaller TKG locomotives dashing about, squat but fast trolleys, and side cars loaded with spare parts, material and various metals. Here--in old and crowded sheds, just as 20 years ago--freight locomotives are repaired.

The Saransk Locomotive Repair Plant is now being rebuilt, not stopping for one day its work on locomotives. Soon it must begin a new operation: the repair of the 2D100 and 10D100 diesels.

The Ul'yanovsktransstroy Trust of the Ministry of Transport Construction is carrying out the reconstruction work, which began in 1978. This top-notch construction organization has qualified personnel and the best equipment. However....

Let's go through the new diesel shed with A. Kapitonov, the plant's chief engineer, and chief clerk of the SMP-12, V. Denisenko. The impressively large framework of reinforced concrete stretched many meters from one edge to the other. And it's not just the size that is impressive. The design engineers have created everything for maximum automation and mechanization of the processes for diesel repair.

Once they finished the metal structure, workers of SMP-12 began work on the foundations underneath the seating of the machinery, much of which is already inside the plant.

"This means that assembly of the repair lines can begin within a few days?"

The enterprise's chief engineer gave an inquiring look at the chief clerk, and Valentin Semënovich Denisenko for some reason didn't hurry with his answer.

"Well, sure, it's possible," he finally admitted, "but all the wiring hasn't been installed nor has the glazing work in the shed been completed."

Just what is preventing those in construction from handing the work over to those in assembly? There are many reasons, but the main one is the dispersion of SMP-12's resources among many projects. When construction work began in Saransk there weren't enough pile workers, and now that construction is nearing completion other skilled workers are lacking. In two labor sections engaged in the reconstruction there are only 60 workers instead of 120-150. Foremen of the sections attempted to extricate themselves from this position by combining workers of different skills. And the results weren't that great. The brigade of N. Radionov, for example, instead of installing wall panels, is doing roofing and concrete work. Yet still the shortage of workers is being felt.

And things aren't much better with equipment. Labor sections are experiencing a great shortage of cement and other materials. For glazing work in the diesel shed some 4,000 meters² of 4 mm-thick glass are needed, and builders just don't have it. They've had to make use of so-called "household glass," but this has been shipped intermittently to the site.

The plant's own workers, in an effort to speed up reconstruction, are supplying electrodes, metal, transport equipment, etc. to the construction-assembly train. The construction workers, gratefully accepting this help, are still not able to extricate themselves from the vicious circle of their making. One thing is missing, then another, then still another. And these problems are greatly aggravated by the cool attitude on the part of higher standing organizations toward the reconstruction.

Huge sums have been spent on the reconstruction, begun five years ago. One would think that this would be enough to force directors of the Main Administration for the Repair of Rolling Stock and the Production of Spare Parts [TsTVR] and of Ul'yanovsktransstroy to consider measures to speed up construction of new sheds at the plant. However, no one has undertaken anything significant or worried about forcing the pace of construction--it is still muddling along. Out of R800,000 of investment made this year, only R222,000 have been capitalized.

How can anyone talk about a return on resources and about the introduction of modern technology into production?

Locomotive repair workers have constantly been sounding the alarm and calling for some help.

In a memorandum dated October 30, 1982 A. Golovatiy, chief of TsTVR, on his behalf the director of the plant, V. Abbakumov, described in great detail the pace of reconstruction and asked the central directorate to take an active role at the plant. At the same time the central directorate faces equally pressing problems such as: the necessity to build housing and preschool institutions and to train personnel for the new shops. Such measures are based on sociological and technical-economic considerations. The memorandum

underscored the fact that doubling the plant's productive capacity is inconceivable without a corresponding supply of housing necessities and personnel.

To be honest, we must note that the central administration did seek resources for housing construction. But the manager of the Ul'yanovsktransstroy Trust, I. Kuchin, briefly and in a business-like manner informed those in Saransk that, because of the trust's commitments, construction plans for a kindergarten, a gas and steam turbine power plant and a nine-story apartment house could not be carried out in 1983. And on that the matter closed.

This depressing news stunned the plant's managers. But no sooner had they recovered from this news than the factory had another misfortune: transport workers called for a fine of R45,750 for non-presentation of project and budgetary documentation for the "Shop for Diesel Repairs" undertaking, that is, for the new construction.

"Take it easy, why blame us?"--beseeched the factory. "The Moszheldorproyekt Institute prepares such documentation for us, so blame them for the breach of contract."

The workers stated emphatically: "But it's not for us to decide who's right and who's guilty. You are the client, so you hold all the cards."

They worried and worried over this at the factory and then wrote another letter, this time sent to two addresses: to the central administration and to S. Dzekunov, director of the Moszheldorproyekt Institute. This took place on January 17, 1983. "The fines are putting the plant in a difficult financial position," the diesel repair workers noted. "Technical-economic indicators are worsening, although the plant's administration is not at all to blame. The Moszheldorproyekt Institute should have issued technical documentation to the plant in October of 1982, yet it still has not been received."

And the fact that the plant still has not received the necessary documentation shows just how the institute has reacted to the letter. The threat of fines still hangs over the enterprise.

The plant faces some rather difficult tasks with personnel. There is still no training for repair specialists on the 2D100 and 10D100 diesels. Knowing about proposed plans for reconstruction, the enterprise as early as 1977 wrote to A. Starovoyt, deputy chief of TsTVR, with a request to set up training in railroad institutes for the following specialists: diesel engine workers, lathe operators, milling machine operators, electrical equipment installers, and grinding machine operators. And diesel repair workers directed the very same request to the personnel administration of the Ministry of Railways and to the Mordovian republic administration of professional and technical education. However, the matter of personnel training for the new production is left hanging in the air.

The Saransk Diesel Repair Plant is anxiously awaiting much needed assistance from the TsTVR.

RAIL SYSTEMS

ECONOMIC EXPERIMENT AT NOVOCHERKASSK ELECTRIC LOCOMOTIVE PLANT

Moscow EKONOMICHESKAYA GAZETA in Russian No 49, Dec 83 p 7

[Article, under the rubric "Economic Experiment", by M. Ovdiyenko, EKONOMICHESKAYA GAZETA correspondent: "The Preparation Stage"]

[Text] The Novocherkassk Electric Locomotive Plant [NELP], just as other enterprises of five ministries, will begin in January an important economic experiment to expand their rights in planning and operation and to increase responsibility for their output. This article then details the preparation by this enterprise for the experiment.

NELP is our country's foremost electric locomotive plant, supplying the rail system with electric engines. It produces 74 percent of the country's main-line engines. Work collectives at the factory are surpassing goals for the 11th Five-Year Plan for technical and economic indices. Since the beginning of the five-year plan labor productivity has risen by 15.6 percent instead of the planned 13.2 percent, and the growth in output is almost entirely due to increased labor productivity. Output quotas agreed to in contract are 99.1 percent satisfied for the first ten months of this year. And during the first three years of the plan the collective attained a significant reduction in output cost. The amount of inputs used per unit of locomotive power has decreased due to a constant search for reserves and a perfection of technology.

The State Mark of Quality has made the collective's achievements in production very tangible. This year 80 percent of production--instead of the 75 percent by plan--will be of high quality.

Construction has now begun at NELP--there is going to be expansion. And the technical project also includes a reconstruction of all operating shops without a stop in operations. The plant is to be completely reequipped with machinery, meaning that its capacity will double. Large-scale construction has begun on buildings for housing and for consumer and social services.

And these few details of the enterprise and its collective are cited to show that seeds from the forthcoming economic experiment have fallen into rather fertile soil.

Much is expected from the experiment. The collective believes that work under the new conditions will allow it to greatly increase productivity. Much is placed on normative planning for wage funds and funds for economic motivation. These will have a positive effect on labor productivity, will reduce production costs and stimulate use of efficiency reserves.

Expansion of the enterprise's rights to economize on the wage fund has as its goal a greater output with fewer labor inputs; this, in turn, will ensure adequate financial compensation both for highly skilled workers and for those engineers and technicians who contribute the most toward production.

The great possibilities offered by putting resources into capital construction will permit them to be utilized more efficiently in production and to improve the work conditions for the collective.

And we can continue to enumerate. The main conclusion to be reached is that there be confidence that the experiment will be successful. Of course, changes won't occur by themselves, automatically; success will be ensured by painstaking work and increased efforts on the part of the entire collective. Thus we have at the plant an intensive preparation for the experiment, and much has already been accomplished even though there are many troubles ahead.

An informational meeting was held with chiefs of the various shops at the plant in preparing the collective for work under new conditions on the basis of an order issued by the Ministry of the Electrical Equipment Industry. September saw creation at the plant of a commission responsible for carrying out the experiment and a work group of specialists headed by G. Lustenko, deputy director for economic questions.

Seminars have been held for departmental chiefs at the plant, and N. Galev, deputy minister, spoke at one of them. Discussing the main features of the experiment and the tasks of the plant, he underscored the necessity of activating all possible reserves of the collective to increase work efficiency and quality. Workers from the planning, economic, clerical and finance departments were instructed as to procedural matters of the ministry and to normative documents.

Workers and specialists are studying the essentials of the experiment in the system of economic instruction. The department of social sciences at Novocherkass Polytechnical Institute has joined in this work through its extension at the plant.

The work group of the plant's commission has many concerns now. Each week they hear accounts from the departments as to the progress of the experiment. There is at present an inventory of fixed capital: something additional should be used, something sold, something else written off.

The experiment is to place in the most favorable positions those collectives that will have the fastest growth rates in productivity and the greatest savings per ruble of production. And of course the plan for the technical development of the plant will be even more important in this area.

"Already in August," explains the director of the plant, V. Duvarov, "the shops and departments were given norms for economizing on materials and labor inputs, and these must be carried out by appropriate measures. The commissions consider and determine the necessary steps. In particular we paid much attention to the brigade form of labor organization and pay. New brigades are to be set up, mostly on a plant-wide basis, their pay to be determined by final output and a coefficient for labor participation."

Yet here there is a most important consideration. The economic departments at the factory made the necessary calculations for labor and wages, based on wage norms sent by the All-Union Industrial Association "Soyuzelektrotransmash". When the figures were analyzed for the wage growth per percent of planned production growth and compared with the actual figures for recent years, it turns out that the computed growth of the wage fund is much lower than the actual growth.

"This means," the director continued, "that we must be more aware of the relationship between the growth rate in labor productivity and the average wage. An analysis at the factory over the past eight years for each percent of growth in labor productivity shows that the wage rate has increased 0.56 percent. But under conditions of the experiment this latter figure must be held at 0.31 percent. This means we must be more careful with the wage fund and increase the returns from material motivation."

Therefore the input of each worker must be examined more closely: input into the design and introduction of new machinery and technology, the reduction of labor use, improved quality of output, and fulfillment of other indices. In other words, material benefits don't come of themselves; their attainment is through increased production, through greater efficiency.

Preparation for the experiment isn't limited to the plant; it is integrated in a thousand ways with suppliers, customers, directors, planning and finance organs. Many hundreds of enterprises supply their products to the plant, and not all of these enterprises are known for their reliability. This holds true especially for the following: the Magnitogorsk Metallurgical Complex, the Chelyabinsk Metallurgical Plant, "Transmash" (Pervomaysk settlement in Gorkiy Oblast) and the Dinamo Factory in Moscow. Because the plant (NELP), as a participant in the experiment, has a strict relationship between material incentives and a guaranteed output supply, then the principal criterion of activity for the collective is a precise fulfillment of contractual obligations. The plant holds the view, it is true, that to carry out the experiment successfully, it is the innovative factories which should be its priority customers.

To proceed in such a manner means creating exceptionally favorable conditions. And as the experiment is being carried out in five ministries, it still doesn't mean that others can relax their contractual supply obligations. The degree of dependability is to be the same for all; rigorous adherence to this is the enterprise's most important index.

As far as NELP is concerned, we still can't consider fulfillment of next year's plan a certainty.

Final plan formulation for 1984 calls for the plant to come to agreement with the ministry on specific technical and economic indices for its operations, on many aspects of material and technical supply for the production program, and on the nature of relationships with financial organs, the USSR Gosbank, other enterprises and administrations.

The experiment is scientifically based, the favorable results of which can be disseminated. The more careful the preparation is, then the less chance there is of deviation from its intent, the greater the chance for attaining the planned goals. And the collective of NELP is preparing itself in just such a manner for the economic experiment. Realizing its great degree of responsibility, the collective is examining all possibilities, considering all its reserves which under the new operational conditions must yield the fruits of excellent final results.

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CSO: 1829/108

RAIL SYSTEMS

BRIEFS

ELECTRIFICATION OF BAM SECTION--Ust-Kut (Irkutsk Oblast) 19 [October]. (TASS). Electrification of the Baykal-Amur Mainline [BAM] has commenced. The first supports of the contact grid were installed today on the section from Kunerma Station to the Baykal Tunnel. The conversion of the mainline from diesel to electric traction is being carried out in accord with the technical plans. "The sole goal is to increase the throughput capacity of the BAM," said the chief of the electrification and power service of the BAM, I. Bezlyudov. "Electric trains will carry passengers and freight virtually along the entire Western section. Here are the steepest ascents and descents and the two longest tunnels, the Baykal and Severomuysk." The work of electrifying the BAM is being carried out by subunits of the LenaBAMstroy [Lena BAM Construction] Trust. Simultaneously with the installation of the contact grid supports, construction has started on the traction substations at Lena-Vostochnaya, Kirenga and other stations on the line. The road is being equipped with automatic blocking and centralized dispatching units. Also among the projects to be completed first in electrifying the line will be the auxiliary installations, housing and cultural-service buildings. Train traffic using electric traction from Ust-Kut to Severobaykalsk should be opened in 1985. [Text] [Moscow, SOVETSKAYA ROSSIYA in Russian 20 Oct 83 p 1] 10272

NEW BAM SECTION--Chara (Chita Oblast). The inhabitants of the tayga settlement of Chara located at the foot of the Udokan Range on the BAM route set out in a holiday parade to meet the first train. Representatives from all the construction collectives which in a record time built around 130 km of steel track on permafrost were given the honorary right to place the last section of track. The laying of this track since the start of the year has been aided by the competition following the principle of the "worker relay" which involved collectives from many of the nation's enterprises providing uninterrupted supply of materials for the project. For example, the bridge builders doubled the norms for building large river crossings over the Kemen and Ikabya. The quotas were also exceeded by several-fold for erecting man-made water control installations. Now around 140 km remain to be built from the meeting point of the track layers and the opening of through service for trains along the route from Baykal to the Amur. (TASS). [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 8 Nov 83 p 4] 10272

TRANSBAYKAL ELECTRIFIED SECTION--After the first electrified section was put into operation on the Svobodnyy section of the Transbaykal Line from Arkhara to

Zavitaya, the work pace has not lessened in the collective of the electric installation train No 701. Work is in full swing on the next section to be turned over. Behind the construction workers who put up the supports and the crossbars, the installation workers suspend the contact grid. Installation work has already been fully completed on the sections of Zavitaya--Tur, Koroli--Pozdeyevka, Vozzhayevka--Itikut and at the stations of Tur and Pozdeyevka. The busiest point now is the section of Troyebratka--Yekaterinoslavka--Koroli. Here they are completing the installation of the last supports and crossbars and the anchor sections are being installed and adjusted. The shift standards are being surpassed by 1.5-2-fold by the leading collectives. A. Sorokin, GUDOK correspondent. Svobodnyy. [Text] [Moscow GUDOK in Russian 11 Nov 83 p 2] 10272

NEW LOCOMOTIVE ENGINE HEATER--Kharkov. A device proposed by Kharkov scientists will increase the reliability and economy of operating diesel locomotives on the northern lines of the nation. The Institute of Railroad Transport Engineers has successfully concluded testing of this compact unit which reduces fuel consumption by one-half in maintaining the locomotive in operating condition. Now there is no need to idle the diesels when they are stopped. Also prevented is the premature wearing out of motors which now can be shut down in stops. The small sized water heater installed on a diesel locomotive will keep the engine from cooling down even in a severe frost. This equipment can also be employed on tractors and excavators as well as large capacity trucks. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 13 Nov 83 p 1] 10272

COMPUTER FOR KHARKOV SUBWAY--Train control has been turned over to a computer in the Kharkov Subway. The engineers who are now helped by electronics merely supervise the operation of the equipment. The computer holds in its memory the entire subway transport system and considering the operational information coming in from sensors instantaneously makes changes in the subway's operating rhythm. This makes it possible to have a maximum density of the traffic schedule. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 Nov 83 p 1] 10272

LENINGRAD SUBURBAN CONNECTION--Work has started on modernizing Rybatskoye Station. The work is being carried out from collectives of the Mostostroy-6 [Bridge Construction-6] and Sevzaptransstroy [Northwestern Transport Construction] Trusts and the road construction trust of the October Railroad. This year, here they plan to open a new station of the Leningrad Subway, Nevskaya. It will be a connecting station with the Rybatskoye Railroad Station and will make it possible for passengers without delay to make a connection from the suburban electric trains to the subways. Reconstruction will make it possible to noticeably relieve Moscow Terminal during the peak hours as well as improve passenger service in the suburban zone. V. Petrov. Rybatskoye. [Text] [Moscow GUDOK in Russian 4 Dec 83 p 1] 10272

CZECH LOCOMOTIVES FOR URALS--New ChS7 passenger electric locomotives which Czechoslovak machine builders have begun producing have begun to arrive on the Southern Urals Railroad. These are to be used under difficult mountain conditions. The first seven locomotives have arrived at the Chelyabinsk depot. The enterprise will convert to maintaining just the passenger electric locomotives while freight locomotives are to be concentrated at the Kurgan and Petropavlovsk depots. Chelyabinsk has started retraining the crews which are headed by first

class engineers. The new locomotives will substantially improve passenger trains on the mountain section of Kropachevo--Kurgan. The electric locomotives excel in high power, particularly in starting up, and this is particularly important under mountainous conditions. The necessary conveniences have also been provided for the locomotive crews. V. Kolobov. Chelyabinsk. [Text]
[Moscow GUDOK in Russian 4 Dec 83 p 1] 10272

NEW ELECTRIFIED SECTION--Yesterday a 139-km electrified section was completed ahead of time between Yanaul and Argyz. Thus, the supports with the contact suspension have advanced from the link with the Sverdlovsk Railroad to kilometer 485. The collectives of many contracting organizations have distinguished themselves and particularly the SMP-184 [construction-installation train], the bridge [building] detachment No 77 and the electrical installation train No 703. As in previous years, the operational workers of the Gorkiy Railroad have provided great aid to the construction workers in installing and adjusting the equipment and in building housing. Dispatchers from the Kazan and Izhevsk departments even during the busiest time have been able to provide "windows" for carrying out construction-installation work at separate points and legs. At present, the forces of the construction and installation subdivisions of the Kaztransstroy [Kazakh Transport Construction] and Ordzhonikidzetransstroy [Ordzhonikidze Transport Construction] Trusts and other contracting and subcontracting organizations are moving to electrify the next section from Argyz to Shemordon Station. A. Yudanov, GUDOK correspondent. Gorkiy. [Text]
[Moscow GUDOK in Russian 13 Dec 83 p 1] 10272

RAIL CAR REPAIRS AT PORT--Odessa (TASS). A large shop for repairing containers and cars has been established at the Ilichevsk Merchant Marine Port. It is equipped with highly productive equipment. The specialists employed here have been trained at the depot of Odessa-Zastava-1 Station. The railroad workers helped the clients manufacture special devices and supplied them with materials. For the port the new production line means a great deal. Virtually the entire cargo flow initiating here is moved by rail. In effectively returning the railroad cars to the system, the Ilichevsk workers prevent stoppages due to a shortage of rolling stock and ensure rhythmical operations. Following the initiative of the Muscovites, more than 60 Odessa enterprises have set up repairs on rolling stock using their own internal resources. [Text] [Moscow GUDOK in Russian 16 Dec 83 p 1] 10272

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MARITIME AND RIVER FLEETS

NUCLEAR-POWERED ICEBREAKER 'ROSSIYA' NEARS COMPLETION IN LENINGRAD

Moscow IZVESTIYA in Russian 2 Nov 83 p 6

[Article by staff correspondent V. Mikhaylov: "The First Step of the Nuclear-Powered Icebreaker 'Rossiya'"]

[Text] All three Soviet nuclear-powered icebreakers now operating in the Arctic were created in Leningrad. The first--"Lenin"--left the building slip of the Admiral-teyskiy plant back in 1959. Fifteen years later, the "Arktika" (it is known by the name "Leonid Brezhnev" today), which is almost twice as powerful at 75,000 horsepower, was built on the other bank of the Neva, at the Baltiyskiy plant. The nuclear-powered icebreaker "Sibir" created by Baltiyskiy workers is also of the same type. The third vessel of this series is now being born--the "Rossiya."

I am walking up the ladder to the nuclear-powered icebreaker together with project chief technologist Ye. D. Molebnovyy. This is the second nuclear-powered icebreaker in his labor biography.

"The new vessel," Yevgeniy Dmitriyevich described, "can develop a speed of 21 knots in ice-free water. Its weight is 23,000 t, maximum width is 30 m and its length is 146 m."

"How does the 'Rossiya' differ from its predecessors?"

"It is a more modern vessel. A number of devices and systems are used on it, which improve its ice performance--a very important indicator for an icebreaker."

Dozens of large enterprises of Leningrad and the country are participating in building the nuclear-powered icebreaker. The most skilled brigades of the Baltiyskiy plant are working on it. Among them is a brigade of ship assembly workers headed by Ivan Mikhaylovich Vasil'yev, a veteran of the enterprise. He lists the names of his comrades who particularly distinguished themselves in fulfilling this order--Nikolay Baryshev, Vasiliy Sinitsyn, Nikolay Titenkov...

A cyclone has considerably raised the water in the Neva in the past few days, swamping the cofferdam and flooding the pit. But the work did not stop. Electric welder V. Khoroshev, ship assembly worker A. Basunov and carpenter Sh. Uteshev as well as their comrades had to put on diving suits. The water was up to their waists, but the workers successfully coped with their task.

This vessel is awaited with anticipation in the Arctic. The experience of ice voyages proves that a fleet with nuclear installations alone is capable of greatly prolonging the northern navigation season. The events of the past few days and the difficulties which arose in the eastern sector of the Arctic convince us once more that it is impossible to increase the volumes of maritime shipments on the Northern Sea Route without a nuclear-powered fleet. Construction of nuclear-powered vessels is a result of the party's long-range plans aimed at developing the productive forces of the North.

By using the experience of previous years, the designers and shipbuilders have used many innovations on the "Rossiya." Suffice it to say that more than 1,000 various units and mechanisms were modernized here. More progressive steel plate welding methods were introduced, and manual labor was completely eliminated in some operations. Metal cutting is conducted according to programs developed with the aid of an electronic computer [EVM].

So the "Rossiya" is being launched, making its first step toward the Arctic. And on the building slip here plans have already been made for the construction of a similar new icebreaker. It will be laid on the eve of the October holidays.

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MARITIME AND RIVER FLEETS

FIRST SOVIET-BUILT LIGHTER CARRIER BEGINS SEA TRIALS

Moscow IZVESTIYA in Russian 4 Dec 83 p 1

[Article by S. Troyan, IZVESTIYA special correspondent: "A Giant Puts to Sea"]

[Text] Kherson's shipwrights have completed our first domestic lighter carrier. On it has been conferred the name of the prominent Communist Party figure and Soviet statesman A. N. Kosygin.

The ship was laid down on the opening day of the 26th CPSU Congress. And now it is ready to go to sea. "I regard," says Lenin and State Prize laureate V. Zabolotny, general director of the enterprise, "the construction of such a ship as a great honor. I am genuinely happy that we have managed to perform our task well. We have never before launched such gigantic ships. The existing slipway--a roofed structure for the construction of various types of vessels--did not allow the building of lighter carriers by the usual method. We decided to build the hull in two parts and then connect them afloat. The bow and stern were attached by the caisson welding method. The scientists of the Institute of Electrical Welding imeni Paton of the UkSSR Academy of Sciences rendered the Kherson workmen invaluable assistance in this crucial period."

All the shipwrights participated in the building of the first ship of the new series. Despite the fact that tankers and dry-cargo carriers were taking shape at the same time, the collective devoted its principal attention to its new creation. V. Filip'yev's brigade of hull fitters, N. Kozin's brigade of electrical welders and G. Plugatyrev's brigade of fitters made the largest contributions to the common success.

"At the request of the Far Eastern Steamship Line," recounts V. Yur'yev, captain of the ship "Aleksey Kosygin," "the Kherson shipwrights made changes in the original design of the lighter carrier and increased its capacity. If need be, the ship will be able to carry grain or large-diameter pipes for the construction of oil and gas pipelines. The relatively small crew--46 men in all--will make their first voyages between France and Leningrad. And then, approximately in June of next year, we'll go to Vladivostok. We are to work in the country's northern seas."

Two satellite communications systems comprise the basis of the navigational equipment. The ship's computer will process the information received from the cosmic distances and provide the necessary navigational data.

The shipwrights have taken care to provide good conditions for the labor and relaxation of the crew. Their home contains one- and two-man cabins, two relaxation salons, a sports hall, a movie and lecture hall, a library, and a swimming pool.

On the plant quay a meeting was held devoted to the wiring of the lighter carrier "Aleksey Kosygin." In a few days the motor vessel will give a parting whistle: six tugboats will move it into the Black Sea. After sea trials, it will go on its first voyage.

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MARITIME AND RIVER FLEETS

DEPUTY MINISTER ON RESULTS OF RECENT CHUKCHI SEA CRISIS

Moscow VODNYY TRANSPORT in Russian 10 Dec 83 pp 1-2

[Interview with Deputy Minister of the Maritime Fleet of the USSR A. V. Goldobenko, by VODNYY TRANSPORT correspondent V. Martyshin: "After the Skirmish With the Arctic"; date and place not given]

[Text] The navigation season has ended in the Eastern region of the Arctic. A group of icebreakers led by the nuclear-powered vessel "Leonid Brezhnev" has conducted the last dry-cargo vessels and tankers out of the ice of the Chukchi Sea. The current navigation truly has no equal in the history of active navigation along the Northern maritime route. Its length in this region has been shortened by more than a month.

Our newspaper has regularly reported on the difficulties and selfless labor of the sailors for almost two months.

The Ministry of the Maritime Fleet of the USSR is analyzing and will study in greater detail the results of this year's work on our country's Arctic transport highway. However, preliminary results can already be discerned. In letters to our newspaper, readers are asking: what's happened in the Arctic? Our correspondent addressed a request to Deputy Minister of the Maritime Fleet of the USSR A. V. Goldobenko to respond to several questions in this regard.

[Question] To what extent can the events of the past two months in the Eastern region of the Arctic be regarded as unexpected?

[Answer] The press has already noted that the navigation season in the eastern Arctic was marked by very difficult conditions. Nothing like it has been observed in the whole time of its mastery. The eastern portion of the Northern maritime route is the most difficult and the most vulnerable to the drifting ice of the central part of the Arctic Ocean. In contrast to the Western region, the coast of the Chukchi Sea is virtually unprotected from it. With

unfavorable north and northwest winds, icebergs, rounding Vrangeli Island, are capable of shutting down the navigation routes in this region almost entirely. That is what has now occurred. To the winds has been added a negative temperature background, which was registered already in February. In August, a powerful anticyclone formed in the Central Arctic. Ice formation along the entire coast of Chukotka began two weeks earlier than usual. As a result, an early coastal icepack was formed.

Thus the ice situation kept our sailors under a strain from the very start of the navigation season. Despite the fact that the first convoy arrived at Cape Shmidt at its usual time, 21 June, they managed to unload it only half a month later, after the icebreakers had stepped in. By September, sailing had become possible only for short periods. The situation could become still more complicated at any moment, but the sailors well understood that cargoes were waiting at their assigned places, and they sought to get them at any price.

Already foreseeing difficulties in the 1983 navigation season in July and August, the industry began to prepare additional measures that would guarantee the unconditional fulfillment of the planned cargo trips. Everything was done to speed up repair of the nuclear-powered vessel "Leonid Brezhnev." Practically all the new ships of the ice-reinforced class of the "Noril'sk" type were sent directly to the Arctic as they were received from the Finnish shipwrights, both for the direct delivery of cargoes and for the transfer of cargoes to them from smaller ships. As the situation in the Arctic worsened, the plan of cargo delivery was partially changed, and an out-of-turn conducting of tankers by the icebreakers was organized. In place of the traditional dispatching of ships from the Far Eastern ports, several tankers of the "Samotlor" type were sent from Arkhangelsk. By agreement with the State Committee for Material-Technical Supply of the USSR Council of Ministers, a certain portion of the cargoes was re-routed to the ports of Egvekinot and Pevek for delivery to Cape Shmidt and Bilibino by their winter roads.

In early October, there was a temporary and brief improvement in the situation, and the decision was made to exploit it. But the winds abruptly changed direction, and 22 ships were trapped in the ice between Pevek and Vankarem.

[Question] Cruel nature brought up its entire well-stocked arsenal for single combat with the icebreakers and transport ships: force-ten ice, ice hummocks, conglomerated ice, pressures, cofferdams. In a word, the extreme conditions were a serious test for technology. How did it stand up to this complicated examination?

[Answer] The present navigation season in this region was a good test of the reliability of our icebreaker forces and of the fleet serving the sea beyond the Arctic Circle. One can note that the ministry's course of creating nuclear icebreakers of the "Arktika" type was correctly chosen. Thanks to these powerful giants, the battle with the elements was won with minimal losses. On the eve of the October holiday, we received with joy news of the launching of the third nuclear-powered vessel in this series. The whole course of events in the Arctic has again shown us that it is necessary to create still more powerful nuclear-powered vessels. The linear icebreakers "Yermak," "Admiral Makarov," and "Krasin" work well, but in such complex conditions, they can

work most efficiently only in company with a leader--the nuclear-powered vessel "Leonid Brezhnev."

The elements were a severe test for ships of the ice-reinforced class of the "Noril'sk" type, which are working in their first navigation season this year. Practice has shown that these ships are reliable and that they have the strength to work on the northern routes. Next year we will receive several more such motor vessels, and in a short time ships of a similar type of various tonnages will become the basic transport nucleus for guaranteeing haulage in the Arctic. And tankers of the "Samotlor" type work hard in such complex conditions.

The ports of Pevek, Tiksi, and Egvekinot have coped with their task, but in the future we must bear in mind that for the successful working of such large ships for the Arctic as the "Noril'sk," additional development of the port economy is necessary.

[Question] Such a complex situation required professional mastery and a high moral spirit on the part of the sailors. How would you evaluate the moral qualities of the men now working in the Arctic?

[Answer] The sailors, port workers and hydrologists have displayed the best qualities inherent in Soviet man and in the Soviet sailor: endurance, selfless labor, and, I would say, heroism. Certainly you could not otherwise refer to the conduct of the crew of the motor vessel "Kolya Myagotin," led by Captain V. Tsikunov and Captain-Preceptor V. Glushak. The sailors of this ship not only did not let their spirits fall under the most complex conditions, but they also saved, literally saved, their ship from destruction, continuing the struggle for its life for more than 20 days. It was repeatedly suggested to the sailors that they abandon the motor vessel, which had suffered an accident, but they trusted in their strength and fought the elements until they had brought their ship to a safe place--the port of Provideniye. VODNIY TRANSPORT has already reported on the courageous conduct of the crew of the motor vessel "Nina Sagaydak," led by Captain V. Solov'yev.

The crews of other ships also found themselves in complicated situations, but not one sailor shirked before the difficulties. I would like to mention the crew of the nuclear-powered vessel "Leonid Brezhnev," led by Captain A. Lamekhov. This icebreaker in many respects determined the success of all the operations in the rescue of the ships trapped in the ice. A. Lamekhov, with much experience of working in the Arctic, was performing the role of captain for the first time in the present navigation season, and I must say that he performed it brilliantly.

I would also like to say some kind words about the Sakhalin sailors. V. Bylkov, captain of the motor vessel "Pioner Kamchatki," displayed resourcefulness, keenness of wit, and initiative. He literally tore his ship from the heavy ice and brought it to the eastern edge. One cannot but mention the work of the crew of the motor vessel "Okha," led by Captain G. Shchekutov. By their own efforts, the sailors transferred 17,000 tons of freight to their

motor vessel from other ships, and successfully delivered the cargo of Pevek. The crews of many other ships also actively participated in cargo work.

The workers of the maritime operations staff, led by its director F. Polunin and his deputies Ye. Mal'ko and A. Shchur, performed effectively. And as always, ice scout V. Shil'nikov, hydrologist A. Dorofeyev, and weather forecaster A. Dmitriyev performed at a high level throughout the navigation. This list could be continued....

[Question] The problem of the complex development of transport haulage in the North must be considered from the viewpoint of interaction with cargo shippers and cargo recipients. Judging from statements in the press, there are a number of inadequacies here that have had an effect on the course of the present navigation season in the Eastern Arctic.

[Answer] The reproofs and reproaches directed at clients were completely justified. I will take only two examples of the nonfulfillment of contractual obligations. Arctic cargoes must be delivered to the shipment ports of Vladivostok, Nakhodka and Vanino no later than 10 August. The last batch of cement reached the port of Vladivostok at the end of August. As a result, a sizeable group of ships was delayed in leaving for the Arctic. Thus, the motor vessel "Konstantin Petrovskiy" left on its voyage in September, fell into a complicated ice situation, sustained damage, and in addition, set out for the west in order to reach the east.

Not only the timetables for delivery of cargoes to the docks were violated. Clients often ignore the packing standards agreed upon and confirmed as the All-Union State Standard, dispatch cargoes in damaged packaging that is not suitable for work in our country's northern ports in repackaged form, and a very small percentage of cargoes is in containers.

The experience of this navigation season has shown very clearly that one cannot take liberties with the time limits for dispatching cargoes, and that one must fulfill the annually-established volume of transported cargoes in packages and containers. Clients should be brought to the strictest accountability for shipping cargoes in non-standard packaging, since everyone who is connected with the shipment of cargoes to the Arctic should draw the most serious conclusions for himself. The sad phenomena noted above must not be repeated. In addition, the plan for delivery of cargoes to the Arctic is being unjustifiably violated by the river fleet.

The river transport workers of the Lena Associated Steamship Line should take upon themselves the haulage of a larger portion of the freight for the Yakutsk ASSR. Delivery via the river would be not only cheaper, but would also take less time and increase the safety of the cargoes.

The present navigation season has also shown the need for a partial change in the plan for transporting freight to the north-eastern areas of our country.

The Arctic navigation season of 1983 has revealed with full clarity the need for year-round organization of meteorological observations in this region. Up to now, such observations have been of a seasonal nature.

[Question] Anatoliy Vital'yevich, it is evident that the present navigation season has also raised other problems, which are now being analyzed for their effect on next year's navigation season. What do you plan to do in this respect in the near future?

[Answer] The events in the Eastern Arctic have brought about unforeseen alterations in the work of the Far East's steamship lines. Because of the ice situation, many ships of the Far Eastern Steamship Line have been forced to make use of an emergency procedure--to sail westward.

It is necessary to provide these ships with incidental cargoes so that they reach their own shores as quickly as possible. The ship repair workers must render the sailors serious assistance. They are confronted with the task of dispatching the motor vessels on new voyages in the shortest possible time.

Careful review of the results of the navigation season that has just ended in the Arctic is allowing the ministry to draw the correct conclusions from its lessons, and will provide an opportunity to work out efficient proposals for the organizations and execution of the navigation season in 1984 and in subsequent years. It is thought that, having familiarized themselves with these conclusions, the State Committee for Material-Technical Supply of the USSR Council of Ministers and the ministries and departments that take part in supplying the regions above the Arctic Circle will accord them the necessary attention and thereby ensure the timely and qualitative delivery of cargoes to areas of the Extreme North next year.

While the interview was being prepared for publication, a letter from the RSFSR Ministry of Trade arrived at the USSR Ministry of the Maritime Fleet:

"Despite the complex weather and navigational conditions of the year 1983, maritime transport delivered in full all cargoes of national consumption to points on the Kolyma and Indigirka rivers, to Arctic points, and to points in the Chukotsk Autonomous Okrug of Magadan Oblast. The Ministry of the Maritime Fleet has also delivered potatoes and other fresh fruit and vegetable products in full to all regions of the Extreme North; the USSR Ministry of the Fish Industry had jeopardized the delivery of these by its failure.

The RSFSR Ministry of Trade expresses its deep appreciation to the workers of the Ministry of the Maritime Fleet and of the steamship lines for their timely and complete ensuring of the delivery of cargoes to the regions of the Extreme North in the volumes planned, which guarantees the normal supplying by them of the inhabitants of these regions.

"The RSFSR Ministry of Trade expresses its assurance that the cooperation of the workers of trade and of maritime transport in ensuring the timely and complete delivery of cargoes of national consumption to the regions of the Extreme North will be continued and consolidated."

Subsequent to this letter, analogous radiograms arrived from Pevek and from the foresters of Krasnoyarsk.

MARITIME AND RIVER FLEETS

YUZHNY PORT TO OPERATE LASER NEVIGATIONAL BEACON

Moscow VODNY TRANSPORT in Russian 7 Oct 83 p 4

[Article by G. Daygorodov and D. Romanov, VODNY TRANSPORT special correspondents, Berdyansk-Odessa-Yuzhny: "The Crimson Beam: A Report"]

[Text] At the outset, let us state that this color is in no way obligatory for a laser beam. It can also be ruby, green, white, or red depending upon the contents of its gaslight tube. In the given case, it is sparkling crimson, which you will not encounter in nature.

The idea of using a laser beam for maritime navigation--the direction of ships in complicated situations--is not new in itself. The laser has long been employed for analogous purposes in aviation. Laser maritime beacons have been functioning for several years abroad--at Sydney and in New Zealand. The first laser range beacon in our country, although still experimental, is successfully operating in the "Mark of Honor" order Berdyansk maritime commercial port. A second will soon be established in Yuzhny Port. Here is what we have to tell you about them.

It all began with the fact that the port's future development and its capability of taking ships with the maximum possible draught for the Sea of Azov were being hampered by the problem of lengthening the existing approach channel from 12 to 20 kilometers, with suitable navigational protection. The existing regular line ranges operated reliably only at distances up to nine kilometers, did not meet new tasks and requirements, and were not guaranteeing the safety of navigation.

Then in 1981 they summoned the most modern technology, the laser, to their assistance. They got in touch with the initiator of its introduction for maritime navigation, Doctor of Physics and Technological Sciences A.M. Stafeyev, a professor in the department of navigation automation at the Odessa Higher Engineering Maritime School. In cooperation with the department's specialists, the dockers mounted a laser installation with a straight-line, tightly-directed beam on the channel's first range marker.

"Initially it served us as a registration mark or level, assuring high accuracy in the deepening and construction of the channel," recounts Nikolay Stepanovich Shaul'skiy, the chief of Berdyansk port. "The axial line established by the beam considerably facilitated and simplified the work of the dredgers and allowed them to finish many times more quickly. Use of the laser gave us a saving on the order of 300,000 rubles. From this you can judge what a laser can do."

"Now we have an improved, third-generation laser installation, created in cooperation with the scientists of the Odessa Higher Engineering Maritime School, which no longer serves hydrotechnical goals, but is directly for navigation," adds Captain of the Port Igor' Borisovich Romanenko, the deputy chief of the port for navigation, an experienced navigator with a long career, who in the past has commanded many ships on long voyages. "It will permit safe passage along the entire 20-kilometer length of the channel by ships with a draught up to eight meters. Unfortunately, an inadequacy of the installation existing up to now was its ineffectiveness in conditions of poor visibility."

With pilot A.P. Mel'nikov, let us climb up the rungs of the flights of ladders of the 27-meter-high steel tower of the first line marker. A hatch opens, and we are in the small compartment housing the laser. In front of us are three cylindrical tubes with their front parts directed toward Berdyansk Bay. The sensations are as if you are standing by Engineer Garin's hyperboloid.

"And it really is an original hyperboloid," comments Aleksandr Petrovich on my remark. "The installation is small and aircooled, but more powerful lasers are cooled with water. The center line tube gives a constant light, and the two side lights, through special scanning mechanisms, are right and left beams which are marvelously visible from a distance of 25 kilometers, from a level of five to 18 meters."

As a matter of fact, the whole difficulty of using the laser for maritime navigation was bound up in the scanning, or more simply, in the special viewing of them. The fact is that a tightly-directed, straight-line laser beam is visible only from a very limited zone: when the ship is heading out directly into the point of the channel's axial line. But scanning allows the beams to be seen 90 meters to the right or left of the axis, and transforms the laser into a beacon.

The laser range beacon allows ships to pass safely along the channel's entire length, which incidentally is the longest in the country's southern seas. It deservedly enjoys the recognition of the port's pilots and navigators. The beacon can function 23 hours a day--an hour is necessary for cooling.

We put to sea in a launch. In the distance gleams a ship hastening into port, and we are looking at a miracle--a crimson beam that is seen as a square with square beams of unequal dimensions dancing along its sides.

"Hello, Berdyansk!" a [ro-ro] approaching its moorings seems to say. And we say: "Good-bye! Stay happy!" Our path now leads to Yuzhnyy Port.

...Yuzhnyy--the northern companion of the hero-city. It is almost 40 kilometers from Odessa, near heroic Grigoryevskaya, where there is a monument to the sailors who landed there. In our launch we cross the water area of the harbor--the former Adzhalykyskiy, or Grigoryevskiy, estuary. Here on the eastern shore, a hundred meters from the open sea, at the very root of the protective heel, is located the building of the coastal radar station of the service for directing the movement of ships.

We meet A. Ye. Matveyev, the deputy captain of the port. The coastal radar station and the future laser range are in his charge. In one of its rooms stands a functioning laser installation.

"The laser beacon is ready for mounting," recounts A. Ye. Matveyev. "We are placing it in the heart of the water area, in its rear portion, on the tower of the first range marker. It was also created in cooperation with the department of automation at the Odessa Higher Engineering Maritime School. The beacon will include as its regular pilot-operator a remote-control radio system that we have worked out and installed in conjunction with the electrician Aleksandr Storozhenko.

...A short time will pass, and a laser beacon will begin to operate in yet another first-category maritime port, the youngest and most mechanized in the country, but for the present with a middling freight turnover. However, in the near future it will become a giant harbor outside of any category, like its distant brother Vostochnyy Port. In the newly-built port there is a new technique for guaranteeing the safety of ship movement! Well, that's natural for our headlong century and our socialist reality.

12462

CSO: 1829/116

MARITIME AND RIVER FLEETS

DEVELOPMENT, OPERATION OF DANUBE STEAMSHIP COMPANY

Moscow VODNYY TRANSPORT in Russian 22 Nov 83 p 2

[Reportage by special staff correspondents V. Orlov and S. Parshikov on the Soviet Danube Steamship Company, which was honored with a high state award--the Order of the Friendship of Peoples: "Danube, a Route of Friendship"]

[Text] At the Crossroads of Waterways

Since the founding of the Interlikhter International Economic Shipping Enterprise to the present time, more than 70 round trips were made by the Danube lighter-hauling system, including on the Danube-India, Pakitsan route and on the Danube-Mekong route. The overall volume of the transported cargo totals nearly 2 million t today.

From a plane window one can see how the overgrown lowlands near mouths of rivers and large and small dishes of lakes cling to the river. Numerous small channels extend to it. The water reflects in a bluish-green color. Apparently it is because of this that from time immemorial the Danube has been referred to as being blue. But something else is important--it has won for itself a good name as a working river, which is being used today for the implementation of a special long-term program of cooperation in the development of transportation links of CEMA member-countries. The Soviet Danube Steamship Company is located precisely here, at the crossroads of sea and river routes. The share of its fleet accounts for more than 40 percent of the entire Danube cargo turnover and 65 percent of foreign trade shipments between the CEMA countries via the Danube. Maritime and river vessels of the Soviet Danube Steamship Company [SDP] call at a total of 150 ports in 53 countries of the world and transport more than 12 million t of cargo annually. The steamship company makes available to its clients the unique possibility of transporting any type of commodities in principle on a unified bill of lading with a full guarantee of delivering them promptly to their destination.

Peering into the outline of the Danube, we can see seagoing motorships sailing on it. Sometimes a pusher tug goes by. Self-propelled barges drift by slowly. A panorama of the youngest port on the river, the Soviet port of Ust-Dunaysk, is ahead of us. Perhaps it is a bit high-sounding to refer to

it as a panorama, since all we have seen are only two floating cranes and several tugboats. But it is precisely here that hundreds of tons of cargoes are being transshipped in a matter of hours.

The huge hauling lighters "Julius Fucik" and "Tibor Samuelli" leave the floating containers here in order to immediately take on a new batch of commodities. It is during this time that the scene, of course, is really impressive.

We recall a conversation with A. Shaposhnikov, director of the agency of the Interlikhter International Economic Shipping Enterprise [MKhSP] in the USSR. said that according to the unanimous opinion of foreign trade organizations of the countries participating in the enterprise, the selection of areas to be served by the Danube lighter-hauling system was optimal and completely corresponded to the interests of charterers and cargo owners of these countries and, above all, of those which do not have a direct outlet to the sea.

A little more than 5 years have passed since the appearance of the first Soviet hauling lighter "Julius Fucik." It sailed to the ocean, carrying the Interlikhter's pennant on its mast. Today, the steamship company already has two such vessels and will soon receive several more. But those which, as the saying goes, are in operation, are in constant active use and ensure a high carrying capacity. What more is characteristic? Lighters are simultaneously a place for storing cargo and a means for transporting it from river ports to maritime ports and the other way around. In other words, expenditures are reduced by eliminating additional transloading and storing commodities in intermediate ports.

The hauling on lighters of heavy and oversize cargo--locomotives, transformers, heavy construction machines and cisterns--has been well recognized by the charterers. It is known that delivering them according to the traditional transportation schemes, when railway transportation is also used, is extremely difficult. Mass shipments of rubber from Malaysia, Vietnam and Kampuchea have considerably increased. It is delivered with quality and within brief periods and, of course, without transshipment directly to consumer plants located on the Danube.

Today, the Interlikhter's carrying capacity ensures the shipment of all export cargo from the People's Republic of Bulgaria, the Hungarian People's Republic and the CSSR to Vietnam, Kampuchea, Pakistan and India and of all import commodities from these countries. In short, introduction of lighter shipments on the Danube has considerably expanded the possibilities of foreign trade organizations of the countries participating in the enterprise and their competitiveness on the markets of the countries being served by the Interlikhter lines.

The Mark of Quality to a Lighter

Shipbuilding has become one of the directions in the activity of ship repair enterprises of the Soviet Danube Steamship Company. The Kiliyskiy Ship Repair Plant alone has mastered in a

comparatively brief period of time the output of DM-type lighters. In July this year, a state commission signed an act on awarding the mark of quality to this product.

A new lighter stands still on the smooth water of a backwater. Apparently, it was launched just recently. A similarly splendid one will join it soon. One can guess this simply by the fact that its freshly painted side can be seen protruding below the roof of the specialized shop. It looks as if it is in a hurry to throw itself into the water. There is a joke here now, with people saying that the skilled craftsmen of the Kiliyskiy plant are turning out these vessels like pancakes. This means fast, and a new worker is no longer surprised on hearing a reference to a lighter, which is a new word in the vocabulary. Yes, they are not only produced fast here but of good quality as well. Many will remember 26 July of this year. This day became another significant milestone in the history of the plant when the first domestic lighter to be awarded a 5-pointed star came off the building slip. This event coincided with a deep study of the decisions of the June (1983) plenum of the CPSU Central Committee and the first practical steps in implementing the instructions contained in the plenum materials. One must say that the collective of the plant has made a new, a very important step forward. It is believed that this step was quite natural because preparations for it proceeded according to all strategic and tactical rules of modern production, and leading scientific achievements were skillfully used.

Time passes rapidly. It seems that it was just recently that the plant has rejoiced over its first lighter. But this was only the beginning of the great and important work: the lighter shop has reached its planned capacity. Before long the Kiliyskiy plant workers set themselves a difficult but feasible task to provide the country's fleet with vessels which do not yield in quality indicators to the best world standards. Moreover, they resolved to achieve indicators which would exceed the world standards. This is not so easily done! But it turned out that the people here were true to their word. The proof of this is the awarding of the mark of quality to the lighter.

What is the secret of the numerous achievements by the Kiliyskiy lighter builders? First of all, it is in the fact that the people at the plant assume socialist pledges not for the sake of an effect alone but by being fully responsible and realizing that the contribution by their enterprise to the development of the fleet of the Soviet Danube Steamship Company must be very ponderable. For example, through daily shock work contributions are being made toward achieving high production indicators by the ship assembly brigades headed by A. Pankratov, V. Kosenko and V. Nogay and the brigades of electric welders headed by P. Shvets and P. Mal'tsev. We are confident that not only these brigades but the entire collective of the plant is capable of maintaining the leading positions, even though this will be just as difficult as achieving them.

The Link of Generations

Today, more than 2,000 people who work at the plant have been awarded orders and medals. Thirty people have been

honored with high state awards on the eve of the steamship company's anniversary celebration.

Snow in Izmail is quite a rare phenomenon even in winter. But when more than half a meter of it falls in a single night, and in the month of November, then, perhaps, even the old residents may not be able to recall anything similar. But this white, sparkling attire of the city was lending an even greater solemnity to the holiday. Children rushed out into the streets to play with snowballs and to build a snowman, which is so unusual for these parts, and the old people took warm garments out of the trunks and walked in the park while squinting in the bright sunlight.

But all attention of Izmail residents during these days was devoted to the upcoming holiday--the 100th anniversary of founding the Danube Steamship Company. And this is not accidental. After all, practically every city resident here has much that is linked to the river, the fleet and the sea.

The first steamship society, which began regular Russian international shipping on the Danube, appeared 100 years ago. The trade house "Prince Yuriy Gagarin and Company" was founded on 21 November 1883. A weekly steamship line to the Danube ports of Romania and Bulgaria began operating since that time. In 1903, a provision was confirmed with regards to the Russian Danube Steamship Company. From the first days of its existence, revolutionary literature, the newspaper ISKRA, proclamations and weapons began to arrive from the Danube ports to the center of Russia. In support of the uprising on the battleship "Potemkin," ship crews of the steamship company organized political strikes and seamen participated in establishing Soviet power in the Danube River area. During the black days of fascist occupation, the Danube port workers rendered as much help as possible to the Red Army in the struggle against Hitlerite invaders.

The Soviet Danube Steamship Company was organized in 1944, immediately after the liberation of the Danube River area. From the first days, its collective participated most actively in military shipments via the Danube during the concluding stage of the Great Patriotic War.

Of course, this historic digression cannot contain in itself even a hundredth share of that which is remembered and was experienced by the people who came on this solemn day to the Izmail House of Culture imeni T. G. Shevchenko. Many of them have order ribbons, medals and other awards on their chests. The names of 15 representatives of the glorious group of Danube residents are perpetuated in the names of vessels.

The successive link of generations is embodied in the accomplishments, daily deeds and workdays of workers of the Soviet Danube Steamship Company. This was described by those addressing the solemn meeting and could be seen on the display stands and exhibits of a remarkably formed exhibition, which was organized on the occasion of the anniversary in the central exhibition hall of the city. It was precisely the enthusiasts of the steamship company on the Danube and the new generations of their followers who transformed this important main line into a river of friendship and cooperation and were able

to ensure the development of the fleet with a large coastal base and the requirements of foreign trade shipments between the Danube region countries and many developed and young developing states.

The Basis is Labor Competition

Only in the first year of operations of the Dunaytrans [not further identified] the idling of barges waiting for draft was reduced compared with the previous year by 10.4 percent, work productivity of pusher tugs was increased by 1.5 percent and the conventional economic effect from the joint operations of vessels of the Soviet Danube Steamship Company and the Bulgarian River Steamship Company [BRP] for the year amounted to more than half a million rubles.

Today, the Soviet Danube Steamship Company is a large complex transportation enterprise. Therefore, it is natural that Izmail has become one of the centers for coordinating the joint activity of friendly steamship companies. In order to be convinced of this it is enough to visit the second story of the port administration building. The agencies of various countries are located here along both sides of the corridor.

We get acquainted with D. Genov, deputy general director of the Dunaytrans and chief of the Bulgarian agency in Izmail. This Soviet-Bulgarian transportation association, which was established in 1977, coordinates the operational activity of the Soviet Danube Steamship Company and the Bulgarian River Steamship Company in order to improve the use of production capacities of the river fleet and ports on the Danube in shipping foreign trade cargoes between the USSR and the People's Republic of Bulgaria. The Dunaytrans's council carries out its activity on the principles of complete equality and adherence to the sovereignty and national interests of both countries and mutual benefit and comradely mutual aid.

"With the creation of the Dunaytrans," D. Genov said, "much broader possibilities have appeared for organizing international competition. The piloting of international convoys on the Danube is being carried out more and more often, but the Bulgarian and Soviet crews are jointly solving specific unified tasks. This had made it possible to increase the relative share of joint convoys in 1982 to 42.7 percent of the overall quantity. Mixed shipments include 32.4 percent of the total volume of cargo shipped between the USSR and the People's Republic of Bulgaria. A total of 1,730 barges and sections were towed in a joint version last year."

The close business cooperation with dockers of the Bulgarian ports of Ruse and Lom has made it possible to considerably reduce the ship processing periods at these docks. In Lom alone they were reduced by 30 percent for self-propelled vessels and by 50 percent for non-self-propelled ones.

The crew of the motorship "Georgitsa Karastoyanova" has concluded an agreement with a brigade of Bulgarian dockers imeni Lilya Karastoyanova on processing

the vessel ahead of schedule. As a result, it was able to leave on its voyage 29 hours earlier. As a whole the socialist competition of this crew with Bulgarian dockers has helped in saving 600 hours of ship layover time in 1982 alone.

As a rule, the conditions of labor competition of collectives of the Soviet Danube Steamship Company and the Bulgarian River Steamship Company are legalized by an agreement. The Dunaytrans's activity is of great significance in its successful fulfillment. Therefore, it is quite natural that along with other problems the meetings of its council also discuss the questions of international competition, sum up stage-by-stage results, determine winners and make recommendations.

Thus, one of the latest meetings of the council, which was held in Izmail, has discussed the work results of the international transportation organization as a whole, and particularly of the Inflat agency [not further identified] in the ports of Reni and Ruse. Participants in the meeting have noted that in general the Dunaytrans has fulfilled its shipments plan for the volume as well as for the range of cargoes. The volume of transportation services, which are being provided to each other by the two steamship companies, has increased. Work productivity of the Soviet tugboat fleet has been increased and the layovers of vessels in Bulgarian ports have been reduced. The council stressed that these indicators were achieved to a great extent as a result of the broadly developed competition of seamen and port workers of the fraternal countries.

From the Alps to the Black Sea

Today, the Soviet Danube Steamship Company's passenger fleet has 19 ships, which serve 6 international and 3 coastal routes and transport 600,000 Soviet and foreign tourists annually.

The morning of 19 November began in Izmail with the raising of color flags on the Soviet vessels anchored in the port. They were mainly passenger flagships of the Soviet Danube Steamship Company which were lined along the embankment as if on a parade.

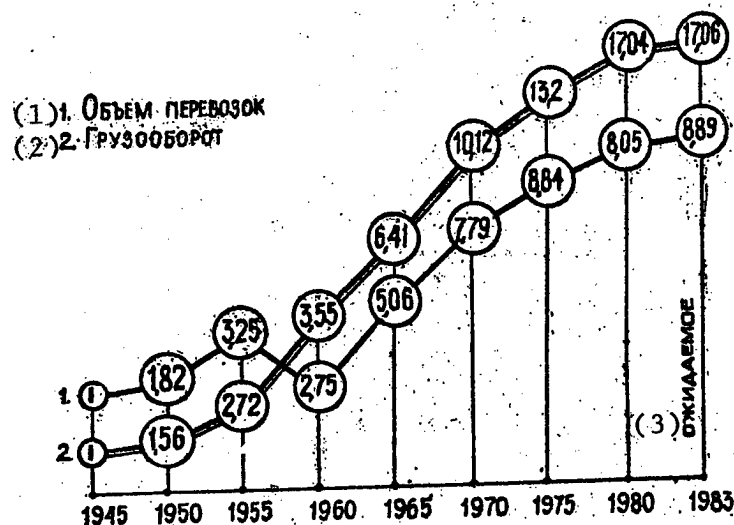
It is, of course, difficult to describe the feelings experienced by V. Solov'yev, chief of the steamship company's KhEGS No 5 [not further identified] and Hero of Socialist Labor, in looking at this unforgettable sight. Perhaps, as one of the initiators of passenger transportation on the Danube, Valentin Mikhaylovich recalled his first independent watch on the Soviet Danube Steamship Company's first passenger vessel "Temryuk" in 1947. Or maybe he thought how the fleet has changed over the years. He remembered how the two steamships "Minsk" and "Temryuk" operated between the Danube ports and had to spend a whole day in covering a distance of some 70 km. The year 1960 was a notable and a very significant milestone in the development of the passenger fleet. It was in that year when for the first time in world practice the Soviet seamen opened an international passenger line from the Alps to the Black Sea.

Up to that time, the Danube River, which is a water artery of Europe, was actually unused in international passenger shipping. Many representatives of

business circles, steamship companies and other interested organizations repeatedly held talks at the highest levels to discuss this problem, but all hesitated to build a fleet. It was the Soviet Danube Steamship Company, which realized the importance and the necessity to do this, that placed an order with the Austrian Korneuburg shipyard for the construction of the two comfortable passenger motorships "Amur" and "Dunay."

Today, the route from the Alps to the Black Sea extends from the port of Passow (FRG) across the waters of eight European Danube region countries and by sea via Istanbul to Yalta.

During the celebration of the 100th anniversary since the beginning of regular international shipping on the Danube, we have met with a great number of people and visited the basin trade union committee and the party committee of the steamship company. Regardless of who we talked to, we constantly felt that the mood among the Danube workers is a militant one. It is gratifying that it has not been declining after the collective has coped ahead of time with its 3-year task of the five-year plan for the basic indicator in shipping abroad. This victory is a solid guarantee that workers of the Soviet Danube Steamship Company will welcome the significant date of the 60th anniversary of the USSR maritime fleet with new achievements in labor.



Key:

1. Volume of shipments
2. Cargo turnover
3. Expected

The ports of the steamship company have fulfilled the plans for 2 years and 10 months of the 11th Five-Year Plan and processed 1.3 million t of cargo above the plan.

Work is performed according to the Shchekino method on 15 ships of the steam-company. The economic effect from this amounts to R72,000.

More than 80 crews annually conclude agreements on international socialist competition with collectives of industrial and transportation enterprises of the Danube region CEMA member-countries.

The steamship company is constantly conducting housing construction, it has its own kindergartens and children's nurseries. Workers enjoy the services of clubs, a stadium, sports halls, a polyclinic, a hospital and the Vostok holiday hotel.

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MARITIME AND RIVER FLEETS

RIVER FLEET CONFERENCE ON SHIPPING ACCIDENTS; DRUNKENNESS CITED

Moscow VODNYI TRANSPORT in Russian 17 Dec 83 p 2

[Article: "Navigation Safety: "A Comprehensive Approach"]

[Text] As has already been reported in our newspaper, a republic conference was held in Gorkiy on December 14. At it were reviewed the results of the 1983 navigation year and the tasks of river fleet workers in assuring the safety of ship navigation along the internal water routes of the Russian Federation, in strengthening labor and production discipline, and in increasing education work among the sailing personnel of the river steamship lines and of the fleet's other proprietors.

In the Volga capital of the river transport workers, there assembled commanders of transport ships; directors of steamship lines, ports, and enterprises; route maintenance personnel; workers of the ship navigation safety service and the basin navigation inspection service; secretaries of party committees; chairmen of basin committees of the trade union for maritime and river fleet workers; workers of transport procurators' offices; and representatives of ministries, departments, and other organizations that have the river fleet in their charge.

L. V. Bagrov, RSFSR Minister of the River Fleet, presented a report on the work of river transport.

In the discussions that developed on the Minister's report, there spoke A.I. Shurmin, director of the Kama Steamship Line; Hero of Socialist Labor V.S. Manakov, captain of motor vessel OT-24-2 of the West Siberian Steamship Line; A.M. Gartsev, chairman of the Northern Dvina Basin Committee of the trade union for maritime and river fleet workers; V.A. Okorokov, secretary of the party committee of the Northwestern Steamship Line;

G.A. Yegorov, captain of the Volga passenger motor vessel "Konstantin Fedin"; S.P. Bulgakov, chief of the ship navigation safety service of the White Sea-Onega Steamship Line; V.A. Popov, director of the Volga basin route administration; V.G. Poluektov, a Lenin Prize laureate and captain-preceptor of the Volga Associated River Steamship Line; and other comrades.

Deputy Chairman of the RSFSR Council of Ministers L.P. Lykova delivered a speech before those assembled.

The participants at the republic conference approved an appeal to the sailing personnel of the steamship lines and to the fleet's other proprietors, and to all river transport workers.

Today we are publishing a report on this conference.

Alarming Statistics

Accident. Safety of navigation. Transport accident. These words and expressions resounded in almost every speech. And behind each such phrase, in short, there stood anxiety for the state of affairs that has taken shape on the country's river highways.

If we address ourselves only to the figures, the picture would not appear to call forth any particular alarms. And the steamship line collectives in fact are struggling to improve discipline and are striving to prevent accident situations. Much is being done to improve the safety and reliability of fleet movement and to establish normal route conditions. Not only the economic executives are concerning themselves with this, but also the party and trade union organizations. And there are reassuring results. Thus, for example, during the current navigation season, the number of accident cases with ships has been reduced by 18 percent in comparison with last year.

More than 97 percent of Russian Federation fleet crews have worked without an accident. In this is seen the great merit of their commanders, who perform their service duties skillfully and conscientiously. It would be possible to name many captains, mechanical engineers and navigators who have not allowed a single accident in their duty work on the river. One can also name enterprises where questions of navigation safety are viewed with a keen sense of responsibility. But today we are talking about something else. The figures and facts also have another coloration.

The analysis of the state of affairs is convincing--the accident rate still remains high in a majority of the steamship lines. The Lena, Ob-Irtysh, Volga Associated, Yenisey and Northern Steamship Lines and Volgotanker have nothing to be happy about in this respect. The Volga-Don Steamship Line is finishing the current year with sad results. The collectives of the East Siberian and Amur Steamship Lines are not in harmony with labor discipline. And an increase in transport accidents is the consequence.

In ten months of this year, some 7,000 workers of the sailing personnel of the republic's fleet had received disciplinary punishments. This is more by far than last year. It is also depressing that almost half of the punishments are falling upon the commanders of ships.

At the conference it was frankly and loudly stated that what often leads to trouble is drunkenness. What, let us say, were the navigators of three Amur cargo motor vessels thinking of when they engaged in a collective drinking bout before being dispatched on a voyage? Two hours later one of these good-for-nothing captains fell asleep at his post. The helmsmanless motor vessel crashed into the shore at full speed, crushing a boat filled with vacationers. Former navigator Savos'ko was denounced, and his bottlemates were disqualified.

Unfortunately, such facts are not isolated. Let us turn again to the statistics. In the present navigation period, almost 50 of the fleet's commanders were observed to be on watch in a state of intoxication. The number of those disqualified has increased by almost five times in the Volgotanker Steamship Line, by 2.2 times in the Bel'skiy Steamship line, by 3 times in the Volga-Don Steamship Line, by 2 times in the Ob-Irtysh Steamship Line, and by 2.7 times in the Amur Steamship Line.

Facts are stubborn things. In the given instance, they say that the state of navigation safety is alarming. In consequence, the participants at the All-Russian conference in principle sought ways to resolving the sore subject with great interest.

The Captain Is Responsible for Everything

Today, as never before, a comprehensive approach is required in solving a major problem. And the conference participants brought to light a whole series of courses, by following which one can achieve positive results. One such course is to raise the role of the commanders of ships still higher. The captain is the central figure in the fleet. They count on him to work and to set an example of responsibility and self-discipline, and they try to imitate him.

On attention to the selection and education of captains depends not only the successful resolution of immediate tasks, but also the future of the river fleet. That's why every appointment to this post must be thoroughly weighed, and the opinions of party and trade union organizations and the shipping inspection, as well as the advice of commanders and captain-preceptors, must be considered. It would be good if every appointment to the post of captain were to be a solemn occasion, emphasizing the significance and the responsibility of the event.

In questions of selection and placement of fleet command cadres, it is very important who provides the recommendation for the regular awarding of the navigator's certificate, and for his appointment as captain. In the majority of the steamship lines, there is a clear-cut system. All those who do the recommending bear the responsibility for the fleet's newly-appointed commander and help him become established. Such an approach to the promotion of command cadres reduces mistakes and miscalculations to a minimum.

The objective evaluation and recommendation of the captain-preceptor of the allotted group of ships is exceptionally important in the evaluation of the practical and political morale qualities of the navigator. Some 300 such specialists work in the river fleet. It was emphasized at the conference that the safety services of the steamship lines must structure work so that the captain-preceptors are real teachers.

In questions of selection and placement of cadres, an important place also belongs to the directors of ship repair facilities, ports, and repair-maintenance bases. Precisely here must be conducted all this multifaceted work, here all everyday social questions must be resolved. Unfortunately, in the majority of the steamship lines they basically concern themselves with this only in the wintertime. A.I. Shurmin, the director of the Kama Steamship Line, in confirming this, stated:

"Correct placement of command cadres in the fleet is a firm guarantee of its normal, accident-free working during the navigation season."

The Power of Influence

The June (1983) Plenum of the CPSU Central Committee noted the need to increase the role and importance of local party organizations as the driving force and political nucleus of labor collectives, and their responsibility for communist education of the workers and for strengthening organization and conscientious discipline.

Almost 13,000 communists work in the fleet. However, in the individual steamship lines, the party stratum in the fleet is considerably lower than the average for the ministry. For example, aboard the ships of the Lena Associated Steamship Line, communists constitute only seven percent, of the Vyatka Steamship Line eight percent, and of the Ob-Irtysh Associated Steamship Line ten percent. It is hard to establish ships' party organizations and party groups under such conditions. And yet life demonstrates that where there are party organizations, party groups, and communists aboard the ships, production tasks are resolved more successfully, there is better labor discipline in the crews, and the accident rate is considerably lower or completely eliminated. In this respect, a need has appeared to establish associated party committees in the Amur, Lena Associated, and Yenisey Steamship Lines and in Volgotanker. There are such party committees in other steamship lines.

The trade union aktiv, the houses of culture, the agitation courts, and the voluntary sports society "Vodnik" can also do much in educational work. Up to now, the river transport workers' criticisms of the low quality of lectures and the poor supply of books, newspapers and journals have been numerous. It is necessary to draw party and labor veterans and participants in the Great Patriotic War into propaganda work more widely.

The attitude toward uniforms should not in the least be only nominal. And this is no trifle. It is hardly a secret that some commanders of the cargo and tugboat fleet do not even wear uniforms. There has also been criticism of the Main Material-Technical Supply Administration and the Main Administration of Workers' Supply--not all enterprises and stores stock uniforms.

And all this, both great and small, that we variously relate to the power of influence should be directed toward a final result--the lowering of the accident rate in the fleet.

"Educational work," said G.A. Yegorov, captain of the motor vessel "Konstantin Fedin", "requires a constant calculation of changing conditions, which increases the level of education and culture of every crew member. And if the party organization, the ship's trade union committee, and the Komsomol members keep all this in view, the collective will also work better, and the people be politically active, and discipline be strong."

The Brigade Method

It has become almost the rule: where progressive labor methods are inculcated more actively among the sailing personnel and are in effect, there is safer navigation. One such method is the brigade form of work. Incidentally, it is just that toward which the CPSU Central Committee decree "On the further development and increasing of the effectiveness of the brigade form of organization and stimulation of labor in industry" directs the country's river transport workers. And although the advantage of the innovation is evident, up to now it is still spreading slowly in the branch. For the ministry as a whole, only 29 percent of the tugboat and pushboat crews are working by the brigade method, and in the Pechorskiy Steamship Line--14 percent, in the Sukhonskiy and the Amur Lines--13 percent, in the Ob-Irtysh eight percent, and in the Lena Associated only two percent. At the same time, 57 percent of the ships in the West Siberian Steamship Line work in this fashion.

Hero of the Soviet Union V.S. Manakov, captain of the motor vessel OT-2402, has presented good evidence of what such a method will yield:

"I am the senior captain of a group of 11 ships. They work on the Tomsk-Nizhnevartovsk line. What's special about the group method? First of all, at the head of the corner stands the collective form of responsibility for fulfillment of a common group plan. Let us also consider both the contribution of each to the common pot and the individual obligations of each.

"Beginning with the 1978 navigation season, a statute on the work of ships' crews by the group method has been in effect in our steamship line. It was coordinated with the basin committee of the trade union of maritime and river fleet workers, and approved by the director of the steamship line. After each navigation season, the statute is renewed. Proposals and observations by the crews and by the movement services are considered. The moral and material stimuli and the rewards procedure for fulfilling plans and obligations undertaken are set forth in documents.

"The experience accumulated has become the basis for our initiative 'Work efficiently, sail without accidents'."

The Reliability of Technology

The ministry has devoted much attention to the technological equipping of the fleet, especially of newly-constructed ships, with machinery that will allow the raising of labor productivity in haulage, as well as the safety of navigation. With modern technology in their hands, the river transport workers naturally are obliged constantly to improve their service, to strive for safety and reliability in its work. And how important it is strictly to observe timeliness and high quality in the fulfillment of technological maintenance, and also daily and periodic inspection of the operation of ships' direction machinery by crews and shore specialists!

A scornful attitude towards technology inevitably costs one dearly, and leads to accidents. That's what happened on the Volga with the passenger motor vessel "Sergey Lazo". This accident brought to light one other inadequacy--insufficient training of the crew for operations in the event of malfunctioning of the ship's technical machinery. This is also related to the fact that on some ships and in shore subunits, preventive inspection to avert accidents is conducted nominally.

This is why, as was noted at the conference, the question of ensuring the reliability of the operation of ships' technical machinery must be the principal one in impending ship repairs. And moreover: in accepting the fleet from repair facilities, the inspectors of registry and navigation have no right to allow even the smallest departures from the requirements of the rules and instructions.

The questions of the reliability of technology and of proficiency in its use concern the crews of all types of ships.

"On the Volga lines during the current navigation," said Captain-Preceptor V.G. Poluektov, a Lenin Prize laureate, "187 high-speed ships completed haulages. As is known, every fifth passenger on the Volga is carried by the hydrofoil fleet. I know that results could be more impressive, but too often troubles and breakdowns occur. The reason? The technical status and reliability of high-speed vessels, I say it straight out, is still far from the proper level. And it is naturally difficult to ensure navigation safety. We're trying, but one must not forget that the hydrofoil fleet needs help."

The Training of Specialists

New, modern ships join the river fleet every year. They require proficient, well-trained river transport workers. But not infrequently young specialists violate production and labor discipline from their first days in the fleet. All this relates to errors in the ordering of the training process and in

ideological-educational work in a number of educational institutions in the industry, and first of all at the Novosibirsk Institute and the Yakutsk and Limendskiy River Schools. It happens that young specialists also do not arrive at their place of assignment. In addition, the river educational institutions poorly inculcate command habits in their students.

The ministry is doing much to correct inadequacies in this regard. In particular, new educational plans are being introduced in the educational institutions this fall to improve the quality of training for navigators. Special attention is being devoted to simulators.

At the conference, it was noted that fulfillment of the plan of selection for the educational institutions, especially for the professional technical institutions, is going very alarmingly. In the individual schools, a total of three to five applications have been submitted for the specialty of ship's fitter. The directors of the steamship lines and the base enterprises are devoting insufficient attention to this important question, are concerning themselves little with the strengthening of the material-technical base of the educational institutions, are forgetting that in these very institutions and schools are being trained the fleet's next generation, the future of the industry.

"The training of cadres is not a matter for the educational institutions alone," observed V. Sidorov, deputy director of the Volga Associated River Steamship Line. "In the past five years, the training of qualified workers directly for production has increased by 45 percent, and for the fleet by 65 percent. In the next year, we plan to train 4,000 individuals in various specialities in the enterprises."

"The means of improving the growth of cadres," stated V. Okorokov, secretary of the party committee of the Northwestern Steamship Line, "can be most diverse. For instance, the system of universal compulsory education--political, economic, technical, and also the course and seminar methods. This year alone, various forms of training have been undertaken by more than 3,000 of our fleet's commanders. The purpose is to raise to first place the level of labor discipline and of responsibility for the business at hand."

Dispatchers and Route Maintenance Personnel

When we speak of accident-free work, a large role is undoubtedly played here by the dispatchers of the steamship lines and ports. But is the dispatcher always master of the occasion? No, not always. They observe established procedures in sending ships into storm-endangered areas, and staffs are sometimes put together in a hurry, without standard plans. All of these are causes of and preconditions for accidents. Organization of better movement of ships and staffs in the roadsteads remains to be desired, especially during the hours of darkness. Barges are often neglected. Instances of serious disorders in the roadsteads were observed in the Moscow, Volga Associated, Yenisey, West Siberian, and Lena Associated Steamship Lines.

The art of the organizers of movement consists of ensuring fulfillment of the plan without risks and hurry, without losses and accidents. To guarantee the safety of navigation, solidarity between navigators and route maintenance personnel is necessary. This must be the law of life in the fleet.

In recent years, much has been done to improve the navigation routes. Straightening work has been carried out on difficult stretches of the Neva, Ob, Yenisey, Lena and other rivers. A system of beacons has been introduced on reservoirs, and the light signal apparatus on the markers of navigational equipment of water routes has been improved. And still the level of this work does not meet the growing demands of modern navigation. Recently the disproportion between the rate of the fleet's development and route conditions has been increasing. This unenviable tendency has a negative effect on the maintenance indexes of transport work, and not infrequently leads to accidents. The task of route maintenance personnel is to establish the most advantageous conditions for the fleet's work.

"Of course, not everything in our activity is yet completed," says V. Popov, director of the Volga basin route administration, "but much is being done. Thus, at the Gorodetskiy and Balakovskiy locks, a regulated gear has been installed on the upper working gates for the filling of the chambers, by which lock time is saved. However, problems are getting bigger all the time. We are working on them even now."

The Ships of Various Departments

At the conference, the question of departmental ships was not raised by chance. It was noted that the accident level in the basins depends in large part on their technical condition and work. The indexes of the technical condition of this fleet in the RSFSR Register are considerably lower than the analogous indexes for the ships of the Ministry of the River Fleet. An analysis shows that there are many instances of the use of ships with Register prohibitions, with expired documents of fitness for navigation, and with serious defects.

Here is a typical case. Ten ships of the Nizhnevartovsk Timber Management Association "Omskles" were technically defective upon inspection. Similar inadequacies of departmental ships create a constant threat to the safety of navigation. Certainly there is reason to establish a single system of service organization for all ships, regardless of their ownership, as well as uniform rules for river transport. The Ministry of the River Fleet regards it as wrong and harmful in principle for navigators dismissed from the industry's enterprises for drunkenness, accidents, and other serious violations to be accepted for work on departmental ships, and even at higher wages. It is necessary to eradicate such things by joint efforts. Here the organs of the transport procurator's office also should have a powerful voice.

Next year greater and more responsible tasks will be placed before the workers of the river fleet. The hauling of 524 million tons of freight with a freight turnover of 261 billion ton-kilometers is envisaged. It is planned to improve the economic indexes and the quality of work considerably and to increase the efficiency of the employment of production funds, especially those of the fleet.

There is no doubt that the river transport workers will devote all their strength and knowledge to the satisfaction of the requirements of the national economy in the haulage of freight and passengers, will carry out the decisions of the 26th Party Congress and of the subsequent Plenums of the CPSU Central Committee, and will make the Motherland glad with their new labor successes.

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PORTS AND TRANSSHIPMENT CENTERS

MARITIME FLEET MINISTER ON OPERATIONAL PLANNING IMPROVEMENT

Moscow MORSKOY FLOT in Russian No 11, Nov 83 pp 8-10

[Article stated to be a presentation of part of a speech by the minister of the maritime fleet, T. B. Guzhenko: "Increasing the Quality of Operational Planning" under the heading: "Management and Economics"]

[Text] "With the use of computers, consider and resolve the problems of improving the management of the operations of the fleet and the ports on the basis of a system of continuous operational planning and the optimization of planning and management decisions." Such is the task minister of the maritime fleet, T. B. Guzhenko, put before a recently convened meeting in Leningrad of management workers of steamship companies, ports, scientific research institutes and educational establishments.

Shortcomings in planning the organization of the operation of the fleet and the ports directly affect the results of the activities of the steamship companies and lead to large losses in utilizing the carrying capacity of the fleet and the throughput capacity of the ports. Clearly, in the organization of transportation, we are falling behind the growing productive level of the development of maritime transport.

Today, 24 percent of the dry cargo fleet consists of the most modern, specialized ships including 40 container carriers, 44 roll-on/roll-off ships, 17 ferries, more than 30 refrigerator ships, and some 100 bulk carriers. In tonnage, these ships comprise 26 percent of the dry cargo fleet, but considering value, their portion is significantly greater.

The sector has about 100,000 large-tonnage containers and 10,000 cargo trailers.

To provide for processing and servicing the new fleet, much money has been invested in ports, especially in fitting them out with modern cargo handling equipment.

In the ports of Leningrad, Riga, Ilichevsk, Nakhodka, Vostochnyy, Vladivostok and Petropavlovsk-Kamchatka container terminals with advanced, modern equipment have been created.

For general-purpose piers, over the past years more than 500 portal cranes have been acquired. Ports have received more than 8,000 lift trucks and much other cargo handling equipment, including mobile pneumatic loaders for the transfer of grain and also powerful floating pneumatic loaders.

The investments which have been made in the specialized fleet and the ports are large, but the yield from them cannot satisfy us at all.

It is intolerable to operate the specialized fleet the way many have become accustomed to doing - like the "old man" when, basically, there were low-productivity, inexpensive ships.

Unfortunately, there are serious shortcomings in the utilization of specialized ships in the Black Sea, Azov, Far East, Latvian, and Estonian Steamship companies. During the period 1979-1981, in the majority of these steamship companies the gross intensity of processing container carriers and roll-on/roll-off ships fell by 7.3 percent and, in so doing, their rate of being processed in domestic ports was substantially lower than in foreign ports. Exceptionally large idlenesses of these ships in Ilichevsk, Odessa, Berdyansk, Kerch, Riga, and Tallin were caused by unpreparedness of cargoes for roll-on/roll-off ships, untimely bunkering, and prolonged preparation of documents.

Unproductive layovers of roll-on/roll-off ships and container ships in Tallin consisted of 30 percent of all layover time, in Riga it was 53 percent, in Vostochnyy and Nakhodka - 40 percent, and in the ports of the Azov Steamship Company, it was above 60 percent.

The Far East, Azov, and Black Sea Steamship Companies are allowing the feeding of ships into port in batches and are not preparing ahead of time the consignments of cargoes for roll-on/roll-off ships.

Roll-on/roll-off ships are being utilized very little for the transport of large-volume units of general freight on cargo trailers, specifically, equipment, metals, and structures. This is very important for reducing labor costs in ports.

All these shortcomings, basically, are related to the nonconformity of the level of organizational work with the new conditions in the new technical basis. Many workers still continue to measure in days the time being spent by the fleet in port layovers for processing and servicing, whereas accounts now should be carried, literally, in minutes. It is necessary to compose an operating schedule for specialized ships in coordination with the ports in a well thought-out manner, to adhere to them strictly, and to arrange for the loading of the fleet ahead of time. It is necessary to utilize fully those capabilities which the new equipment gives for increasing the efficiency of the operation of maritime transportation, of the fleet and the ports while at the same time solving the problems of more efficiently utilizing the whole material and technical base and the labor resources of the sector and of each enterprise, brigade, and every engineering and technical worker and office worker.

Right now our most important task is the further improvement of the operational management of the work of the fleet and the ports. This acquires special importance in the light of the decree of the CPSU Central Committee and the USSR Council of Ministers: "On improving the planning and organization of the transportation of national economic cargoes and passengers and the strengthening of the influence of the economic mechanism on increasing the efficiency of the work of the enterprises and organizations in transportation."

It is necessary for us to provide for the comprehensive planning of transportation and to utilize the material and technical base most efficiently. It is important to achieve high final results in economic activities and a balancing of the requirements for transportation with the carrying capacity of the fleet and the throughput capacity of the ports by a broad introduction of the achievements of scientific and technical progress, by improving the operational activities of the steamship companies and the ports, and by increasing the productivity of labor and the quality of transportation service. On every ship and enterprise of the industrial sector it is necessary to achieve efficient utilization of fixed assets, of material, labor, and financial resources, the economical expenditure of fuel, electrical energy, and materials, and to eliminate losses and unproductive expenditures.

There is a need to provide for the further development of independent accountability at all enterprises and at the upper level of management on the basis of the assignments of the Five-Year Plan and long-term normatives which guarantee an increase of resources at the disposal of steamship companies, ports, and other enterprises depending on the improvement of the final results of economic activity. Also required are increases in the quality and efficiency of the transportation and transshipment of freight, in the repair of the fleet, in the satisfaction of the demands of the national economy and the public for transportation of freight and passengers - all with minimum cost in the growth of outlays of funds in the state budget.

The decree of the CPSU Central Committee and the USSR Council of Ministers establishes that the evaluation of the results of the economic activity of transportation enterprises and also their incentive should be made on the basis of the fulfillment of approved planning indicators with allowances made for the peculiarities of each kind of transportation. For us, first of all, these indicators are: the volume of transport (shipments of freight) in coastal navigation in tons and in accordance with the basic products list, the revenues from foreign haulage, and the total volume of transport (shipments) of exports and imports in tons according to the basic products list. There also are the indicators of the increase in the productivity of labor, the growth of profits, and the reduction of the costs of transportation.

It is necessary to turn special attention to providing for the transportation of cargoes in foreign trade, not only as a whole, but also according to routes and the products list.

The fulfillment of the Five-Year and annual plans in accordance with these most important indicators must be assured by the fulfillment of the quarterly plans. Therefore, the decree of the Party and the government on improving

the planning and organization of transportation in which the indicators were established, are being approved in Five-Year Plans with a breakdown by years, and in annual plans, and the basic requirements for improving the operation of transportation apply in full measure to the whole organization of operational work.

The qualitative side of the work, its final results in fully satisfying the demands for maritime transportation - these are the basic requirements for effective operational activity, for effective planning and management of the fleet and the ports.

The existing system of planning transportation and the operations of the steamship companies and the ports has many shortcomings. As usual, the level of the indicators achieved in the previous period is the basis, but there are no calculations based on advanced normatives with allowances for business conditions which are taking shape or changes being forecast. As a consequence, an identical increase in the indicators is being given to those who work well and to those who work poorly. Thus we are not compelling those falling behind to decidedly improve their work, and we are shifting the responsibility for their poor work on to those who are leading the way.

There is a need to create a whole system of operational planning, well coordinated between upper and lower levels, and based on a broad application of automated accounting and a precise formalization of procedure.

Taking into account the changes in freight traffic and the make-up of the fleet, the specialization of steamship companies should be defined more accurately. Without it, automation of the distribution of freight being presented for transport is impossible. Because of the lack of a firm basis for supervising NGRF [continuous schedule of fleet operations], steamship companies cannot, with perspective structure their work in the area of providing cargoes.

The existing specialization of the operations of the fleet for the transport of dry cargoes in foreign navigation on the most important routes - the Cuban, Vietnamese, and Indian routes and to ports of South East Asia and the Eastern Mediterranean - on the whole, are in line with the most efficient utilization of the fleet. It requires for each steamship company, however, detailing and working out precise, unified parameters for the utilization of a single-type fleet and the centralized coordination of schedules, of the level of shipping line freight rates, and of orders to shipping agencies and so on.

Computing equipment has received widespread application in the maritime fleet. Many of the tasks of automated control in the sector have been worked out and put into practice. An ample reserve capability is available - IVTs [Data Processing Centers] have been created. Developers are available in these centers and in scientific research institutes who have accumulated sufficient good experience.

Practically all steamship companies now have computers with sufficient on-line and external memory and display systems to conduct NGRF in an automated conversational mode. This gives us the capability of using computer equipment more widely in the solution of operational problems and the capability to create a comprehensive system of continuous operational planning - a system in which the role of the steamship companies and of their right and obligation to provide more effectively for the transportation of the freight in the freight traffic assigned them, is increasing.

The cargo fleet is a main link in our economy. Its effective utilization, in many respects, depends on a well thought-out placement of ships on lines and routes, and on the system of voyage planning. The latter should provide for a unity in the interests of crews, KhEGS [Independent Operational Groups of Ships], and steamship company personnel, and should directly interest seamen in the solution of the general problems confronting the steamship companies. This system must be as simple as possible, comprehensible to seamen, and must provide a true evaluation of their work, of their efforts to fulfill voyage requirements.

One of the shortcomings of the present system of voyage planning is the lack of a precise connection between the plans of the steamship company, the KhEGS, and the ship. The planning of the work of the basic production unit of the industry - the ship - is being accomplished in isolation from the systems and methods of planning of the steamship company and the KhEGS.

As a result, from year to year, the situation is repeated when, as a whole, the quarterly and annual plans of the steamship company are fulfilled, but many ships do not fulfill quarterly and annual plans according to the summation of voyage assignments.

Such a situation does not create for seamen an interest in searching out unused capabilities and engenders an indifferent attitude toward the final results of a voyage, especially when at the beginning, it is clear that the assignment will not be fulfilled because it is based on unrealistic normatives.

A new approach is needed to the method of voyage planning and of evaluating the work of cargo ships. It should strengthen the role of ships crews in the implementation of the planned assignments of KhEGS and steamship companies. It should create a complete system for the operational planning of the work of the fleet, steamship companies, KhEGS, and ships on the basis of a unity of purpose, of normatives, and of indicators. It also should increase the role of NGRF in the operational management of the fleet.

The basic purpose of voyage planning is the mobilization of ships' crews to provide a high-quality fulfillment of the production and financial plans of KhEGS and steamship companies, and the obligations to the client. It also is for the development of initiative in searching out unused capabilities for increasing the efficiency of ship operations on every voyage, and for strengthening the interest of seamen both in the results of their own work and the general results of KhEGS and shipping company operations.

Such a method of voyage planning and evaluating the results of the implementation of voyage schedule plans will assist in transferring NGRF into a qualitatively new stage of development. Becoming a document on the basis of which the organization and evaluation of the work of the fleet is carried out, NGRF will require for itself the special attention of managers at all levels of fleet operations and the constant attention of the top managers of steamship companies in improving the supervision and composition of the normative basis of NGRF.

The progressive changes in the composition of the fleet, in the equipping of the ports, and the development of liner shipping and container transport oblige maritime transportation workers to find and skilfully utilize internal reserves to improve operational work in the sector.

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