

NLMK

GROUP

CORPORATE MAGAZINE

#5 2011





NLMK Coating: A Century of Service to the Customers

NLMK Coating, located in the French commune of Beautor, recently celebrated its 100th anniversary. The company marked the event by holding an Open Day.

NLMK Coating specializes in manufacturing cold-rolled and electrogalvanized steel. The electrogalvanizing line was commissioned in 1976, allowing the company to enter the automotive steel market, where over the past 30 years it has succeeded as a supplier of automobile body parts and components.

The celebrations began with the inauguration of a commemorative sculpture created by the employees. The ceremonies were attended by politicians, public figures, the media and NLMK Coating managers and employees. Welcoming speeches were made by Mr. Bayle, Prefect of the region, Mr. Horacio Malfatto, CEO, NLMK Europe, Mr. Jean Jouet, COO, NLMK Europe Strip Products, and Mr. Guy Ancelet, General Director of NLMK Coating.

Mr. Guy Ancelet stressed that “in order to continue to operate successfully for another 100 years, the company should not fear change, but instead encourage it, to continuously modernize our methods of operation in line with market requirements, and to consistently improve the working and living environment.”

Mr. Malfatto used this opportunity to express his gratitude to company employees, whose unique skills allow the NLMK Group to supply steel for the automotive industry. He stressed their dedication, motivation and willingness to overcome challenges, and their remarkable team spirit, all of which are clearly corroborated by outstanding industrial safety performance and the high quality of company products. The President of NLMK Europe, which includes NLMK Coating, expressed his confidence that the experience accumulated by the company “will allow us to show even better performance.”

Company employees, members of their families and retired former employees were invited to participate in the Open Day events. Everyone enjoyed the celebrations. The company produced a corporate movie to commemorate the 100th anniversary of NLMK Coating and a special book, copies of which were presented to more than 1,400 guests. NLMK Magazine joins the chorus of greetings to the company and extends its wishes of further success.

By Brigitte Simon



CALENDAR OF EVENTS

Visitors Are Welcome	2
No Chemicals Added	2
Stoilensky Signs Contract with Siemens	3
Indian Service for Russian Steel	4

ECONOMY AND PRODUCTION

Crisis Knocking on the Door. Again	5
Tomorrow is Born Today	7
Growing Deep	9
NLMK Europe: New Opportunities	11
Riding the Green Wave	13
Create, Invent, Experiment!	17
GLONASS in Sary Oskol	19

SOCIAL RESPONSIBILITY

12th Annual NLMK Pennsylvania Golf Outing	23
NLMK Indiana Donates Funds for Cot	23

PANORAMA

Three Centuries Old and Going Strong	24
Iron as the Core Metal of Civilization	30
Electricity and Family Values. The Story of Werner Siemens	32



VIZ-STAL.
REPRESENTATIVES OF
KRYFS TOURING THE COLD
ROLLING MILL

VISITORS ARE WELCOME

Frequent visits by representatives of foreign companies to NLMK Group businesses no longer come as a surprise.

NLMK is one of the world's most cost-efficient steel companies and can offer a worthwhile learning experience. Recently Stoilensky was visited by a group of Japanese experts from the Nippon Steel



VISITORS FROM JAPAN AT STOILENSKY

Corporation, who came to review the ore mining and processing operations. Before coming to Stoilensky the Japanese team also visited Novolipetsk to observe how the iron ore is processed into steel.

VIZ-Stal was recently visited by representatives of two companies. The team from Siemens came to negotiate a potential future increase in the supply of steel from the Urals, while Mr. Saif Kureshi, Manager of KRYFS, had a special interest in the on-going technology upgrade at the facility. Cooperation with these companies is expected to continue. ■

NO CHEMICALS ADDED

Prior notification procedures required by Turkey's new legislation governing chemicals have been completed by Novolipetsk and Altai-Koks in a timely and comprehensive manner.

The notification dossiers for NLMK Group products, including pig iron and ammonium sulfate, were drafted with due account of recommendations obtained earlier from the European

consortia regarding compliance with REACH requirements for relevant products. All notifications had been filed with the Ministry of Environment and Forestry of Turkey in March of 2011.

Compliance by NLMK Group



businesses with Turkish notification requirements vis-à-vis chemicals will allow for continued unimpeded exports of these products to Turkey. ■

FOR REFERENCE:

REACH (Registration, Evaluation, Authorization, Chemicals) is a regulation of the European Parliament and the EU Council governing the production and marketing of chemical substances and their further use in the European Union. It came into force on June 1, 2007. The REACH regulation

establishes rules which apply to all stages of manufacturing, marketing and subsequent use of products in terms of their chemical composition. Its primary objective is to mitigate the harm to human health and the environment posed by the use of various chemical substances and compounds.



STOILENSKY SIGNS CONTRACT WITH SIEMENS

Stoilensky has signed a contract with the Siemens VAI/Outotec consortium for the design and supply of required equipment and technologies, as well as the rendering of other services related to the construction of a Pelletizing Plant at Stoilensky with a capacity of 6 mtpy of iron ore pellets. The project is part of the Group's strategy targeted at strengthening vertical integration and is being executed as part of Stage 3 of NLMK's Technical Upgrade Program.

The EUR280 million contract covers the supply of main process equipment. Construction is

expected to be completed in 2014. The plant will be able to fully cover the Company's pellet requirements as early as 2015, even considering the launch of the 3.4 mtpy Blast Furnace #7 at Novolipetsk.

Stoilensky is currently expanding its pit and growing ore processing and beneficiation capacities. Section IV of the Beneficiation Plant with 4 mtpy of concentrate became fully operational in May 2011 adding an incremental 2 mtpy iron ore capacity. As a result, Stoilensky's iron ore concentrate capacity will total 14 mtpy of iron ore concentrate and 1.7 mtpy of sinter ore by this year's end. Construction of the crushing facility and Section V of the Beneficiation Plant (additional 4 mtpy of iron



ore concentrate) will be completed by 2014. The newly launched capacities will ensure raw material supply to the Pelletizing Plant that is currently under construction.

Investments into Stoilensky expansion, including into the Pelletizing Plant construction, are estimated at RUR41 billion (~USD1.4 billion; ~EUR1 billion) over 2011–2015. ■

NLMK HOLDS BOARD OF DIRECTORS MEETING

On October 3, 2011 NLMK's Board of Directors approved the decision to launch the RUR50 billion (~USD1.71 billion; ~EUR1.2 billion) corporate bond program with a maturity of 10 years. The Board also approved the Decision to issue the bonds and the Prospectus of the bond emission.

The new issue is being lead-managed by Gazprombank, ZENIT Bank and ROSBANK. This new instrument will help NLMK to attract long-term capital required to finance projects such as its Technical Upgrade Program.

In addition, the Board approved a number of related party transactions that had occurred in the normal course of business, as well as determined NLMK's auditor remuneration. ■

NLMK CLOSING CREDIT AGREEMENT

NLMK has successfully closed a credit agreement for a total of EUR93 million with a maturity of 10 years. The credit was arranged by Deutsche Bank and Société Générale.

The facility will be used to finance NLMK Group's capex program, notably to complete the construction of its Kaluga Mini-Mill, which is part of the Group's Long Products Division. ■



Continued on page 7

INDIAN SERVICE FOR RUSSIAN STEEL

NLMK has announced the acquisition of the National Laminations, an electrical steel service center in India.

National Laminations Group is a grain-oriented (transformer) steel processing and distribution company with around 50 employees. It has processing capacities of 16,000 tpa, located 200 km from Mumbai. It also has warehousing capacities in the close proximity to the port that facilitates delivery of NLMK transformer steel from Russia. The total consideration of the transaction was approximately USD8 million. This acquisition will enhance NLMK's position in the Indian market as one of the leading suppliers of grain-oriented electrical steel, controlling production from crude steel manufacturing to delivery to the final customer. ■



EGM RESULTS

In the end of September NLMK held an Extraordinary General Meeting (EGM) in the form of proxy voting.

Shareholders approved the dividend payment for the first half of 2011 of RUR1.40 (~USD0.0439; ~EUR0.0338) per ordinary share, as well as the new versions of NLMK's internal documents, including the Charter and Regulations on the Board of Directors' Remuneration. ■

NSMMZ PRODUCES 10 MILLIONTH TONNE

The electric furnace steel-making operations at the Nizhneserginsky Metalware Plant in Revda, which is part of NLMK Long Products, produced its 10 millionth tonne of billets since the launch of the facility.

Earlier Mill 250 in Nizhnie Sergi produced its 10 millionth tonne of long products, while the new Rolling Mill 150 in Berezovsky produced its first one million tonnes of rolled steel products.



MR. PAVEL KOZHEVNIKOV, CONTINUOUS BILLET CASTING MACHINE OPERATOR



MR. ALEXEY BRYKOV, SHIFT MANAGER

The anniversary billet was shipped to the rolling mill in Berezovsky for manufacturing bale re-bars for further sale to end-consumers.

Mr. Pavel Kozhevnikov, Continuous Billet Casting Machine Operator, said that he "will remember this heat as a special milestone. We took special care to make sure that it goes without a hitch." Mr. Alexey Brykov, Shift Manager, said that "producing the 10 millionth tonne of steel was a great honor. The team performed perfectly. Anything could have happened during the production process. But we were on top of the situation and did our job well." ■



NOVOLIPETSK WORKS FOR THE FILM INDUSTRY

Novolipetsk produced 20 bronze figurines to be used as awards to winners of the 7th Atlant International Sports Film Festival.

This year the organizers of the film festival, including the Russian Olympic Committee, the Novy Kinematograph Company and the Government of the Lipetsk region, chose a

figurine designed by Mr. Valentin Chelyadin, a sculptor from Lipetsk.

The figurine is 36 centimeters tall and weighs 4.5 kilograms, and portrays a Titan supporting the globe wrapped in a strip of film. The bronze statuette was based on a plasticine model, which was used to manufacture a polyurethane model for producing a casting mold filled with molten bronze. Once they cooled off each statuette was finished manually, covered with a special paint, polished and coated with varnish. ■

Crisis Knocking on the Door. Again

The state of the global economy remains challenging and uncertain. Experts are forecasting a slowdown in economic growth in 2012, with the biggest challenges faced by the European Union and the United States.

The International Monetary Fund has cautioned that Europe and the US may go into another recession unless they address the pressing economic challenges. "The global economy is in a dangerous new phase. Global activity has weakened and become more uneven, confidence has fallen sharply recently, and downside risks are growing," suggests the IMF's World Economic Outlook published in September.

Growing global concerns about a potential new round of the financial crisis have prompted 'pre-crisis' attitude in

Today we see a trend of consistently strong prices for raw materials coupled with slowing demand for steel

the real sector, as everyone still has a very clear recollection of the impact caused by the downturn in late 2008 and 2009. The steel industry has always served as a mirror of core macroeconomic developments, and now these recent disquieting sentiments have begun to affect the steel sector. Consumers of steel products prefer to keep their inventories at the lowest possible levels, having learned well the lesson from the previous crisis. Analysts suggest that given the current unfavorable economic environment the steel market would recover to some equilibrium level only if output was reduced. These tendencies can already be seen in the sector: capacity utilization is declining,

and this is especially true in those parts of the world where demand continues to be fairly weak, while the cost of producing steel is no longer competitive given the current prices for finished products. This applies to Europe, first of all, which shows the world's lowest self-sufficiency in iron ore and coal, the two main inputs.

At first sight even in China the developments do not look promising. The country's government has been successfully attempting to offset lower exports by encouraging domestic consumption, and is focusing on the stronger development of inward oriented sectors, and implementing large-scale construction and infrastructure development projects. At the same time the authorities are trying to prevent the economy from overheating by pursuing a balanced financial policy. As long as the situation in Europe remained more or less stable China has been able to find a balance, but a worsening of the problems in the US and the Euro area may have an impact, albeit limited, on China as well, as the country is currently consuming almost half of all steel produced globally.

Competition within the global ferrous metals industry will increase, and so will increase the integration of manufacturers, especially in the raw materials sector. This will be encouraged by

an ever more restricted access to raw materials, including iron ore, coal and ferrous scrap. Today we see a trend of consistently strong prices for raw materials coupled with slowing demand for steel. This is yet another reminder of the need to elaborate a sustainable business model which would always allow for a flexible response to the challenges posed by the market.

Recently, the steel sector has seen an increase in the share of raw materials in the overall costs of production. For some non-integrated manufacturers these reach almost 90% of the price of hot-rolled products. NLMK did take this trend into account. The development of upstream capacities and further scaling down of costs are seen as the core pre-requisites for maintaining competitiveness. At the same time, stronger output of finished products allows the Company to significantly expand its ability to respond to changes in a flexible manner.

NLMK's business model is based on the reliance on the advantages of making steel in Russia and it is justified from the perspective of the sector's logistics. Russian assets remain the main driver of growth for the Company. And the availability of rolling capacity located close to end-consumers provides the Company with the opportunity to expand its presence in large European and US markets at the lowest

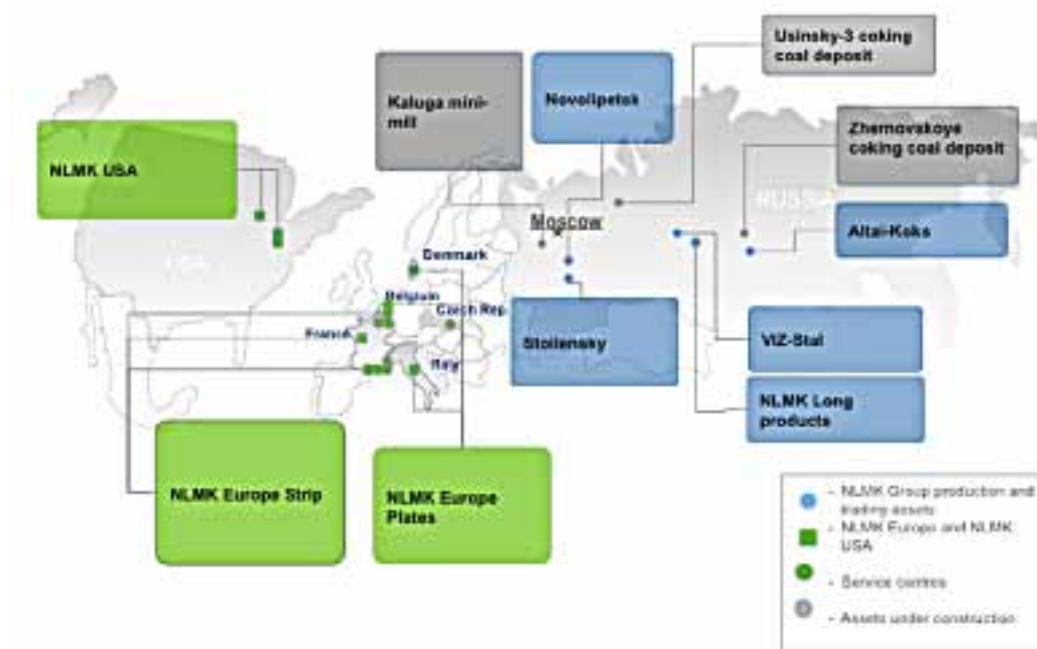
possible cost. Currently NLMK is expanding its sales of automotive steel and controls almost 15% of the European plate market. In Russia its marketing potential lies in niche markets for coated rolled products, automotive steel, high-quality re-bars and metalware, and transformer (grain-oriented) steel. It is important to have the opportunity to adjust the product mix to the needs of the markets, and we enjoy this opportunity by maintaining steel rolling assets in various parts of the globe.

quality rolled steel products in Russia, Europe and the US.

■ To achieve comprehensive vertical integration. Among other things, NLMK has made a strategic decision to develop the coal mining business as a critical instrument for further cost reduction. Coal accounts for more than 20% of the cost of NLMK products. The development of two coal fields would allow the Company to become 50% self-sufficient in coal by 2015-2016, and by 2018 more than half of

steelmaking capacity carries an economic benefit, especially when prices for raw materials are booming. But growing in only one direction creates an imbalance, increases dependency on the 'extractive' factor and encourages price volatility. Therefore, business can be made more sustainable through the expansion of rolling facilities at key high-capacity markets. NLMK performance achieved so far confirms the proper choice of strategy and its adequacy in view of emerging crisis developments.

The NLMK Group Today Russian Company with a Strong International Presence



Crisis developments in the steel sector will necessarily have an impact on NLMK. However, as noted earlier, the Company is taking prompt action to adjust. In the immediate future the Company sees its objectives as follows:

■ To improve sales volumes and product quality. The commissioning of BF-7 and increased output of steel will allow for the manufacturing of new high-

the coking coal required by the Company will be produced in-house. This will include new coal mines utilizing the most advanced technology available.

■ To consistently improve the business management model and raise its effectiveness. People need to be trained to be able to manage the Company ten or twenty years from now.

It should be stressed that the expansion of the mining and

Customers always have a choice of who they want to buy from.

Both today and tomorrow customer loyalty is and will be one of the keys to the economic success of a steelmaker. It all boils down to the following: we have no other alternative but to bring the quality of our work and our products closer to international standards. 🔄

By Alexander Sutormin

Tomorrow is Born Today

Construction of the Kaluga Electric Steelmaking Plant within the Vorsino Industrial Park is gaining momentum. Buildings are nearing completion and installation work has begun on equipment for the steelmaking and rolling shops.



GENERAL VIEW
OF THE KALUGA MINI MILL
CONSTRUCTION SITE

Notwithstanding its impressive size the Kaluga Electric Steelmaking Plant is classified as a mini-mill with a design capacity of 1.5 mtpy. Similar facilities account for about 30% of all steel production globally. The Kaluga Mini Mill will produce structural rolled long and section products. From this perspective the Vorsino site in the north of the Kaluga province was a perfect choice. Firstly, the plant will supply high-quality re-bars and rolled sections to the central parts of Russia, where currently there is a shortage of these products. Secondly, the proximity to markets

will help to reduce transportation costs, making the products more affordable for the customers. And thirdly, the Kaluga and Moscow provinces, as well as all of Central Russia in general, enjoy an excess supply of ferrous scrap, which is the core input for steelmaking operations by the mini-mills. Thus, the new Kaluga plant will improve the competitiveness of its parent company, NLMK Long Products. Based on preliminary estimates it may claim at least 35% of the re-bar market in the Central Federal District.

Currently the plant's core facility, the electric steelmaking

shop, is being equipped with the latest available technology, which is capable of manufacturing high-quality products, while making the production process environmentally safe. The electric-arc furnace will feature Ultimate, an innovative steelmaking technology, combining high specific electric capacity (more than 1 mWA/t) and a single-bucket EAF charging practice. The twin-stand ladle furnace will allow steel to be treated in two ladles in different positions. An eight-strand continuous casting machine (CCM) will allow continuously casting steel in sequences of up to 43 heats



**ELECTRIC-ARC
FURNACE SHOP (EAFS)**

without turnarounds. This will increase the caster yield up to 99%. The process line will be the most productive in Russia and one of the best in the world.

The efficiency of the gas and particle exhaust systems, which are being installed at the mini-mill, exceeds 99%. For comparison, legacy steelmaking facilities operate with systems that show an effectiveness of 60% or quite often even less than that.

The general contractor for the 'turn-key' construction of the EAF shop is the well-known company VAI SIEMENS.

Rolling equipment for long stock will be supplied by SMS Meer. In addition to the mill, the rolling facility also includes a reheating furnace, which helps minimize the formation of scale on the surface of billets and has low specific consumption of natural gas, and a line for finishing and packing the products, compliant with all the relevant European standards. The facility utilizes advanced processes for in-stream thermal treatment of rolled stock for high-strength re-bars (up to At-1200 grade) during high-speed rolling.

The supporting infrastructure for

the facility is also gradually taking shape. Upon completion of a 50 kilometer long power transmission line electricity will be supplied to the site on a full-time basis. With the completion of renovations at the Vorsino railroad station incoming cargo is now delivered from the station directly to the project site. The Promyshlennaya on-site railroad station is under construction. A water conduit connection to the Protva River has been installed and work is under way to introduce a pumping station. The plant will operate a closed-circuit water supply system, and sewage treatment facilities have been commissioned already. The reliance on ferrous scrap as input for steelmaking operations will help reduce the environmental footprint of the facility.

Once the electric steelmaking plant becomes operational, it will make a favorable impact on the economy of the province, through increased tax revenues for the federal and local governments and the creation of new jobs. The Kaluga Mill has already launched a program for hiring and training personnel. The Company expects to relocate to Vorsino some 140 skilled

employees who have prior experience in the steel industry, and has selected a pool of 20 employees for training at the Moscow Steel and Alloys Institute. All other personnel will be hired from the local communities of Obninsk, Balabanovo, and Vorsino. Some will be hired from the market, while some are already undergoing re-training for in-demand blue-collar jobs. Specifically, more than 60 residents

of the Kaluga province are being trained at various production facilities at NLMK's plant in Revda. Casters operators, furnace helpers, and crane operators are being trained at the EAFS in Revda, while rolling mill operators are undergoing training at the long products rolling facilities in Nizhnie Sergi and Berezovsky. Maintenance and repair workers and electricians have arrived for training at the InTekhRemont Plant (ZITR). The mini-mill will employ more than 1250 employees, providing them with competitive wages and social benefits. 🚀

The mini-mill will employ more than 1250 employees with competitive wages and social benefits

By Natalia Sorokina

Growing Deep

Reconstruction of the mining transportation system will allow Stoilensky to boost the production of quartzite ore to 42 mtpy.



The project was designed by Stoilensky engineers in collaboration with the Tsentrgrigoruda Institute. It will create opportunities for reducing the costs associated with the delivery of ore to processing facilities, increasing the volume of stripping operations, and consistently improving the efficiency of the open pit mine in the future.

The plan calls for new railroad facilities. One of these, the Otvalnaya Station, is already operating on a provisional basis at the western wall of the pit. Its track switches are connected to the Zapadnaya Station computer system,

allowing the station operator to manage rail traffic at the new section. With the Otvalnaya Station and the track spans connecting it to Zapadnaya and Aleksandrovka stations, it has become possible to reduce the workload for the Aleksandrovka Station, where the bulk of stripped overburden from the Vostochny Outpost had been channeled previously, and for the Zapadnaya Station. In addition, the Otvalnaya Station is situated at an elevation of 40 meters above the Aleksandrovka Station, allowing it to receive a larger volume of stripped overburden without adding storage space.

Mr. Alexey Kiktev, Supervisor of Rail Transportation Shop (RTS), says “modernization of the mining transportation system has helped reduce the time required for switching of trains. We now have the opportunity to do this in the immediate vicinity of excavators No. 62 and No. 66, and their output has increased to 5,500 cubic meters of rock per shift. And this is not the limit.”

The mining transportation system revamp design calls for the construction of another railroad outpost, named ‘gor. +210 m’, in order to improve the efficiency of mining



transportation arrangements. This is required for the Strelitsa motor dumping site, which is expected to be cleared using rail transportation. The RTS

engineers have already connected a new track to the existing route between Aleksandrovka Station and Vostochny Outpost, and work is under way to lay the tracks

for the outpost and install the overhead wire system. Further work will include the installation of a centralized blocking system and adjusting the computerized controls at the Aleksandrovka Station.

Construction and assembly activities will follow to relocate the northern section of the Zapadnaya Station.

As noted above, the reconstruction of the mining transportation system is mainly aimed at boosting the volume of stripping operations, and it is expected to be completed in the second half of 2011. 🚀

NLMK Europe: New Opportunities

After NLMK acquired full ownership of the Steel Invest and Finance joint venture from Duferco Group, it established a new division, NLMK Europe. This is a critically important stage in the history of the Company, and NLMK management decided to explain its importance in a number of meetings with customers, employees, social partners and stakeholders.

Customer Day

The business community responded in a very positive manner to the news of the full integration of Steel Invest and Finance within NLMK Group. During the four years of cooperation within the framework of the joint venture the Group has built up a strong reputation. An important role was played by NLMK's strategic advantages in the global steel market. These were the focus of discussions during Customer Day, which was held in Brussels. The purpose was to underline NLMK's commitment to maintaining a long-term presence in the Western European market, and to provide an opportunity for networking between the manufacturers and their customers.

The slogan for Customer Day was 'Discovery Day: Innovation in Steel!'. More than three hundred customers were joined by partner banks, sale personnel, and NLMK and NLMK Europe management, who presented the new production business model.

"Our customers were able to learn more about the strategic advantages of NLMK Group and the benefits of the new business model designed for NLMK



HORACIO MALFATTO, MEMBER OF THE BOARD OF DIRECTORS OF NLMK INTERNATIONAL BV AND CEO OF NLMK EUROPE

Europe. The event was a major success, and we received nothing but positive feedback about the arrangements and the quality of presentations," says Brigitte Simon, Head of the Internal & Commercial Communication at NLMK Europe, who had arranged the Customer Day event.

The conference heard presentations by Mr. Oleg Bagrin, Member of the Board of Directors and Chairman of the Strategic Planning Committee for NLMK Group, Mr. Horacio Malfatto, Member of the Board of Directors for NLMK International BV and Chief Executive Officer for NLMK

Europe, Mr. Ben de Vos, Chief Executive Officer for NLMK Europe – Strip Products, Mr. Igor Sarkits, Chief Executive Officer for NLMK Europe – Plates, and Mr. Michele Lancieri, Chief Commercial Officer for NLMK Europe – Plates.

"Our partners expressed worthwhile appreciation of our unique business model, which we had developed for Europe, and which is based on the efficient production of high-quality slabs in Russia, while the rolling and coating operations in Europe are located in close proximity to our customers. The advantages of this arrangement, which involves 100% vertical integration from our own sources of raw materials to finished products and a flexible logistics system, helped make a persuasive case to our customers. One additional argument was the

FIGURES

NLMK Europe combines all NLMK manufacturing and service businesses in the European Union. It comprises of six cold rolling, hot rolling and steel coating businesses, and a network of service and distribution centers located in close proximity to end-customers. NLMK Europe employs more than **3000** employees, and has an overall production capacity of **4 mtpy**.



DURING CUSTOMER DAY
SPECTATORS WATCHED
THE CREATION OF A HUGE
PAINTING PORTRAYING THE
RELATIONSHIPS BETWEEN
HUMANS, STEEL, AND
INNOVATIONS

successful utilization of this model by DanSteel (Denmark), which has been obtaining all of its slab stock from NLMK since 2002,” said Horacio Malfatto.

Many customers noted another advantage of NLMK, namely, its financial stability, without which technological progress in the steel industry would be impossible. They also strongly welcomed the Group’s ability to invest more than EUR530 million for the development of its European assets over the past four years, as well as the reliable supply of slabs from Russia. The conference closed with an outstanding performance depicting the strong innovation potential of NLMK. Among other things, a group of artists on stage painted a huge painting portraying the relationships between humans, steel, and innovations.

Employee Meeting

NLMK Europe managers also met with the company’s social partners and employees to tell them about the new division’s prospects. The meeting was held

in Belgium and gathered 250 executives. This was the first time it was held on a pan-European level. Representatives of the businesses praised the willingness of NLMK Europe managers to speak to their employees face to face. Everyone was excited about the opportunity to meet their counterparts from other countries.

In addition, the creation of the new division and the changes this entails were covered during corporate meetings and in the media. It was also detailed in a

corporate brochure, movie and on the new web-site.

The media and outside stakeholders, including local governments in communities where Group businesses are present, were provided with a press release announcing the establishment of NLMK Europe. In response, many representatives of local legislatures expressed their gratitude to NLMK, thereby underlining the important role that steelmaking plays in the development of their communities. 🌟

CONFERENCE PARTICIPANTS
WITNESSING THE
ANNOUNCEMENT OF THE
ESTABLISHMENT OF NLMK
EUROPE



Riding the Green Wave

In late October Lipetsk hosted an international conference on Regional Environmental Safety Systems and Strong Economic Growth.

Systemic Approach

The international forum welcomed prominent Russian academics and legislators, and reputable foreign environmentalists and experts, including representatives of the European Union and the United Nations. The program included a visit to the Novolipetsk site, an introduction to the Novolipetsk environmental protection activities, and a round-table discussion on recycling of industrial waste. Novolipetsk was chosen by no accident, as it is one of the few businesses in the country strongly committed to European environmental standards. Some environmental protection challenges remain, but, most importantly, these are being addressed in a systemic manner. Even with the strong growth in output, Novolipetsk's environmental footprint is steadily reducing. For instance, in the last decade atmospheric

emissions were decreased by 22%. The integrated atmospheric pollution index (IAPI) for Lipetsk, according to the local bureau of Rosgidromet (Russia's Federal Service on Hydrometeorology and Environment Monitoring), has declined from 25 in 2000 to 7.5 in 2009. In 2005 Lipetsk was excluded from the list of Russian cities with excessively high levels of atmospheric pollution. Last year, however, the IAPI increased to 8.6, which was caused by an unusual heat wave and numerous forest fires.

Annual funding for environmental programs has increased more than 30-fold from RUR130 million in 2000 (~USD4.6 million; ~EUR5 million) to RUR4.14 billion (~USD136 million; EUR103 million) in 2010. This proved to be a record year in terms of environmental spending: BOF gas exhaust facilities were upgraded with

new fugitive emissions capture and scrubbing systems, BOF processes were improved, and a new method for quenching slag was introduced. In 2010 gross emissions by Novolipetsk decreased by 1,400 tonnes, while steel output increased by 781,000 tonnes; water intake from the Voronezh River was reduced by 11.1 million cubic meters. Novolipetsk maintains zero effluent discharge into the river by relying on a closed-circuit water recycling system.

This year environment-related spending will continue to remain strong: exhaust collection system at the Refractories Shop has been upgraded; a project is under way to upgrade the central exhaust collection system for Sintering Lines No. 3 and No. 4, which will reduce emissions from each of the lines by almost 3.5-fold. At the same time, a system for fugitive emissions capture and scrubbing is being installed in BOF Shop No. 2, and the mixing section is being upgraded. The objective of all of these large-scale measures is to ensure compliance with statutory requirements for atmospheric air quality.

Blast Furnace No. 7 has set the standard for modern age steelmaking. It is one of the most environmentally friendly in the world. The new production facility utilizes all the best currently available environmental technology, including high-efficiency exhaust collection systems, closed-circuit water recirculation, and the highest

WASTE TREATMENT
FACILITY AT THE NSMMZ
PLANT IN BEREZOVSKY





THE SWAN
LAKE AT NOVOLIPETSK



PLANTING OAK TREES AT ALTAI-KOKS

possible rate of BF gas recovery. This by-product will be used for generating electric power for in-house consumption. This will increase Novolipetsk's energy self-sufficiency from 47% to 56%. The design of the Cogeneration Plant powered by recovered BF off-gas won an award from the European

Bank for Reconstruction and Development as an example of innovative environment friendly technology.

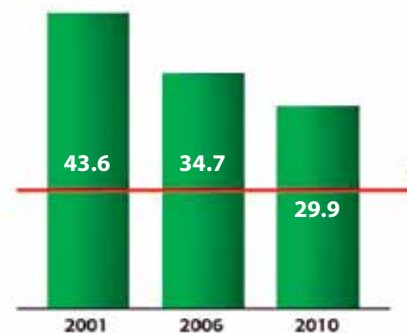
Slag generated in the production of pig iron will be recycled as crushed stone for use in the construction sector. Solid waste deserves a special discussion. In

2004 Novolipetsk discontinued accumulation of solid waste on site and began recycling previously accumulated stockpiles. The slag landfill which was started back in Soviet times has since become smaller by almost 1.5 million

Novolipetsk's Impact on Atmospheric Air

Specific Emissions;
kilograms per tonne of steel

Best available technology (BAT) standard:
18.9 kilograms per tonne of steel





NOVOLIPETSK.

NEW COGENERATION PLANT
POWERED WITH POWERED
WITH RECOVERED BF
OFF-GAS

tonnes. Novolipetsk intends to eliminate all landfills by 2020. Every year RUR60 million (~USD2.1 million; ~EUR 1.5 million) are spent on achieving this environmental objective. In 2010 Novolipetsk had recycled 2.5 million tonnes of new and almost 0.6 million tonnes of previously stockpiled solid waste. More than 1.5 million tonnes were used as raw material for production purposes, and the balance was utilized for road construction, production of construction materials, and land reclamation. Beginning in 2012, under its program of environmental action, Novolipetsk will recycle at least 1 million tonnes annually of 'legacy' landfills. This involves cooperation with specialized businesses which have the appropriate equipment and utilize recycled matter for their own production purposes.

FIGURES

RUR60 MILLION (~USD2.1 MILLION; ~EUR 1.5 MILLION) ARE SPENT EVERY YEAR FOR RECYCLING OF SLAG.

22% REDUCTION IN ATMOSPHERIC EMISSIONS OVER THE LAST DECADE.

30-FOLD INCREASE IN SPENDING ON ENVIRONMENTAL PROGRAMS BY NOVOLIPETSK.

Public Outreach

With the public opinion leaning towards a 'greening' agenda, this past April Novolipetsk sponsored a round-table discussion where it presented the results of its environmental protection activities. The dialog was continued in July inside Novolipetsk shops, and the participants were invited on a tour. The guests were shown how Novolipetsk monitors atmospheric air quality in the buffer zone.

A mobile environmental laboratory has been operating at Novolipetsk for more than five years. On a daily basis it follows a designated route, collecting air samples. Special sensors monitor the concentrations of hazardous substances, and when higher concentrations are detected the 'culprit' operation is immediately notified and required to take remedial action. The guests also observed the work of the physics and chemical laboratory which continuously monitors concentrations of 32 substances in air, 35 in the water, and 18 in the waste and soil.

Round-table participants were also shown the system for separate waste collection (plastics, wood, glass, refractories, etc.)

for further recycling. This left a lasting impression on the visitors, as separate waste collection is a pressing problem not only for industrial operations.

Follow the Leader

Other businesses within the Group are also practicing a systemic approach to addressing environmental issues. Emissions and effluents are being tackled on all 'fronts': land, water and air. In 2010 VIZ-Stal's environmental footprint was below statutory requirements by 50% for effluents, by 20% for air emissions, and by 40% for pit scrap. VIZ-Stal has embarked on an overhaul of its waste treatment facilities. The project will take three years to complete and will eventually eliminate any discharge of industrial effluents and storm water into the Isset River. Land reclamation activities continue at the former Lesnoy industrial landfill. This year the company has planted more than 200 birch and pine trees, in addition to those planted earlier.

Planting of trees and shrubs is high on the agenda of another NLMK Group business in the Urals, the Nizhneserginsky Steel and



Metalware Plant (NSMMZ). It is planning to plant four thousand poplar, maple, mountain ash and cotoneaster trees in the buffer zone surrounding the plant, and also clean up the embankment of the Revda River. The main environmental activities, however, are taking place in the NSMMZ melt shop, where a new gas evacuation system will be installed. This will result in a dramatic reduction in the shop's environmental footprint and significantly improve the working conditions. The plant has never seen such a large-scale modernization effort before. At the same time, work will continue on the construction of water treatment facilities. The plant will be equipped with a two-stage water treatment system, compliant with all water protection requirements. A similar system is already in operation at the NSMMZ unit in Berezovsky and is proving to be extremely efficient: water is no longer discharged from the industrial site into the river, but treated and recirculated.

At Stoilensky, the tailings management shop has developed a method for using water for suppressing dust at the sand

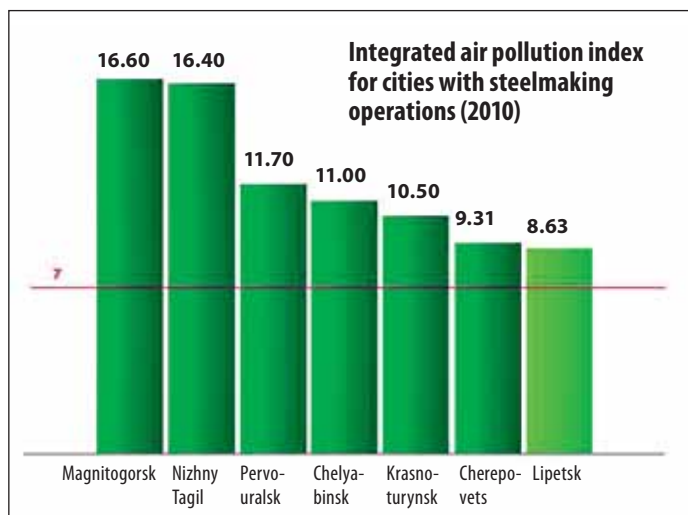
banks of the dam. Forest belts are another method for successfully tackling dust. This year the mining company has planted trees on the first two hectares of land, paving the road for long-term cooperation between the company and the Voronezh Forestry Academy. Seven or eight years later rows of birch trees will provide a reliable barrier between dust and the communities adjacent to the tailing dumps.

The Kaluga Mini Mill is scheduled for launch next year. This NLMK Group business is not expected to raise any environmental concerns because these had been addressed

at the construction stage. The bag house installed at the plant has an efficiency ratio of at least 99%, while specific air emissions are below 2 kilograms per tonne of steel (for comparison, integrated steelmaking operations in Russia have specific emissions of 25 to 35 kilograms per tonne, and their European Union peers show specific emissions of 15 to 18 kilograms per tonne). It also utilizes a closed-circuit water recirculation system which precludes discharges of effluents into the water. 🔄

DUST SUPPRESSION
AT WORK AT SAND BANKS
AT STOILENSKY

By Alexander Alexeev



Create, Invent, Experiment!

New guidelines regarding innovation activities approved by VIZ-Stal last year have boosted the creative drive of its employees.



VIZ-STAL.
MECHANIC MR. VALERYAN
SHAEVICH



VIZ-STAL.
MR. ALEXANDER KATINEV,
LEADING EXPERT AT THE
CENTRAL LABORATORY

The guidelines have streamlined the procedures for reviewing innovation proposals. The decision to recognize a proposal as an innovation is now made by the supervisor of the unit in which the new idea is intended for implementation, and in case of any doubt the same supervisor would forward the proposal for appraisal by experts. As regards any royalties accruable to the author of the proposal, their size is linked to the average wage across the business and is adjusted in line with wage increases.

Mr. Valeryan Shaevich, a mechanic and merited innovator at VIZ-Stal, who has authored almost 70 implemented innovation proposals, says:

“There are almost no obstacles left to implementing innovative ideas. People are encouraged to create, invent, and experiment. There is always room for improvement at the plant. And you can always count on receiving support.”

This year Mr. Shaevich has lodged six different innovation proposals, three developed by him and another three were co-authored. All in all, a total of 16 valuable proposals have been reviewed. One of them involved modifications to the chemical composition of the S-2 solution, which would improve the electrical resistance of magnetic coatings, and, according to preliminary estimates, may help to generate savings worth RUR472 million (~USD16.2 million; ~EUR11.6 million) for VIZ-Stal. The innovation was proposed by Ms. Larissa Karenina, Ms. Nadezhda

Borodina, and Mr. Rudolph Puzhevich (all from the Central Laboratory (CL)), and Mr. Sergey Kutepov, Deputy Head of the Cold Rolling Shop (CRS).

Another innovative proposal co-authored by Messrs. Sergey Kutepov, Alexander Katichev, Lead Expert at the CL, Alexey Stafeyev, Senior Supervisor, and Leonid Grigoriev, CRS Foreman, will reduce consumption of hydrogen in bell furnaces during cooling operations, and will save the company RUR2.8 million (~USD96,000; ~EUR69,000). Significant benefits will be reaped from the system for coil by coil recording of re-rolling stock, a recent innovation implemented in the past year.

Other NLMK Group businesses also strongly encourage in-house innovators. NSMMZ has recently finalized the results of its second competition for the most efficient innovative proposal. The award went to the proposal for the production of No. 18 rebar steel in grades A400 and A500C by utilizing a two-strand slitting process, which has been introduced at the long products operations in Nizhnie Sergi. It was co-authored by Messrs. Gennady Kurbatov, Head of the Rolling Shop, Evgeniy Ekimovskikh, Head of Technical Unit, and Anatoly Chernov, Deputy Head of the Rolling Shop. This innovation allowed the company to save more than RUR14 million (~USD0.5 million; ~EUR0.34 million) over one year.

The most efficient innovative proposal involving changes to



NSMMZ. MR. EVGENIY EKIMOVSKIKH, HEAD OF TECHNICAL UNIT
AT ROLLING OPERATIONS

equipment design was offered by Mr. Sergey Chernikh, Supervisor at the InTekhRemont Plant (ZITR). It allowed the company to eliminate the need for procuring additional cable drums for the scrap preparation section. The economic benefit from this innovation amounted to more than RUR2 million (~USD70,000; ~EUR50,000) over a period of six months. Within the framework of the competition ZITR employees have lodged almost a dozen innovation proposals aimed at improving existing equipment and maintenance procedures.

In order to encourage its employees to practice their inventiveness NSMMZ has expanded the number of nominations in the competition. This year for the first time one of the nominations was awarded to a proposal which does not promise any economic benefits.

Also for the first time the best young innovator was identified – Mr. Konstantin Vdovin, Lead Engineer at the Technical Unit, who participated in the development of six innovation proposals. Another

award went to Mr. Viktor Zitin, a maintenance technician with ZITR, for his assistance to innovators. His colleague Mr. Valery Yarkov was unanimously awarded the title of Best Innovator. A total of 11 of his innovation proposals have already been implemented.

At Novolipetsk the results of the first stages of two concurrent competitions were announced: one looked at the effectiveness of invention and innovation activities, while the other appraised the technological creativity of the younger generation. The first competition produced 1 invention, 957 innovation proposals, and 180 proposals to reduce costs. The economic benefits of the innovation solutions amounted to RUR19.32 million (~USD0.66 million; ~EUR0.47 million), while the cost reduction proposals generated savings worth RUR54.92 million (~USD1.9 million; ~EUR1.3 million). Within the group competitions the winners included teams from the Coke-Chemical Operations (CCO), the Steelmaking Equipment Assembly Shop (SEAS), the Oxygen Shop, and the Electric Power Supply Center (EPSC). The second competition resulted in the implementation of 160 innovation proposals generating overall economic benefits worth about RUR2 million (~USD70,000; ~EUR49,000). The top performers included teams of creative young employees from the CCO, the SEAS, the Automation Systems Shop, and the EPSC. Winners of the competition were determined in several nominations. In the nomination for the largest number of inventions, innovation proposals accepted for implementation, and proposals aiming at cost reduction the top award went to Alexey Kichigin, a technology engineer with the SEAS. And this was only to be expected. A SEAS representative was destined to win, given the long track-record of innovations by Head of Shop Mr. Dmitry Vassilyev, trade union committee chairman Mr. Nikolay Krikunov, and Innovations



Supervisor Ms. Nina Antonova (all – SEAS personnel). In addition, Alexey himself takes these matters close to heart: he seems to have inherited an inquisitive mind from his father, Mr. Nikolay Kichigin, who had implemented dozens of innovations himself. After a long career with the SEAS Nikolay is now retired and can be proud of having raised a son who can walk in his father's shoes.

Alexey joined Novolipetsk immediately after graduating magna cum laude from the LGTU. He has yet to turn thirty years old, but he has already achieved a lot. He holds a junior doctorate degree in technology, he has won the first stage of the younger generation technological creativity competition and became Best Young Innovator in 2006, he was recognized Best Young Specialist in the same year, and has made it to the semi-finals for the NLMK Young Leader competition in 2007.

According to Alexey, “innovation is encouraged by the demands of the production process. You cannot possibly expect the equipment in the shops to be replaced every year, so you need to put on your thinking cap and come up with some unconventional designs. It is pleasing to know that your ideas make someone else's job easier and have helped to improve product quality.”

At Altai-Koks the economic benefits from the introduction

of innovation proposals in 2010 are estimated to be worth more than RUR14 million (~USD0.48 million; ~EUR0.34 million). One implementation involved the installation of a collector for emergency coke quenching at Coke Battery No. 5, which will allow the battery to operate in a stable manner during routine and scheduled maintenance. The pipework for the Cogeneration Plant has been upgraded, resulting in higher electric power output in the summer and allowing for the heating network to be disconnected during pressurization tests.

The innovation competition at Altai-Koks identified the following top innovators: Mr. Evgeniy Tretyakov, Technician with the Specialized Coke-Chemical Equipment Repairs Shop, Mr. Alexey Lysenko, Mechanic with the same shop, Mr. Pavel Alexeev, Deputy Head of the Turbine Shop at the Cogeneration Plant, and Mr. Alexander Stelmakh, Gasman at the Coking Shop.

Ms. Elena Kudinova, Technology Engineer with the Technical Unit, Mr. Dmitry Anastasyev, Coking Shop Supervisor, and Mr. Nikolay Karpachev, Control and Instrumentation Mechanic, also received incentives for assisting innovation and invention activities. 🚀

NOVOLIPETSK.

SEAS INNOVATORS
MR. ALEXEY KICHIGIN,
TECHNOLOGY ENGINEER,
MR. NIKOLAY KRIKUNOV,
SUPERVISOR, AND MS. NINA
ANTONOVA, INNOVATIONS
SUPERVISOR



ALTAI-KOKS.

MR. EVGENIY TRETYAKOV,
MAINTENANCE TECHNICIAN,
SPECIALIZED COKE-
CHEMICAL EQUIPMENT
REPAIRS SHOP

ON/OFF

The Electrical Networks, Substations and Automation Operations Shop at Stoilensky has procured modern mobile equipment for pumping sulfur hexafluoride (SF₆) gas.

As part of the Technical Upgrade Program outdated bulk circuit breakers are replaced with modern SF₆ gas circuit breakers.

Mr. Vladimir Blundin, Head of Electrical Networks and Substations Maintenance Service, says “this device will help us to identify and address circuit breaker faults on a timely basis, as well as to reduce accident-related downtime.”

The new equipment will be used by specially trained electricians. ■



GLONASS IN STARY OSKOL

A total of 116 vehicles operated by the Motor Vehicle Shop at Stoilensky have been equipped with the AutoTracker system which utilizes the GLONASS/GPS navigation systems. The vehicles include a number of cargo and passenger vans, pipe-layers, drop-side dump trucks, long vehicles, and ambulance cars.

Mr. Sergey Polyakov, acting Operations Supervisor, says “unlike conventional navigation systems, the AutoTracker provides comprehensive surveillance over motor

vehicles, by showing their location, routes, schedules and speed.” “AutoTracker provides a much more comfortable and reliable operations environment. Just one look at the computer screen and you know immediately the location of the vehicle and its speed. Very convenient!” adds Mr. Vladimir Potapov, Operations Fleet Manager. ■

THE MONITORING SYSTEM
HAS BEEN INSTALLED IN
239 MOTOR VEHICLES

NLMK STARTS HOT TESTING
NEW RH DEGASSER

In mid-September Novolipetsk started hot tests at a new 4 mtpy RH vacuum degasser.

Following its commissioning, the Company will be able to ensure a supply of high quality slabs to its rolling assets both in Russia and in Europe, as all of the steel produced will now go through ladle treatment.

The RH degasser is part of the secondary metallurgy complex of BOF Shop No.2, along with two new ladle furnaces (LFs), with 8 mtpy total capacity, commissioned last year, and five ladle metallurgy furnaces (LMFs).

This RUR3.6 billion (~USD120 million; ~EUR88 million) project is being implemented together with SMS Mevac (Germany). Go-live is scheduled for Q3 2011. ■





OVERHEAD TRAVELLING CRANE COMMISSIONED AT VIZ-STAL

A new overhead travelling crane has been commissioned at the Cold Rolling Shop at VIZ-Stal. It has a lifting capacity of 22 tonnes, two tonnes greater than its predecessor. The new crane replaced the shop's most often used lifting and transportation vehicle, which has run out its useful life.

According to maintenance engineer Mr. Roman Moskvitin, who provided training for the crane operators, the new crane relies on several technical innovations not present in similar lifting equipment used in the Cold Rolling Shop. Among other things, the design of the crane incorporates state-of-the-art frequency converters manufactured by Siemens, which will allow for further upgrading of the crane without installing additional equipment. The crane was designed in compliance with industrial safety requirements, and has joysticks, instead of controllers used in the older cranes. The business spent more than RUR23 million (~USD0.8 million; ~EUR0.6 million) to replace the crane. ■



NLMK LAUNCHES NEW BOF

NLMK's new 300 tonne BOF was put into operation at the Company's main production site in Lipetsk.

The new facility is equipped with an efficient secondary

emissions collection and cleaning system. Investments into the project have totaled about RUR14.8 billion (~USD510 million; ~EUR362 million). Alongside other Technical Upgrade activities, the launch of the new BOF will allow for a 36% increase in steelmaking capacity at the Lipetsk site, up to 12.4 mtpy. ■

LOOKING FOR QUALITY

The High-Voltage Testing Group of the Electrical Networks, Substations and Automation Operations Shop's Central Laboratory at Stoilensky introduced instrumentation for determining the quality of transformer oil and other liquid insulators.



"The new device relies on modern methods, which allow for more informative representation of the testing process for liquid insulators," explains Mr. Ruslan Dyatlov, Head of the High-Voltage Testing Group.

Pre-commissioning work and proof running for the new device was completed with success. ■



NOVOLIPETSK COMPLETES UPGRADE CONTINUOUS SLAB CASTING MACHINE

The modernization of the unique continuous slab casting machine (CSCM-8) targeted improvements in productivity. Now the machine is capable of producing up to 2.5 million tonnes of slabs per year.

In addition, its product mix capabilities were also enhanced, as well as the

quality of slabs that it produces for further rerolling into sheet. Control and monitoring systems are now fully automated, which significantly simplifies the job of casting personnel.

Today Russia produces slabs with a maximum thickness of 300 millimeters. The upgraded CSCM-8 is

CURRENTLY THE SHOP IS UPGRADING CONTINUOUS SLAB CASTING MACHINE NO. 3. ONCE MODERNIZED IT WILL HAVE THE CAPACITY TO PRODUCE UP TO 1 MILLION TONNES OF SLABS PER YEAR. IT IS EXPECTED THAT PART OF THE SLABS PRODUCED BY CSCM-3 WILL BE SHIPPED TO CLABECQ AND DANSTEEL.

capable of producing thickness of up to 355 millimeters. This allows for the production of thick plate, which is used in machine-building and power engineering.

The modernization, which relied on innovative technology, was worth RUR4.7 billion (~USD161 million; ~EUR115 million). ■



23 INSTEAD OF 30

NLMK signed a contract with the German LOI Thermopress GmbH to supply 23 bell furnaces worth EUR10.4 million.

The new bell furnaces will have the capacity to provide annealing for up to 480,000 tonnes of coiled low-carbon steel per annum. They will replace thirty outdated and low productivity legacy bell furnaces. With increased rates of heating and hydrogen cooling both the quality of annealing operations and productivity will also increase.

The equipment is due for delivery in 2012. ■



SHOP EQUIPMENT UPGRADED

Modern equipment has been procured for the Mining Equipment Repair Shop (MERS) at Stoilensky, including a NB-450 bandsaw machine, a MG-2000 magnetic claw, and a hydraulic extractor.

According to MERS Operations Preparation Section Supervisor Mr. Boris Ryzenkov, the new devices will improve production practices, the quality of components produced, and industrial safety. ■



STOILENSKY ACQUIRES NEW MACHINERY

Stoilenky acquired new machinery – a track lifting and gauging machine (TLGM) and a KhtZ-150K tractor.

The new TLGM will be used for a number of operations required for railroad track repairs. The machine will be used to deliver and remove repair crews, materials and tools to and from the repairs site, and is equipped with a generator for track repair power tools.

The tractor produced at the Kharkov Tractor Plant will be used to prepare routes for installing overhead and underground cable lines. In winter the tractor will be used to clear snow from roadways leading to the shop substations. ■

AROUND THE CLOCK

The second module of the laser installation at the finishing section of the Cold Rolling Shop at VIZ-Stal, which was deployed last July, is now operating around the clock.

The main advantage of the new module is its increased productivity. It is capable of operating at twice the speed of its 'counterpart', the first laser module. According to steel cutter Mr. Mikhail Kirishev, the new module has another important advantage: "Once the uncoiling



MICRON PRECISION

The VIZ-Stal plant in the Urals began installation work on a new roller grinding machine, which is capable of grinding rollers of various shapes with a precision of up to 4 microns.

The equipment for the machine was manufactured by the German Maschinenfabrik Herkules. Mr. Alexey Doljenkov, who supervises service projects for the company, visited the plant in person to handle the preparatory work.

He spoke about the advantages of the new equipment, and said that "the machine utilizes proprietary Monolith technology, which is twice as effective as a conventional system for damping mechanical vibrations. It is also equipped with an advanced online system for gauging the shape of the roller during the grinding process, which has already won high acclaim in the steel sector."

The cost of the project was RUR137 million (~USD4.7 million; ~EUR3.4 million). VIZ-Stal intends to spend a total of RUR8.6 billion (~USD294.3 million; ~EUR210.5 million) for technology upgrades. ■



is completed the line shuts down by itself. None of the other machines have this feature. Usually cutters are required to monitor the process in order to intervene promptly. And here it is done automatically. This is very convenient."

The cutters operating the new module had undergone specialized training with the Italian company which produces the laser installations. Now they are in the process of training their workmates, because every shift requires two employees. ■



12TH ANNUAL NLMK PENNSYLVANIA GOLF OUTING

The 12th annual NLMK Pennsylvania and Sharon Coating golf outing was held in Hubbard Ohio. 180 golfers were in attendance and ready to compete on the 30, 6 man teams.

Scoring was pretty tight, with all the teams finishing with scores between 60 and 70. The winner was determined by a score-card playoff. The winning team was "Team Schmidt", comprised of Fred Schmidt, Amanda Schmidt, Bill Schuller, Bill Jewel, Tom Wright and John Dowell. All and all you could not ask for a much better day, the weather was perfect, the food was great and the golf was competitive. ■

NLMK INDIANA DONATES FUNDS FOR COT

Some Portage firefighters are going to have an easier time doing their jobs thanks to a recent donation. The department received a Stryker Power Pro Cot funded by a donation from NLMK Indiana.

The cot cost about \$12,300, but fire officials said it will reduce firefighter injuries and increase patient comfort and security.

PFD Assistant Chief Dan Kodicek said the cot "saves a man's back" by automatically lifting a patient. It is designed to hold 700 pounds instead of the 500 pound limit with present cots and has more maneuverability.

STRYKER POWER PRO-XT
COT "SAVES A MAN'S BACK"
BY AUTOMATICALLY LIFTING
A PATIENT



FIRE CHIEF TOM FIEFFER, IN THE MIDDLE, AND PORTAGE ASSISTANT FIRE CHIEF DAN KODICEK, LEFT, DEMONSTRATE THE NEW POWER COT TO JOE GAZARKIEWICZ, DIRECTOR OF HUMAN RESOURCES AND LABOR RELATIONS FOR NLMK INDIANA. PHOTO PROVIDED BY THE TIMES MEDIA CO.

"This is so important to me because back injuries are one of the leading causes of disabilities to firefighters. It will save the backs and knees of firefighters," Lt. Chad Bogue said.

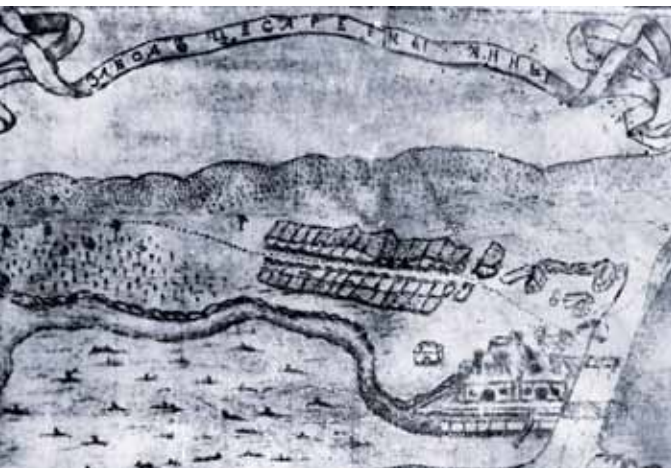
Joe Gazarkiewicz, Director of Human Resources and Labor Relations at NLMK Indiana, said his company made the donation as a thank you for all the support the fire department has provided to his company.

PORTAGE, INDIANA, IS AN INDUSTRIAL CITY WITH A POPULATION OF AROUND 35,000 PEOPLE, LOCATED ON THE SHORES OF LAKE MICHIGAN. PORTAGE IS HOME TO NLMK INDIANA.

Chief Tom Fieffer said the cot will be stationed at Station 1. ■

Three Centuries Old and Going Strong

The Verkh-Isset Plant is turning 285 years old. The rich history of this oldest metallurgical plant in the Urals is closely linked to the history of Russia. Let's leaf through the pages of VIZ's glorious past as we prepare to celebrate its anniversary.



LAYOUT OF THE PRINCESS

ANNA PLANT. THIS WAS THE ORIGINAL NAME OF THE PLANT (AFTER PETER THE GREAT'S DAUGHTER)

PORTRAIT OF WILHELM DE GENNIN

XVIIIth Century

The Verkh-Isset Plant began its life in November of 1726, when its furnaces were fired up and it produced its first wrought iron. This public enterprise was founded by decree of Peter the Great, and it was built by Wilhelm de Gennin, a major-general from Holland. The name Verkh-Isset was a reflection on the plant's location, which was upstream ("Verkh" in Russian) from the Yekaterinburg Fortress along the Isset River, where an impressive dam was built. The water spun a water-wheel, which in its turn powered the equipment at the plant.

The plant was an integrated iron manufacturer. The government contracted it to manufacture cannons, unicorn guns, mortars, ship anchors, artillery projectiles and cannon balls. All of these were of critical importance for the



expanding Russian Empire.

In 1736 VIZ acquired two blast furnaces fired by charcoal. Gradually, production volumes grew and the product mix expanded. The plant became one of the largest metallurgical enterprises in the Urals. The Verkh-Isset iron was also gaining recognition with the merchants. The secret to its high quality lay in the use of mixed ores for smelting. In one of his reports Wilhelm de Gennin wrote that "the mixture produced iron of such strength that an enormous effort is required to break it."

In the latter half of the XVIIIth century the Verkh-Isset Plant is turned over to private owners. Its first owner was Count Roman Vorontsov, who was followed by collegiate assessor Savva Yakovlev. The Yakovlev dynasty owned the Plant until 1918.

XIXth century

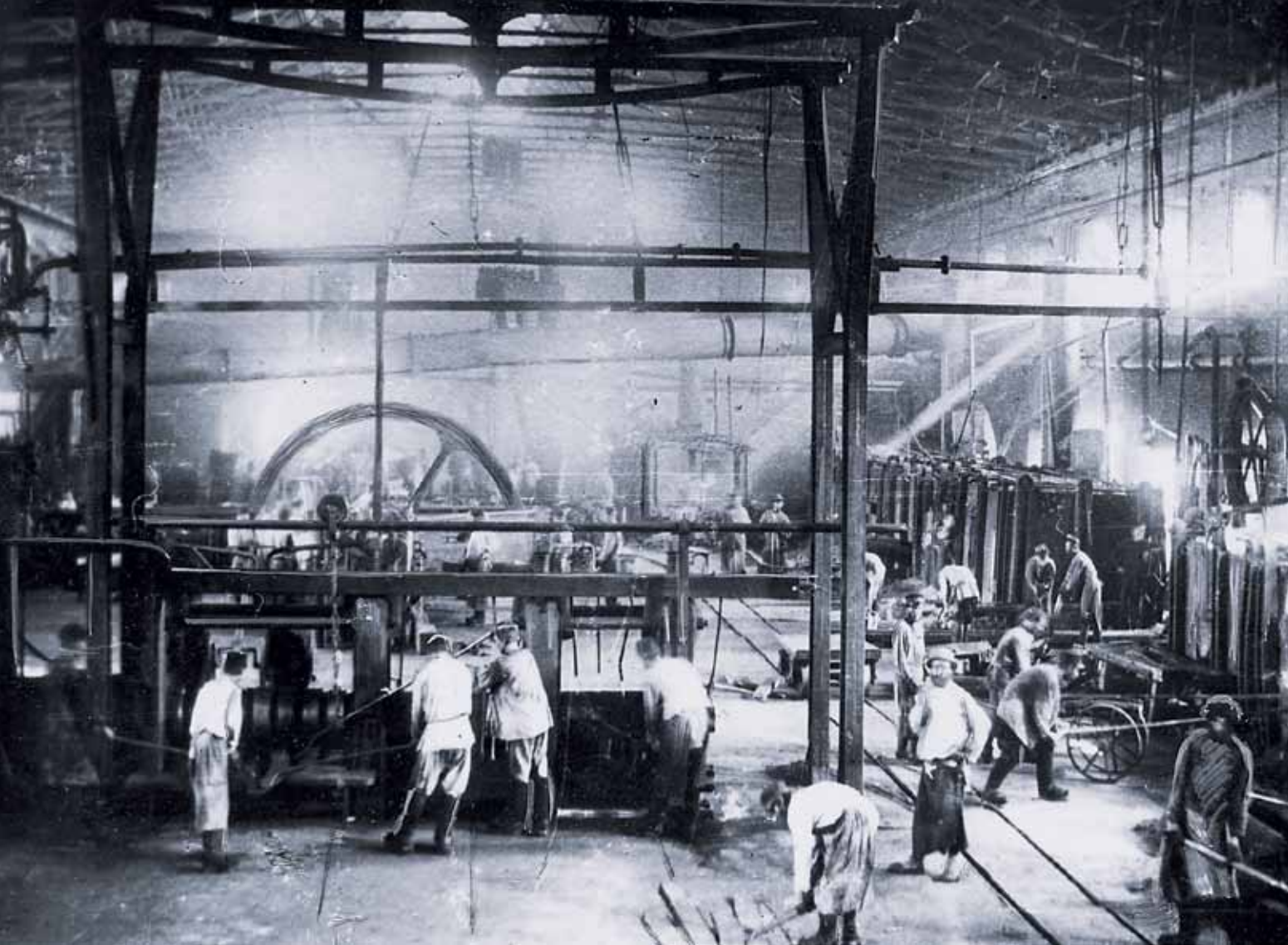
The Plant enjoyed its heyday in the first half of the XIXth century. At the time the plant was managed by Mr. Grigory Zotov, a very able engineer. The plant began manufacturing its trademark product, roofing iron sheet, which was 'outstandingly sophisticated, reliable, clean, smooth, light, and flexible.' It owned its unique features to the manufacturing process: after rolling the sheets were stacked and hammered. This produced a cold hardening effect, which prevented corrosion, while the use of ores containing copper provided a fine reddish color.

The roofing iron from the Urals, which could withstand up to 20 repeated foldings and would "last for a hundred years on a roof," became popular in France, Spain, England and even America, where up to 100,000 tonnes of it would



SAVVA YAKOVLEV,

PLANT OWNER SINCE 1774



be exported annually. It was used to cover the roofs of the Parliament in London and the Notre Dame Cathedral. The same iron was used to build roofs in Moscow, which was destroyed by the fire of 1812. Zotov introduced improvements to the rolling mill, allowing the plant to manufacture roofing sheets from 1.5 to more than two meters in length and about one meter in width. During Napoleon's invasion he designed a machine for polishing cannon balls, which made them "smoothly round and convenient to handle".

It is a little known fact, but nevertheless true, that shaped iron casting was first used at the Verkh-Isset Plant some 27 years before it was developed at Kasli. It was at Verkh-Isset that the first decorative cast iron products, like animal figurines, boxes, candlesticks, etc., were manufactured. The

experience of Verkh-Isset craftsmen laid the foundation for developing this unique craft in the Urals; it was also here that the art of casting in bronze was first developed.

The layout and design of the plant itself also changed. It developed a complex of office and production buildings, which today remains one of Europe's best classic-style industrial ensembles. An important role in its development was played by the outstanding architect Mikhail Malakhov, who designed the industrial shops, the main office building, the Holy Christmas Church, and several other buildings for VIZ. A newspaper report from those days notes that "the elegant stone factories, and the large amounts of pig iron and processed iron that the plant produces set it apart from other factories." When

Emperor Alexander I visited Yekaterinburg in 1824 he was so impressed by the plant buildings and machinery, that he personally used a special mold to cast iron and hammered out a nail.

A mechanical plant appeared at VIZ in the latter half of the XIXth century. The mix of products manufactured by the plant was expanded to include steam engines, but it remained famous for its sheet iron marketed under the world renowned 'A.Ya. Sibir' brand.

ONE OF VIZ SHOPS
IN THE XIXth CENTURY

CANNON PRODUCED AT
THE PLANT





OVERSIZED ITEMS

PRODUCTION AREA IN THE
SHEET HAMMERING SHOP IN
THE XIXth CENTURY

OPEN-HEARTH SHOP

WORKERS ON STRIKE AT
VIZ IN 1905

XXth Century

In 1915 the Verkh-Isset Plant became the first in Russia to launch industrial production of electrical non-grain oriented steel, and this predetermined its future development.

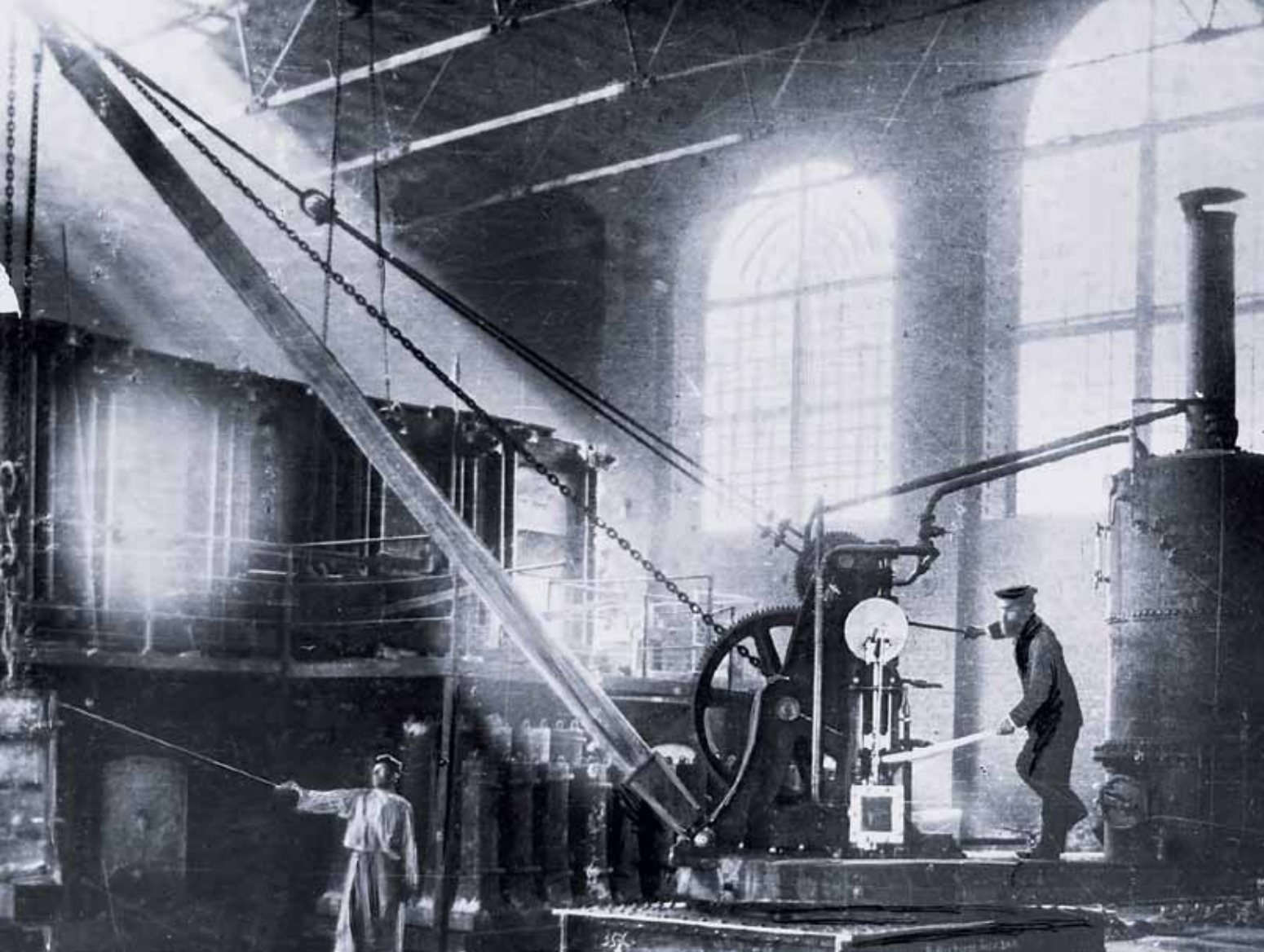
The Russian Revolution of

1917, the Russian Civil War, and devastation that followed led the Plant to the brink of collapse, but it managed to survive. After the Lenin plan for electrification of Russia was approved, the Plant was directed to start manufacturing transformer steel, which the Soviet

government had to otherwise procure from capitalist Europe at a dear price. In 1929 the Plant produced its first batch of hot-rolled electrical steel.

It is noteworthy that at one point it had taken Germany 30 years to begin manufacturing high-quality transformer steel, while VIZ managed to achieve the same in less than five years. Since 1934 it has been fully meeting the demand from domestic manufacturers for hot-rolled electrical steel, which was of superior quality compared to international samples. Thus, the famous Verkh-Isset Plant was reborn, but with a new product line and under a new name, VIZ. To a large extent this was brought about by the establishment of an in-house laboratory, which was founded in 1931. It became the first research center in the Soviet Union to be





operated by a plant. It helped achieve technological breakthroughs in a number of sectors for the Soviet economy, making it possible to produce audio recording equipment and television sets.

With the beginning of the Great Patriotic War two thousand plant workers joined the armed forces. Production of grain-oriented and non-grain oriented steel had to be stopped temporarily, because the country badly needed other products. In a very short period of time VIZ started manufacturing more than a hundred different special grades of steel required for the war effort. In the winter of 1941 it produced the required amount of special steels for tank armor, aircraft, machine guns, and telephone sets. In addition, every day the plant would produce 250 artillery shells, 2 thousand

mines, more than a thousand grenades. The mechanical shop was manufacturing components for the famous Katyusha multiple rocket launchers, while the sheet mill shop was processing silver for manufacturing medals and war

decorations. Several crews adopted the slogan of “working just as hard as the army is fighting the Nazis” and were called “front-line crews”. In 1942 the Verkh-Isset Plant was awarded the Order of the Red Banner of Labor for its exemplary

STEAM-POWERED
MACHINERY IN THE OPEN-
HEARTH SHOP
IN THE XIXth CENTURY

ENTRANCE TO VIZ.
1930





A RALLY IN FRONT OF
THE ENTRANCE TO VIZ
ON JUNE 22, 1941



GRIGORY RECHKALOV,
TWO-TIME HERO OF THE
SOVIET UNION



"FRONT-LINE CREW" OF STEEL-MAKERS LED BY NURULLY BAZETOV

COSMONAUT VALENTINA
TERESHKOVA AND VIZ CEO
VLADIMIR OZHIGANOV
VISITING THE CRS IN 1983



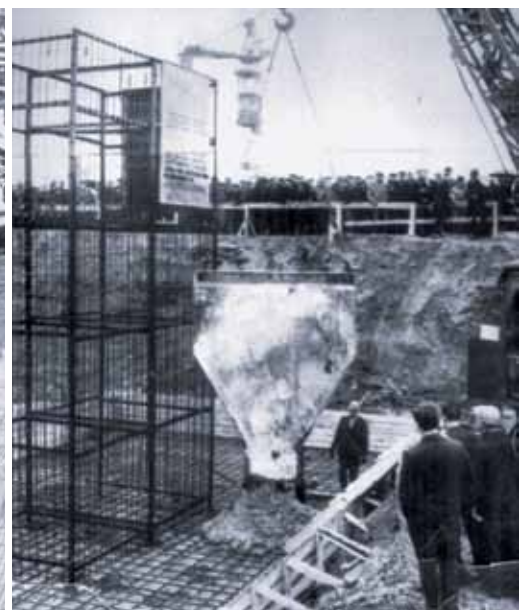
A GAGARIN
COMMEMORATIVE MEDAL
PRODUCED AT VIZ



work in implementing Government requests.

During the Second World War two VIZ employees were awarded the title of Hero of the Soviet Union. These were Mr. Yakov Tkachenko and Mr. Grigory Rechkalov (he received the award twice). In 1976 a memorial was built to commemorate the Plant employees who were killed during the war.

In peaceful times VIZ continued to increase the output of steel. In the 1950s it initiated the introduction of high temperature annealing in vacuum, which led to a 30 to 40% improvement in the electromagnetic properties of transformer (grain-oriented) steel. In the 1970s, right before its 250th anniversary, the plant gets a second lease on life with the commissioning of Europe's largest Cold Rolling Shop (CRS). For the preceding seven years it had been a top-priority Young Communist League national construction project, which stressed its significance. The scale of the project is impressive even by modern standards. The Cold Rolling Shop occupies a territory of 25 hectares, and houses rolling mills, annealing lines, bell and tower furnaces, slitting machines, and finished products testing and



LAYING THE FOUNDATION FOR THE CRS IN JULY OF 1967



BIRD'S-EYE VIEW
OF THE CRS FACILITY

appraisal laboratories for quality control. The design capacity is 250-280,000 tonnes of electrical steel per year. Since it began operating the CRS has produced more than 7 million tonnes of high-quality products. The CRS facility includes a system of water treatment and recirculation installations, helping preserve the Verkh-Isset pond as a source of potable water for Yekaterinburg. The team of Plant engineers who had designed the project was awarded the USSR National Prize. For comparison, zero-discharge water supply systems were introduced in the US only a decade later. In 1976 the Plant was awarded the Order of

the October Revolution, and it now carries two decorations.

In 1998 the CRS was incorporated as VIZ-Stal LLC. Together with the Verkh-Isset PLC, which produces sanitation equipment, VIZ-Stal continues the legacy and history of the legendary VIZ. VIZ-Stal today is the largest producer of transformer steel in Russia, and accounts for almost 10% of the global transformer steel production. More than 80% of its products are exported to more than 40 countries, including Italy, France, and Germany.

XXIst Century

In 2006 VIZ-Stal joined the NLMK Group. This launched a new phase

in the development of the business. A large-scale Technical Upgrade Program is being implemented. In collaboration with Novolipetsk VIZ-Stal is developing a process for manufacturing high permeability transformer steel (HPTS). When used in energy saving power transformers this can generate an immense economic benefit for the country.

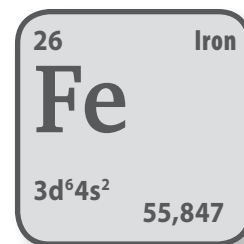
The history of VIZ has many a glorious page, owing to the dedicated efforts of multiple generations of Plant employees. Several dynasties of employees have formed over the years. 🌟

By Olga Chubanova



TOP CRS
PERFORMERS IN 1981

Iron as the Core Metal of Civilization



American researcher Lewis Henry Morgan, one of the founding fathers of the evolution theory, wrote that “when the barbarian, advancing step by step, had discovered the native metals, and learned to melt them in the crucible and to cast them in moulds; when he had ... produced bronze; and, finally, when by a still greater effort of thought he had invented the furnace, and produced iron from the ore, nine tenths of the battle for civilization was gained.”



MAGNETITE,
ONE OF THE SOURCES
FOR INDUSTRIAL IRON
PRODUCTION

IN 1856 THE ENGLISH
INVENTOR HENRY
BESSEMER PROPOSED TO
USE A CONVERTER FOR
MAKING STEEL

It has been said that iron is a metal more precious than gold. The ancient Hittites, who were the first to produce iron from sea sand, traded one measure of iron for 160 measures of gold. It was only natural that given its steep price the ‘Hittite metal’ was used to manufacture sacred objects, jewelry, and, in very rare cases, armaments, like iron daggers and sabres, which were presented to rulers and powerful lords.

The Hittite method of producing iron was borrowed by the Greeks.

They improved the production of iron tools and armaments, which helped them to conquer half of the world as they knew it. But the true era of iron began in Ancient Rome. The Romans had made the metallurgy of iron into one of the pillars of their civilization. In Rome the iron-workers and blacksmiths who made weapons were part of the army. When they enrolled in the military service they would be branded; they were not allowed to leave for long the places where the mines or smithies were located;

upon retirement they received the same honors as military servicemen.

Notwithstanding the scale of iron production in the Roman Empire the Romans failed to win the fame of being the most skilled weapons makers. In those times the best weapons-grade steel was produced along the Ganges River. Ancient Persian merchants even had a saying of ‘it’s silly, like travelling to India to sell steel’, which was a reflection on its quality. Obviously, they were referring to what is known as the famous Damascus steel, an ancient grade of extra strong steel. The secret for its production was lost in the Middle Ages and then rediscovered in the XIXth century by the renowned Russian metallurgist P. Anosov.

One of the most significant discoveries in the metallurgy of steel happened in the middle of the first millennium B.C. in China. Primitive crucibles made of bloomery iron were used for smelting a new variety of high-carbon iron alloy, the





pig iron. The first pig iron did not display any outstanding qualities. Soon, however, the Chinese came up with a new design for the furnace, called the Chinese cupola furnace, which was capable of producing pig iron in quantities sufficient to cast statuettes and bells. For the next two millennia or so the Chinese would hold a complete monopoly in terms of pig iron production. The first cupola furnaces would appear in Europe only in the XIIIth century.

Pig iron was in extremely high demand in Europe during the Industrial Revolution. Originally, tall furnaces (stuckofen; stuck

means lump in German) and cupola furnaces were used to make iron for cannon balls; later, blast furnaces would produce iron to make the cannons; and in the XIXth century the use of coal in huge blast furnaces produced a deluge of pig iron. Iron became so abundant and its quality improved so much that it was used to manufacture almost everything, from cutlery to bridges and towers.

In the late XIXth century giant furnaces designed by Pierre Martin, the French metallurgist, and relatively small Bessemer converters were used to produce steel from

pig iron and scrap. In 1936 Soviet researcher N. Mozgovoy proposed to blast the pig iron with oxygen in a converter, thereby producing steel of better quality at a lower cost.

Given its significant strength, steel made it possible to make things that had previously seemed impossible, like building a bridge with a central span of longer than one kilometer in the very turbulent waters of the San Francisco Bay, or covering a two-hundred meter building with an elegant lattice-work roof without using any support beams, or manufacturing a self-propelled bullet-proof war machine. Better yet, by experimenting with steel alloys researchers were able to vanquish corrosion, steel's eternal enemy. Stainless steel appeared in 1890, to be followed later by a variety of alloyed steels, including the so-called corten steel: sheets made of this type of steel are already affected by corrosion, which creates a thin film on their surface, thereby preventing steel from contact with oxygen and further corrosion.

Today steel and pig iron are the most commonly used metallic alloys. They account for 95% of metals produced world-wide. Clearly, this requires large-scale production of iron ore, the reserves of which are limited. Currently there are 160 billion tonnes of explored iron ore reserves on the planet, and most of them are found in Brazil, Russia, Australia, China and Ukraine. Since pure iron accounts for only half of the mass of ore, while iron ore production last year has already reached 2.3 billion tonnes, one could assume that a major metallurgical crisis is due in another 80 or 90 years. Fortunately, both steel and pig iron have very good recycling properties, and the supply of ferrous scrap is truly humongous. The metals recycling industry has been developing at a very strong pace year after year, giving hope that iron will continue to serve humanity for many centuries to come. ♣

MAKING BLOOMERY
IRON DURING THE MIDDLE
AGES



IN 1865 PIERRE MARTIN,
THE FRENCH
METALLURGIST, PATENTED
A NEW DESIGN FOR A
STEELMAKING FURNACE,
MAKING IT POSSIBLE TO USE
SCRAP IN THE PRODUCTION
OF STEEL

Electricity and Family Values. The Story of Werner Siemens

“And everybody should be ashamed who uses the wonders of science and engineering without thinking and having mentally realized not more of it than a cow realizes of the botany of the plants which it eats with pleasure.” This is a quotation from Albert Einstein, the outstanding German scientist. He said this in 1930 on the occasion of the opening of the Radio Show in Berlin, and his words soon became an aphorism.

Without exaggeration Werner Siemens can be called the father of electrotechnology, in fact, it was probably he who had coined the word in the first place. But his path to the pinnacles of science was extremely challenging.

Siemens was born on December 13, 1816 near Hannover in a poor German farming family. At one point his father had been studying management and was reputed to have been one of the most educated and promising students, but he was forced to abandon further studies because of financial difficulties. However, even in the hunger-stricken province of Prussia, devastated by the Napoleonic wars, he tried hard to provide education for his children. His fourth child, Werner, who was known from early childhood for his bright mind and a gift for natural sciences, received all the support his father could provide. Upon advice from his school teachers Werner was admitted to a classical school, from which he then graduated two years later with honors.

After graduation and upon his father's insistence Werner Siemens decided to become a military officer. Back then the military profession was considered to be a privileged one in Prussia, and it was easier for an officer to gain footing in society.

In 1834 he arrives in Berlin to join the Royal Engineering Corps and is denied entry. They would not even listen to a farmer boy



WERNER VON SIEMENS

from the provinces, and suggested that he approach the Magdeburg Artillery Brigade, which, albeit reluctantly, would accept paupers and commoners. And Siemens was admitted.

Siemens soon became the top student of his class. As an

incentive he was transferred to the Engineering Corps in Prussia's capital city, where he spent three years attending lectures of outstanding professors at the Berlin University. While in Berlin Siemens would spend all of his spare time to educate himself, and easily made



INSIDE ONE OF THE LARGEST
PAVILIONS AT THE
INTERNATIONAL
ELECTRICAL EXHIBITION IN
FRANKFURT, 1891

it to the group of 'young hopefuls of the Prussian military school'. In 1838 he graduated with a rank of junior officer and splendid knowledge of physics, mathematics, chemistry and expectations of a brilliant career. But these dreams soon fell apart with the death of Werner's parents. What could a junior officer do without any money and a bunch of younger siblings to take care of? Siemens, however, was convinced that the family was most important, and did his best to provide his relatives with a decent life and good education. And in time he was proven right.

The next several years were spent by Siemens serving in the army, while also attempting to become an inventor, as he spent his spare time designing various devices. His military career provided a small but stable income and his pastime gave him hope that someday, using his technical abilities, he would break free from his almost miserable life in the garrison. Eventually, it did happen.

Siemens was sent to military



THE ELEKTROMOTE
DESIGNED BY WERNER VON
SIEMENS WAS THE WORLD'S
FIRST TROLLEYBUS

prison for seconding a duel. Here he engaged in research and was able to replicate the experiment of the Russian researcher B. Jacobi for galvanic application of gold and silver to surfaces. Because Siemens invented his own galvanizing machine, once released from prison, he was able to obtain a patent for it, and his brother Wilhelm sold it to the British in 1843 for 1,500 pounds, which was a windfall.

But it was still some time before Siemens became really successful having focused on the telegraph.

In the 1840s Prussia and other German states continued to rely on the optical telegraph as the main means of fast communication over long distances. Its key disadvantage was that it depended heavily on the weather. Researchers and inventors around the world, including Siemens, were eagerly looking for a

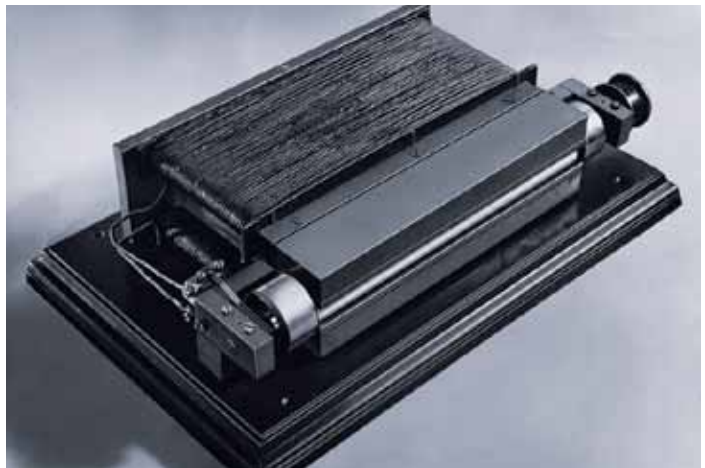


THE SIEMENS & HALSKE
CABLE PLANT IN
ST. PETERSBURG, RUSSIA.
BUILT IN 1882

replacement.

In 1845 at a meeting of the Berlin Physics Society, which attracted everyone who was keen on modern technology, Siemens described his idea of a synchronous switch telegraph. One of the members of the audience was Berlin's best mechanic Johann Georg Halske, who told the presenter that he would be able to improve the design and start a small batch production of the machine. Subsequent events followed in a frenzy of action. Siemens and Halske, leaving aside all other business, quickly assembled a prototype and were able to persuade their military supervisors that the device would be able to provide the Prussian army with a quick and reliable means of communications. Several months later Siemens was invited

JOHANN GEORG HALSKE



DYNAMO APPARATUS DESIGNED BY WERNER SIEMENS

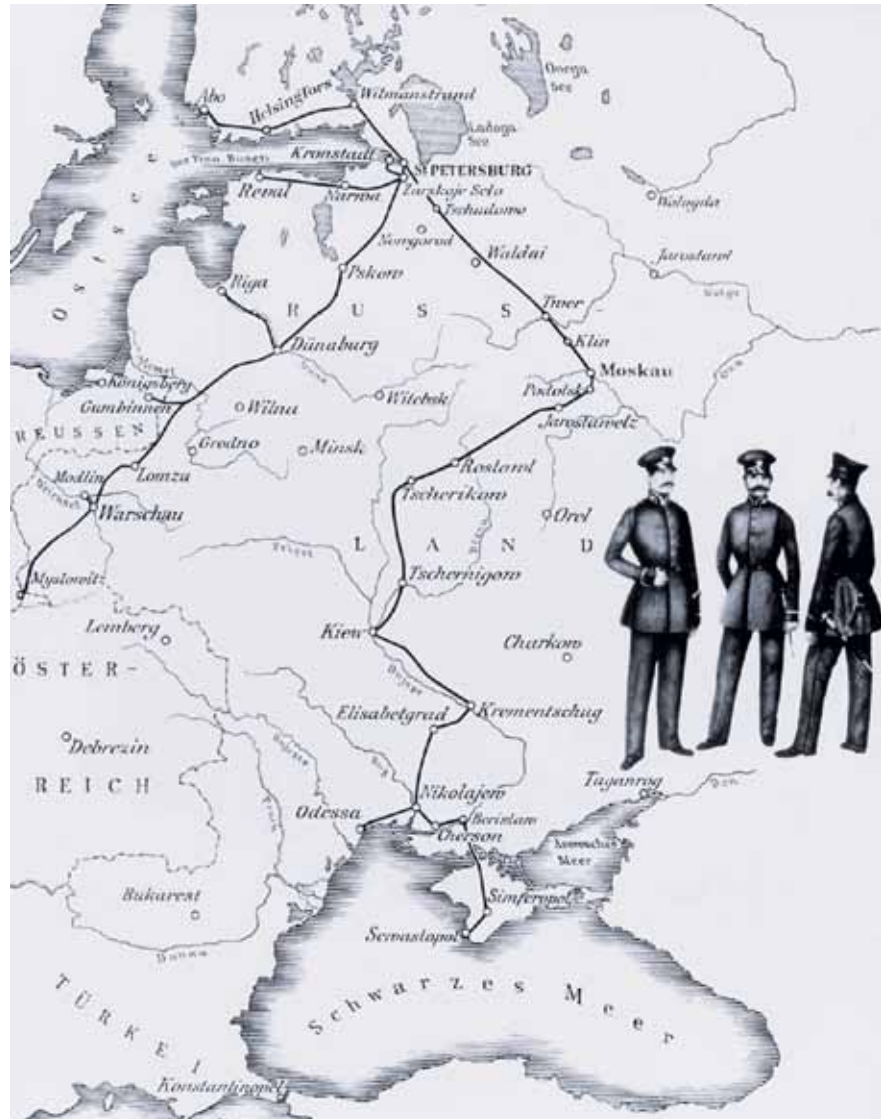


SWITCH TELEGRAPH DESIGNED BY WERNER SIEMENS

to join a commission responsible for the introduction of the electric telegraph. On December 14, 1846, the day following his 30th birthday, Siemens wrote to a relative: "I have almost decided to pursue a career in telegraphy irrespective of whether it can be combined with my military service. In time telegraphy will become a separate important part of technology, and I see my calling in becoming the organizing force of this." Within a period of ten months Siemens and Halske received several lucrative orders and on October 1, 1847 they founded the Telegraphenbauanstalt Siemens & Halske company.

In 1849 Werner Siemens retired from military service and focused on his inventions. During the same year Siemens & Halske built Europe's first electric telegraph line between Berlin and Frankfurt. After their initial success the company was flooded with orders, and even some imperfections in the early projects, caused by the authorities' reluctance to provide Siemens & Halske with adequate funding required for procuring high-quality materials, could not prevent it from flourishing. Also, very soon the company received significant assistance from overseas.

One of Werner's younger brothers, Karl, unexpectedly secured a contract in Russia to build a telegraph line between St. Petersburg and Moscow. The job was finished in 1851 and became the first for Siemens in the huge Russian market. During the Crimean War on the Black Sea communications lines were installed to Sevastopol, allowing telegraph connections for large cities like Kiev and Odessa. New contracts from the Russian Empire continued to arrive over the next 50 years, and Russia became a key partner for Siemens & Halske. Russian authorities again contracted the company when it was required to lay a cable under water, across the Baltic Sea, another first in human history.



Several years later the Siemenses did Russia a favor by persuading European countries to install the line between London and Calcutta via the Russian Caucasus, bypassing Turkey.

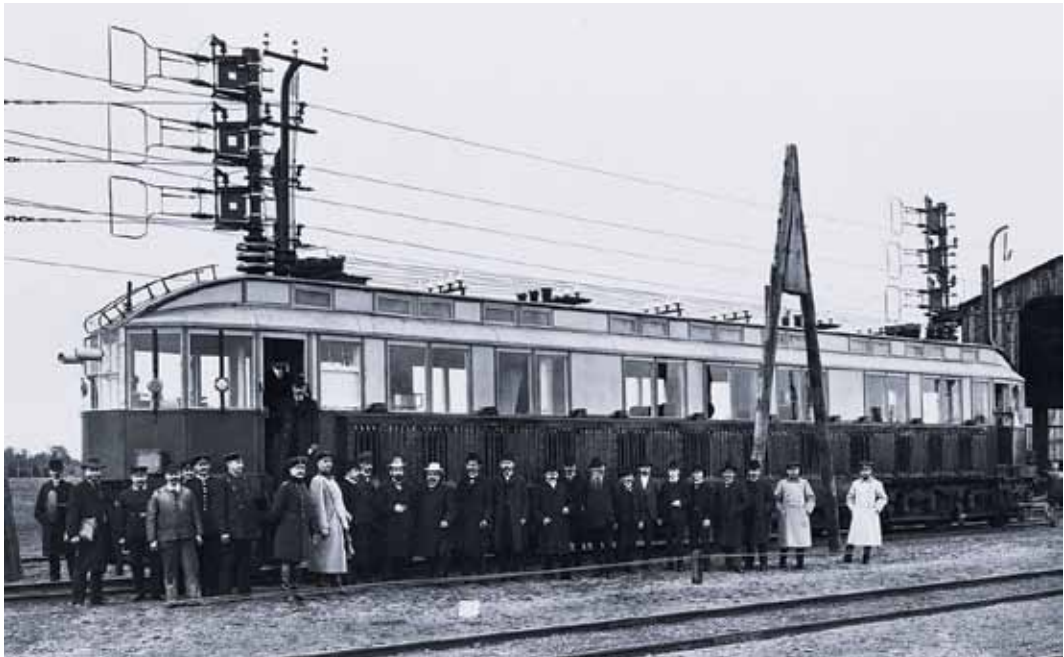
Building telegraph lines was the main specialization, but not the only one for Siemens & Halske. Siemens himself, an explorer by nature, would be reluctant to focus on just one thing. After handing the telegraph business to his commercially savvy brothers he started designing other things.

Just before he turned 50 years old Siemens began work on the design of a device that would generate current without relying

on batteries, a dynamo machine. This produced the direct current generator which spurred on a revolution in various spheres of human life. The Siemens dynamo machine allowed miners to utilize power tools, electric cars and electric trains for transporting ore. Most importantly, the dynamo machine made it possible to develop electric transportation in general. Already in 1879 at the World Trade Fair Siemens demonstrated his electric railroad, which carried visitors between pavilions. Two years later his company built the first electric streetcar line in a Berlin suburb. Over time construction of electric

MAP OF TELEGRAPH
LINES BUILT BY SIEMENS
& HALSKE IN THE RUSSIAN
EMPIRE

LOCOMOTIVE DESIGNED
IN COLLABORATION WITH
SIEMENS & HALSKE.
IN 1903 IT REACHED A
SPEED OF MORE THAN 210
KILOMETERS PER HOUR



railroads became another leading line of business for Siemens & Halske.

In addition to designing useful devices Werner Siemens also dedicated his time to theoretical science. He had published numerous articles covering various aspects of electrical engineering. He came up with one of the definitions of electrical resistance, and for a long time a siemens was used as the measure for resistance, and it was replaced by the ohm at a later time. Today a siemens is used to measure electric conductivity, which is the opposite of resistance.

In 1873 the Berlin Academy of Sciences accepted Werner Siemens as full member in recognition of his contribution to science. Allegedly, this was the only title that Siemens was proud of. 🇩🇪

The Tartar Galvanometer

When they were implementing their first projects in Russia the Siemenses were faced with the challenge of frequent equipment failures, caused by the differences in climate between Germany and Russia. To address this Werner Siemens invented a special instrument, which automatically registered any disruptions along the line. The inventor referred to this device as 'the Tartar galvanometer'.

AN ADVERTISEMENT
FOR SIEMENS HOUSEHOLD
APPLIANCES, 1920s





Sculptures from Scrap

Vtorchermet NLMK Urals donated 10 tonnes of scrap to produce exhibits for the Lom (Scrap) festival of park sculptures held in Yekaterinburg. The festival attracted 29 artists, who presented for spectator review their public art works. Public art is a term used to define works of art which are created for the specific purpose of displaying them in public areas, most often in the open air. Renowned Russian art critic Mr. Andrey Erofeev and Ms. Alisa Prudnikova, Director of the Urals Affiliate of the National Center of Modern Art, were selected as consultants for the festival.

This is the third time that Vtorchermet NLMK Urals is participating in this event,



by providing the artists with scrap, a place to create their works, and the assistance of welders. This year public art creators mostly focused on household scrap, e.g. kitchen utensils, wires, irons, springs, parts of automobiles and bicycles, etc. Automobile and mechanical components used included cogwheels, camshafts and crankshafts, and chains. The artists used these scrapped items to create their metal sculptures. They claim that they want their art to raise awareness of the need to rid the environment of industrial and household waste.

After the festival ended several of the sculptures were placed at one of the Vtorchermet NLMK Urals industrial sites.