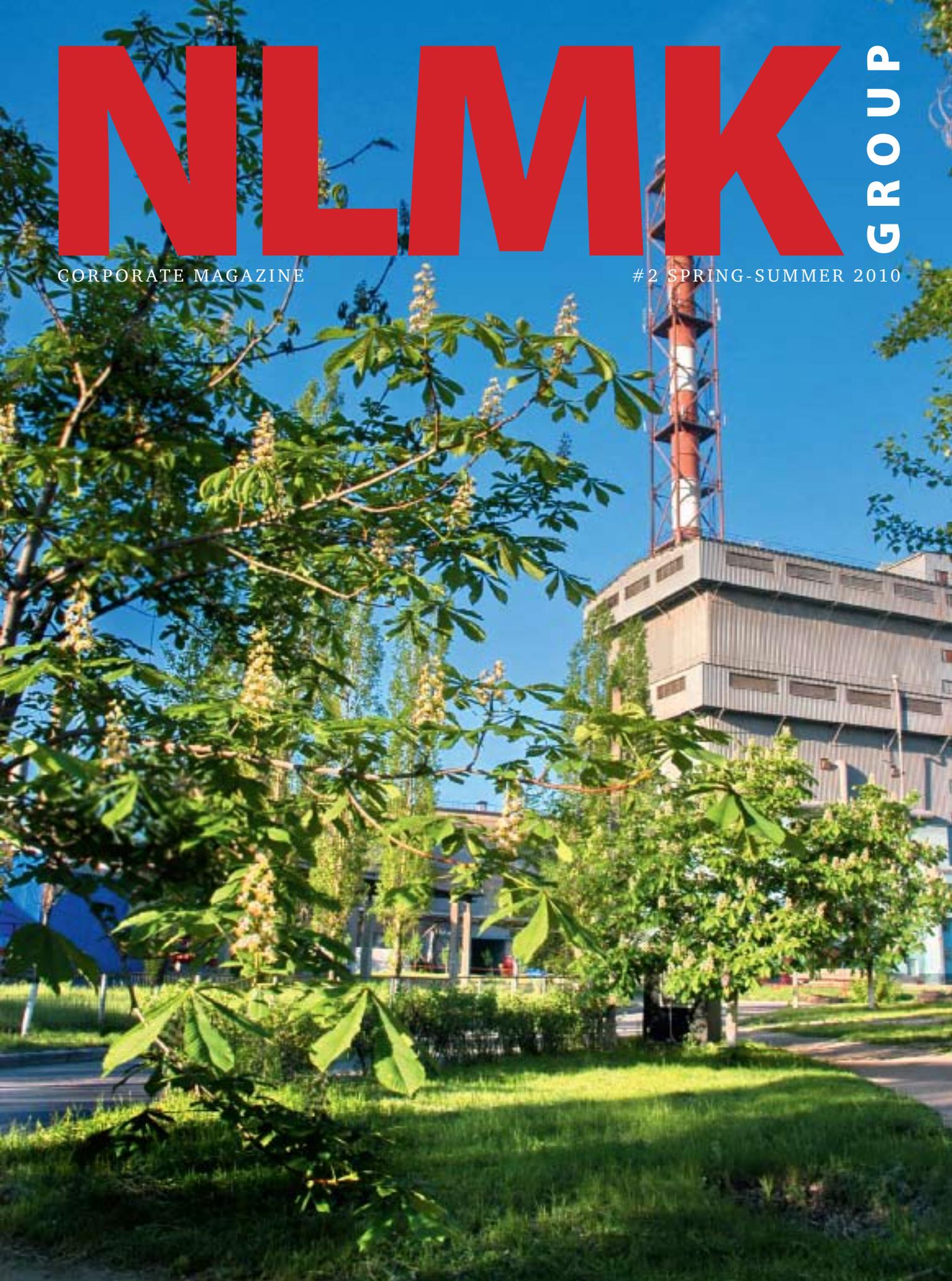


NLMK GROUP

CORPORATE MAGAZINE

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**NSMMZ & BSE
COMBINE EFFORTS
TO BOOST EFFICIENCY**

Representatives of Badische Stahl-Engineering (BSE), German Engineering Center, world’s #1 consultant for mini-mills, visit our Nizhneserginsky Steel Mill (NSMMZ). The Center specializes in services related to increasing performance and cutting costs.

This is BSE’s third visit to the plant. The first one was initiated by the German company in 2008. BSE’s interest in NSMMZ is understandable. Since joining the NLMK Group, the Company has managed to noticeably improve its performance, for instance, by radically reducing downtime and waste, as well as cutting energy consumption. Guests from BSE expressed a high opinion of NSMMZ’s EAF and rolling operations. A know-how transfer proposal has been developed and we are seeking further cooperation opportunities. ■

**BENEFACTORS
GET CERTIFIED**

In 2009, the best benefactors of the town of Revda (where our Nizhneserginsky Steel Mill is located) were awarded with certificates. NSMMZ received a bronze Certificate of Kindness.

The Company’s good deeds include material aid to a Child Care Center, to the plant’s labor veterans, to a social organization for visually impaired people, as well as to the Road to Life social rehabilitation center. NSMMZ has also allocated funds for installing a monument to test navigator Igor Rzhavitin, Hero of Russia. ■

**NOVOLIPETSK STEEL HOLDS
ANNUAL GENERAL MEETING**

On June 4, 2010 NLMK held its Annual General Meeting.

Shareholders approved the Company’s 2009 Annual Report, annual financial statements, and allocation of profit, including the dividend payment for the financial year 2009. NLMK’s shareholders approved the total dividend for the financial year 2009 of RUR0.22 per ordinary share.

NLMK shareholders elected members to the Board of Directors, the Internal Audit Commission and the President of NLMK (Chairman of the Management Board), and approved the Company’s Auditor for 2009.

Karen Sarkisov became a new member of the Board of Directors.

Alexey Lapshin was re-elected President of the Company (Chairman of the Management Board). ■

Karen Sarkisov’s Biography

Karen Sarkisov serves as an Aide to the Chairman of the Board of Directors on External Economic Relations. He is also a member of the Board of Directors at NLMK International BV (Holland), as well as a member of the Board of Directors at Steel Invest & Finance S.A. (NLMK’s joint venture with Duferco). From the early 90’s to 2008 he worked at steel trading companies holding various executive positions at a number of international trading entities. From 2006 to 2007 Mr. Sarkisov served as the Chairman of the Board of Directors of VIZ-Stal. In 1986 he graduated from the Tashkent State University majoring in Oriental Studies. Mr. Sarkisov was born in 1963 in Tashkent.

NLMK Declares Energy Efficiency as Top Priority

Energy efficiency is currently among the priority areas in Russia's technological development determined by the President of the Russian Federation Dmitry Medvedev. The declared goal is to achieve a 40% reduction of the country's energy consumption by 2020. Novolipetsk Steel has accumulated vast experience in energy efficiency, but there is still room for improvement. This was the topic of our discussion with Alexander Starchenko, NLMK's Fuel and Energy Director.



NLMK ENERGY DIRECTOR
ALEXANDER STARCHENKO

NLMK is in the process of creating a new Energy-Efficient Reality. Mr Starchenko, could you tell us a little more about it?

– NLMK has never stopped its activities on improving energy efficiency but up until recently it wasn't perhaps this high up on the priority list

because energy resources in Russia were cheaper than abroad. As domestic prices approached global levels, energy efficiency issues came to the fore turning into a crucial competitive factor.

NLMK is resolving these issues by re-equipping its facilities as part of a large-scale Technical Upgrade Program, as well as by implementing cutting-edge technologies with lower specific consumption rates. For instance, hydrogen required for production used to be obtained through water electrolysis. Today we have the new natural gas reform-

ing method that results in a multi-fold reduction of energy consumption. We have installed an additional boiler and three turbine generators at our Heat and Power Plant to boost the production of our own electric power. The launch of Rolling Mill 2000's Reheating Furnaces #4 and #5 with a 45% lower specific energy consumption compared to traditional furnaces, as well as 10 low-energy bell furnaces for high temperature annealing of transformer steel also contribute to the Company's higher energy efficiency.

In order to improve energy efficiency, we are not only pursuing large-scale investment projects but also reducing losses, rationalizing fuel and raw material consumption, optimizing equipment performance, etc. In other words, we are tackling this challenge on all levels and from every angle. This approach results in maximum effect at minimal cost. This is another one of our strategic priorities. For instance last year, we adjusted the plant's exterior lighting by removing it where it was unnecessary and amplifying it where necessary by changing the lamps. This relatively simple procedure helped to save 2-2.5 MW of electric energy. For illustration purposes, building a source this efficient would cost the Company around USD3 million. We have developed a target program to replace heat insulation on major water and steam pipelines. The cold

winter turned out to be our ally in detecting all the leak spots. It will not require substantial implementation costs but its energy saving effect is going to be great. Our pilot project on applying modern lighting facilities at the Hot Rolling Mill 2000 proved to be a success. We plan to roll out this experience to all NLMK units. As a result, workplace illumination will improve two-fold and even under the most conservative estimates, we will be able to save 10 MW of electric energy. Again, the cost of this project is many times lower than building a generator of similar capacity.

In 2001 we created an Energy Efficiency Center that plays a critical role in eliminating losses and addressing energy inefficiency. It works in close collaboration with the heads and experts of the Company's operating units on implementing all the projects I've mentioned. The Center is in charge of regulating energy use and ensuring proactive response to excess demand.

In the period between 2001 and 2009 we've managed to implement 33 large-scale CAPEX projects and over 1200 low-budget activities aimed at enhancing the plant's energy efficiency.

And what is the resulting energy intensity?

– Following the first and the second stages of our Technical Upgrade Program we were able to go from 7.2

CV

Alexander Starchenko was born in Moscow in 1968. In 1991 he graduated from Bauman Moscow State Technical University, majoring in Electric Engineering. He has worked for many companies, including several years at RAO UES of Russia. He has been holding various positions at NLMK since 2004. In 2007 he was appointed NLMK's Energy Director.



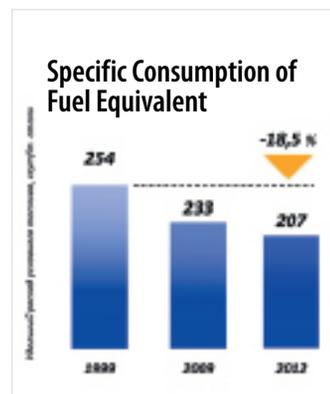
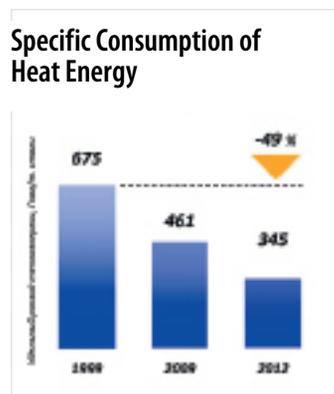
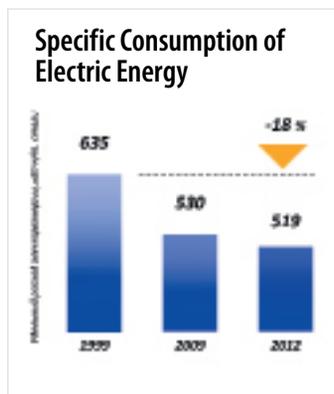
Gcal per tonne of liquid steel in 1999 to the current level of 6.3 Gcal. Our goal is to approach the leading standards of our EU steelmaking peers and reach 5.9 Gcal per tonne of liquid steel.

I suppose that enhanced in-house electric energy production is going to play an important role in this. Demand for energy is bound to increase after the crisis, and so are the energy prices.

– For us, power generation is not an end in itself but rather a constit-

uent part of our strategic objective: to ensure maximum reduction of all costs per product unit. In-house energy resources (electric power and heat power in vapor form) are 1.6-2 times cheaper than purchasing, hence their expediency. The plant is currently 48% self-sufficient in electric energy due to the utilization of by-product fuel gases. After the launch of BF-7, this indicator will improve to 55%: we are building an 150 MW Heat and Power Plant to utilize its by-product gases. The benefits of this approach are

that environmental issues are resolved alongside the strengthening of energy security. And this is by far not the only investment project on boosting energy efficiency. Like all the ones mentioned earlier, it is also part of our Technical Upgrade Program. We are planning to generate electric power at our BF-6 and BF-7, and eventually at the BFs in Blast Furnace Shop #1 using excess blast furnace gas pressure in top-pressure recovery turbines. They are easily integrated into the process cycle of the newly commissioned





and existing equipment alike, and are capable of recovering up to 40% of energy used for blast furnace wind. We are also planning to utilize sinter heat and waste heat from steelmaking machinery, as well as to install new air separators with a 20% performance improvement on

the existing ones, and a wide range of other activities.

Among these innovations you are planning to implement, would you say any of them are a breakthrough for Russia, i.e. never used before?

– Converter gas gathering and utilization would be one. Its calorific value is twice higher than for BF gas, only now it's being burned in flambeau lights with no productive use whatsoever. Only Japanese and Western European steelmakers recycle converter gas. No Russian company has as of yet ventured to apply similar technologies. This can be explained by certain difficulties related to operating them. Given the con-

verters' operational specifics, converter gas is delivered cyclically, and before feeding it evenly to, say, the reheating furnaces or heat and power plant boilers, gas has to be accumulated. Moreover, it is highly polluted, mainly with dust, and needs to be refined. But, as foreign experience shows, these are all surmountable challenges. And it's all worth the trouble. In terms of electric power, converter gas utilization shall result in an additional 50 MW capacity for NLMK.

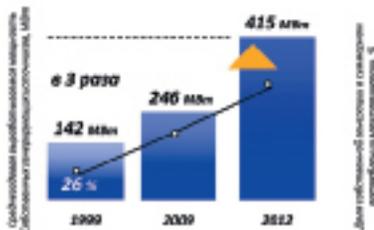
What are the main challenges you have to tackle to increase the energy efficiency of operations?

– The problem is in many ways psychological. We are not used to saving, at home and at the production site alike. It is hard to lose the habit of treating energy resources as something that is free of charge, putting an end to extravagant waste. And this creates problems, for instance, when energy resources are purchased in excess of our actual requirements, resulting in heavy fines. Changing the human psychology is a complicated process, but I think with time we will be able to figure it out.

The most important task at hand now is perhaps teaching people about lean resource usage. If we succeed, NLMK will be able to go beyond the 5.9 Gcal energy intensity target.

Alexander Sutormin

In-house Electric Energy Generation



FOR REFERENCE

VIZ-Stal, NLMK's subsidiary, also runs the Program on reducing the energy intensity of its operations and saving resources (estimated until 2015). Last year the Company won an energy saving competition organized among mining and steel companies of the Sverdlovsk region. The plant is also working on installing natural gas reforming technologies to root out the costly electrolysis. 37 times less energy will be required to obtain hydrogen, bringing down VIZ-Stal's energy consumption by an average 7.2 million KW/hour. Other energy saving projects are under way. For example, new high temperature annealing furnaces are being as-

sembled at the Cold Rolling Shop, coating devices are being equipped with pumps to monitor performance and reduce energy consumption.

The effect of the energy saving program for NSMMZ in 2009 exceeded RUR11 million (~USD360000). For instance, the upgrade of the electro-magnetic stirring in the ladle furnace resulted in reduced argon consumption, opening a window of opportunity for larger Ar sales to third party clients. Pressurized air meters have been installed at the Long Product Division's compressor plant.

Altai-Koks was able to save 46,000 KW/hour of power and 6,400 Gcal of heat in

2009 through rationalizing utilization rates, streamlining heating network operations, as well as increasing electric power output at one of the Heat and Power Plants turbogenerators by expanding steam condensation space during the summer period and modernizing lighting at some production sites.

Stoilensky's power engineers were also at the top of their game. The Company's Concentrating Mill was able to reduce specific energy consumption by 0.2%, the Tailings Shop by 1.3% and the Drain Well by 0.2%, etc. The economic impact of energy resource saving activities exceeded RUR3.2 million (~USD105000).

VIZ-Stal Follows the Leader

A few months ago we announced the launch of the well-reputed Production Efficiency Enhancement System at our main production site in Lipetsk. We have decided to roll it out to other NLMK Group companies. Today we are going to follow up on how the system is being implemented at VIZ-Stal.

The project's key objective is to improve product quality by streamlining production processes and inter-departmental cooperation.

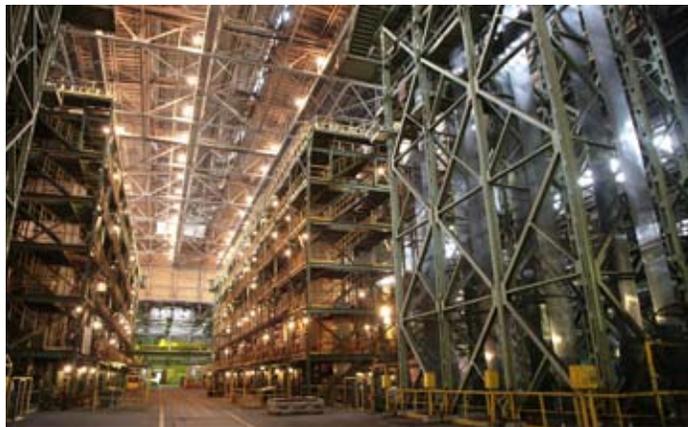
"The goal of the project is twofold," says Vsevolod Shabanov, Technical Director responsible for coordinating the plant's departments under the project, "On the one hand, it involves the Equipment Reliability Module (downtime analysis), and on the other – the Control Cards Module (production KPI). Production Efficiency Enhancement System is based on quality management principles. The main underlying idea is not to look for the one responsible and punish them, but rather to figure out the situation, pin down the root of the problem and eliminate it.

To solve these tasks, our colleagues from the Lipetsk plant have developed an IT system which allows inputting data on equipment operation modes, product characteristics and monitoring the changes of a selected parameter.

A control range is set for each parameter to determine its admissible deviation. If a given parameter violates the control limits, such deviation should be recorded, its reasons analyzed and preventive measures indicated. This data is uploaded into the IT system, and then the efficiency of response actions is monitored."

The Equipment Reliability Module's (for downtime management) production run is planned for this June. The Control Card Module's production run is scheduled for December. The System is currently being piloted. As new workstations are automated, they will also be connected to the System.

In November VIZ-Stal personnel



was made familiar with the concept and the guiding principles of the Production Efficiency Enhancement System. In the end of January Lipetsk experts organized trainings for the Cold Rolled Shop workers on inputting and analyzing data within the Equipment Reliability Module. Piloting began in February: there is real-time communication with NLMK, comments on parameter inputs are being processed. VIZ-Stal experts plan to start the Equipment Reliability Module's production run in the second half of the year.

Implementing control cards for production KPI is more of a challenge. However, here too a substantial scope of activities was completed at VIZ-Stal in February: classifiers for reasons behind parameter deviations from the set standards were approved by NLMK and introduced into use. In March, activities on control card implementation continued at the main production site in Lipetsk where an IT system responsible for interaction with VIZ-Stal was be-

ing adjusted. In April, VIZ-Stal experts were testing the data transfer mechanisms before processing all comments and launching the control card pilot in May. Trainings will be organized for the Plant's Central Lab personnel, as well as the Automation & Communication Department personnel responsible for the Production Efficiency Enhancement System support at VIZ-Stal. Control Card Module's piloting is scheduled for July – November and in December it will be put into industrial operation.

From early 2011, VIZ-Stal will be running both elements of the Production Efficiency Enhancement System. Naturally, in the process of piloting and subsequent operation the System will be adjusted, updated and corrected. The task currently at hand is to coordinate the interaction of all the departments and set up real-time cooperation with the Lipetsk team. 🔄

The main underlying idea is not to look for the one responsible and punish them, but rather to figure out the situation, pin down the root of the problem and eliminate it

NLMK'S FOCUS ON STRENGTHENING TRANSATLANTIC TIES

NLMK Group's development is accompanied by substantial changes in the structure of steel production. Whereas in 2006 practically all steel production was BOF-based, today the Group's facilities are equipped with three powerful electric arc furnaces: two at NSMMZ in the town of Revda, Russia, and one at Beta Steel (Portage, USA). Moreover, the Group's new mini-mill currently under construction in the Kaluga region of Russia will also use EAF-based technologies.

Intensively developing EAF production simultaneously across several facilities necessitated the organization of knowledge exchange activities between the Group's personnel in order to stimulate performance. In summer 2009 Beta Steel management made a site visit to NSMMZ and KNPEMZ (the latter is currently under construction), making the first step in the right direction. NLMK Long Products delegation headed by Mr Denis Samsikov, NLMK Long Products Deputy General Director, came to the US with a return visit in February 2010.

Beta Steel's organizational experience is extremely valuable in terms of labor intensification, says Mr Samsikov. Beta's small team (slightly under 350 people) produces on average 2000 tpy of steel per employee. Alongside multitasking, an important role is played by outsourcing of some production operations. Scrap handling and refractory services are fully outsourced, as well as most R&M activities.

One of the items on the agenda was a visit to the facilities to inspect the equipment. NSMMZ experts were impressed by the remote-controlled cranes installed in the building bays. They ensure that the operator can be closer to the action spot, providing for better security and accuracy of operations. Mobile equip-



ment at the scrap yard also drew their attention.

In their turn, NSMMZ specialists shared their experience of setting up the optimal melting method for EAF. During the visit, Mr Ivanitsa, NSMMZ's Technical Director, together with Beta Steel experts, developed an Action Plan on adjusting the furnace practices. It was successfully piloted and implemented, resulting in significant slag practice

improvements and reducing consumption rates.

Production & technical ties between NLMK Group companies will undoubtedly strengthen in the future. Beta Steel experts are planning another visit to NSMMZ. Possible internships for young Russian specialists at the US plant are currently being considered. ■

Alexander Tseitline

New Furnace Sets New Quality Standards

NLMK's BOF Shop #2 commissions a new high-quality ladle furnace (LMF). Vladimir Nastich, Senior Vice President, and Richard Haigis from the Austrian Siemens VAI were there to cut the traditional red ribbon. A bottle of champagne was then broken against the furnace as if it were a ship about to set sail for the first time.



NLMK
LADLE FURNACE LAUNCH

The new LMF definitely deserves all these “honors”. It is a high-tech production facility with a capacity of c.4 million tpa. It will be used for treating steel prior to casting in the CCMs. It’s the ladle furnace that lays the groundwork for the high quality of NLMK’s steel – from slabs to downstream products.

The ladle furnace will support the production of new “modifications” of steel for the automobile industry, white goods manufacturing and electrical engineering. Complete automation and advanced gas removal and gas purification system ensure the mill’s ecological sustainability.

– The furnace performs fine processing of liquid steel based on its chemical analysis, – explains Vladi-

mir Nastich. – So we can use it to produce a variety of steel grades to satisfy our most demanding customers.

Alongside the expansion of the product mix, the new furnace will decrease the rate of deoxidizer, ferro-alloy and refractory consumption by reducing the temperature and oxidation of steel before it leaves the BOF.

Ultralow sulfur content in steel (up to one thousandth of one percent) provides an additional advantage. Steel is treated with white synthetic slag. Coupled with the possibility of maintaining a narrow temperature range for liquid steel prior to casting, this results in improved quality in terms of nonmetallic inclusions. This will allow pro-

ducing high-quality slabs using ultrafast CCMs achieving all the key goals: increased output, expanded product mix, improved quality and reduced costs.

Novolipetsk Steel collaborated on this project with Siemens VAI (Austria) as part of the second stage of NLMK’s Technical Upgrade Program that envisions large-scale modernization of steelmaking facilities. A similar LMF will be installed at BOF Shop#2 in October.

Two ladle furnaces will be installed at BOF Shop#1 with a total capacity of c.4 million tpa. Their launch is scheduled for December 2010 and May 2011. As a result, the amount of steel treated in ladle furnaces will total c.12 million tpa. 🚀

Maintenance Service: Yesterday, Today and Tomorrow

The importance of Repair and Maintenance Services (R&M) is unquestionable, supported by headcount numbers. For instance, the R&M service at the Lipetsk site currently accounts for around 30% of the total manpower. That said, the large R&M service ratio is by no means a direct confirmation of its high efficiency. Just on the contrary, the task of streamlining R&M operations is as high as ever on NLMK's priority list.

Decentralized R&M management systems commonly used by Russian steelmakers are evidently outdated. The key solution is to implement a service model for steelmaking equipment, as well as to reduce the scope of maintenance and repair to the minimum. Today we are going to talk to Alexey Popov, Head of Repair Production, Andrey Yaroshenko, Technical Director, Anatoly Khebnnev, Head of Integrated Information System Implementation Department, and Vladimir Nastich, Senior Vice President – Director General.

The key objective of the reorganization is to centralize the repair service forming specialized R&M units for a number of steelmaking processes

Alexey Popov:
“Everything is well thought through”

– There is a famous wisdom, “God forbid that we should live in times of change!” It so happened that I became the Head of Repair Production during a time of large-scale restructuring and, believe it or not, I am really excited with the changes because they are aimed at improving the efficiency of R&M operations, increasing the repair men's labor capacity, thus promoting their welfare. Assigning people to specific devices is no longer practical. The key objective of the reorganization is to centralize the repair service forming specialized R&M units for a number of processes – blast furnace,

steel smelting, rolling, and by types of equipment – cranes, energy, automatics, subordinated to the R&M Center. Starting from 2011, we are planning to transition to the service model, leaving Repair Production with the sole function of manufacturing spare parts and equipment. In the near future, this unit is going to focus exclusively on machine building products.

Specialized departments – for machine assembly – were created within the Repair Production unit itself. Or more specifically, we merged the old ones, forming 7 out of 12. This sort of consolidation allowed us to optimize their operations.

We have closed down our millworks as a non-core business and decommissioned the wood-sawing unit. Square logs are now supplied by the Procurement Management Department. This simple measure resulted in a 10% reduction of tray and packaging material manufacturing costs. Such “in-house production vs. external suppliers” analysis should be applied across the board. It's not uncommon that the reverse is sometimes true when we are buying elsewhere something that it would be cheaper to produce ourselves, thus limiting Repair Production capacities.

Getting back to the point, these activities released 62 workers. The majority was reassigned to fill vacancies in other units and departments of the plant. Some opted to leave. But nobody was forced to

make that decision. Overall, I must say that our employees are very understanding towards this reorganization process. They are aware of the goals and the opportunities it is going to create.

We are currently executing a project on decommissioning the production and administrative facilities of the iron casting unit and its infrastructure (buildings, warehouses, etc.) and relocating all the necessary equipment to the steel casting unit of the CU. The iron casting building is almost 60 years old. Maintenance costs are huge while the output is only around 5000 tpa. Repairs are estimated at RUR157 million (~USD5.1 million). And it's definitely not worth the effort – it's much easier to relocate the equipment. This is what we are in the process of doing: moving all the machines and mechanisms that have been installed over the last few years and decommissioning obsolete ones. The project will result in a 17-18% cost reduction, and for some product types savings will total up to 25%. There will be no decrease in output and 24/7 operations will boost efficiency. 40 people will be released, and they will traditionally be offered alternative jobs.

The same approach is used for other projects. They are all backed up by careful feasibility studies. Everything has to be well thought through.

Machining equipment and 112 machine operators were transferred from the main departments to the

Repair Production, enabling us to set up specialized units for manufacturing couplings, metal cutting blades, coarse grain wheels, focusing on serial production. This results in improved labor efficiency and reduced costs, i.e. additional expenses for transporting parts for thermal treatment, for example, are eliminated. Everything is performed in the same work area. Naturally, this type of working environment also facilitates product quality control.

Talking about technical upgrade prospects, we've elaborated a development strategy until 2012 which involves further labor efficiency improvements, equipment modernization, as well as process automation. Investments will total RUR827 million (~USD27 million). I won't go into the details of all the 17 projects but I'll tell you about the ones I consider to be the most important.

We are currently working on a proposal to be submitted to the Production and Technical Council on setting up a top quality casting process based on chemically hardening foundry sand technologies which will result in a 5% production cost decrease.

We are planning the revamping of Heating Furnace #9, used for annealing and normalizing carbon grades of steel. It was commissioned back in 1971. This project will result in an increased output of thermally processed parts and an improved quality of production. Natural gas consumption will be reduced by 20-25%, while furnace efficiency will grow 35-40%. The next step is to equip all heating and reheating furnaces with advanced automated management systems.

About 30 units of obsolete equipment that has been in service for over 25 years will be decommissioned and replaced by 8 highly efficient machining centers bringing our production to a new level.

A Plasma Nitration Unit is another one of our innovations. It will improve the surface hardness of the parts to the required yield strength

and abrasion resistance, prolonging their service life. This will reduce the frequency of replacements for spare parts, shears, scrap choppers, dies, etc., leading to significant cost cuts.

As part of the strategy, we are also planning to set up an electronic archive for storing design technology documentation, ensuring proactive document management and saving production prep time.

We are not here to reinvent the wheel but rather to learn from the best. I am talking about applying best available technologies and advanced experience. We have recently signed a contract with the German SMS Demag, a renowned leader in the field of spare parts manufacturing. They really have a wealth of knowledge to share. I think this partnership is an important step forward because the Russian machine-building industry is currently out of shape, to use a sports term, whereas its growth is indeed crucial for the development of steelmaking. Future joint projects with Siemens VAI

are also possible, and not just for the benefit of NLMK, but other potential consumers as well.

And do we have what it takes to go through with our ambitious Repair Production development strategy, you might ask. My answer is yes! Our Repair Team is extremely dedicated and experienced. In addition, we have a lot of young newcomers, recent college graduates. I see the sparkle in their eyes, their willingness to work and explore all the intricacies of our craft. Our future is in safe hands.

Our employees are very understanding towards this reorganization process. They are aware of the goals and the opportunities it is going to create

**Andrey Yaroshenko:
"R&M guiding principle:
shared goals – shared
responsibility"**

– In order to ensure high quality and meet production deadlines, we need to have well-tuned operable facilities. This is where the importance of the Repair Service comes in.



CV

Alexey Popov was born in 1976 in Lipetsk. He is a mechanical engineer. Mr Popov graduated from Lipetsk State Technical University and Voronezh State Technical University majoring in Management. He joined NLMK in 1999,

starting off as an engineer at the Repair Plant and growing to become the Head of Technical Upgrade and External Orders Unit and later the Deputy Director for Technical Upgrade and Major Repairs. From November 2009 Alexey Popov is the Head of Repair Production.



We are not here to reinvent the wheel but rather to learn from the best

It is precisely for the purpose of boosting its efficiency that we've launched our R&M Restructuring Program. A recent benchmarking analysis revealed that NLMK's performance in this area is currently not up to the level of its Western peers.

Up until recently almost all operating units had their own repair services assigned to specific facilities. There were of course some common principles and operating standards, but the activities of these services in the various units were essentially disorganized. Each relied on its own methods and approaches based on their individual specifics. As a result, maintenance costs were high but there was no noticeable labor efficiency improvement. The way it used to function was there would be, for instance, two BOF units, each with its own technical service. And one would be performing repairs, with the entire technical team overloaded to the extent that some of the work had to be outsourced (costing substantial amounts of money), whereas the other unit would not be doing any repairs. Naturally, the second repair team wasn't idle, but it wasn't 100% loaded either. Centralization of the repair service will allow streamlining the utilization of in-house personnel and reduce out-

sourcing. This will lead to cost cuts and improved labor efficiency, the ultimate goal of the reorganization process.

Naturally, rationalizing personnel load will allow us to release some of the workers. The plant, however, has enough work for everyone, including the displaced. Where there is a will, there is a way. That's why we didn't envision any headcount cuts when launching the R&M reform. At the same time, if someone decides to leave the Company it's their right that we have to respect. I would just like to point out that despite the optimization of NLMK's Technical Service headcount, its salary schedule has been fully preserved.

To give you a brief overview of the restructuring. It's a carefully planned multi-phased process. During the first stage we formed centralized repair services and general shop repair teams. The second stage involves the consolidation of Repair Production, Energy Generation Units and the Process Automation

CV



Andrey Yaroshenko was born in 1966 in Dnepropetrovsk. He is a mechanical engineer. Mr Yaroshenko graduated from the Dnepropetrovsk Metallurgical Institute. He joined NLMK in 1992 as a production foreman at BOF Shop#1. In 1997 he was promoted to Deputy Head of BOF Shop#1, first responsible for steelmaking operations, then for quality and technology. Between 2001 and 2005 he was Head of BOF Shop#1. From 2005 to 2010 he was Head of BOF Shop#2. He currently holds the position of NLMK's Technical Director.

responsible for steelmaking operations, then for quality and technology. Between 2001 and 2005 he was Head of BOF Shop#1. From 2005 to 2010 he was Head of BOF Shop#2. He currently holds the position of NLMK's Technical Director.

Center. There is now a clear distribution of functions among R&M units: one part specializes in maintenance and repairs and the other in producing spare parts and equipment. For instance, we used to have two units dealing with the repairs of steelmaking equipment that were responsible for the maintenance of our two BOF Shops. One produced spare parts for BOF Shop#1 and the other for BOF Shop#2. Following the reorganization the number of units remained unchanged, only now one is responsible exclusively for the production of spare parts and equipment and the other is entirely focused on R&M. The latter, together with other specialized departments, will become part of NLMK's R&M Center. We are currently working on setting it up. During the third stage we are planning to create a body responsible for managing R&M processes, planning and monitoring, as well as personnel motivation. We are going to develop common R&M improvement activities for all units within the R&M Center based on the "shared goals – shared responsibility" principle.

We are planning to complete the third stage this year. Technical operating personnel will be transferred to the R&M Center and starting from 2011, NLMK will be fully serviced by specialized R&M Center units.

Suggestions have been voiced about outsourcing R&M activities. My opinion is that we should take it one step at a time. Try out the new procedure first before deciding what to do next. Outsourcing is good for certain highly specialized functions. For instance, an experiment is currently underway at NLMK: we have outsourced the packaging of coils. In case of repairs, however, we are talking about a global all-company structure responsible for incredibly complex operations. We have always carried out the most intricate and important repairs ourselves. Passing it on to someone else involves multiple risks. At the same time, I am not excluding the possibility of spinning the R&M Center off into an affiliate

at some point in the future. But we cannot afford to be hasty with this.

The reorganization will create new opportunities for the personnel by expanding their professional focus. For instance, someone who was dealing with electronics at the BOF Shop can now do the same for the Rolling Shop. I think there is little validity in the claims that centralized service workers will be unable to show the same mastery of equipment as departmental workers. It's going to be the same people doing the same job. And they sure know what they are doing. The only thing that's going to change is the subordination structure. And I don't think it can damage the qualification level in any way, or break the intergenerational continuity we value so much. On the contrary, we believe that the R&M activities will become more efficient since our personnel will be better equipped with modern diagnostics tools and labor-saving equipment. We've launched a number of projects to achieve this.

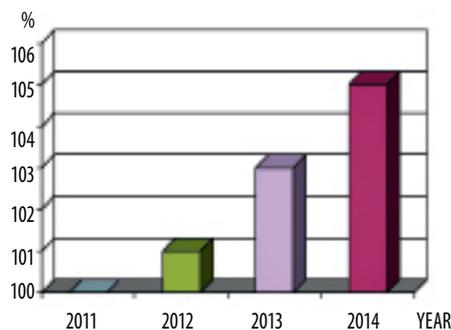
There is one more thing I'd like to mention. We are not setting up the R&M Center from scratch. We are actively learning from the experience of Russian and foreign steelmaking companies that are ahead of us in terms of R&M reorganization. This helps us avoid a lot of errors. For instance, we are using their know-how to develop the documents that will regulate the interaction between our new repair units and the main production units, as well as the relations within the R&M Center.

**Anatoly Khebnev:
"Planned Vs Condition-Based"**

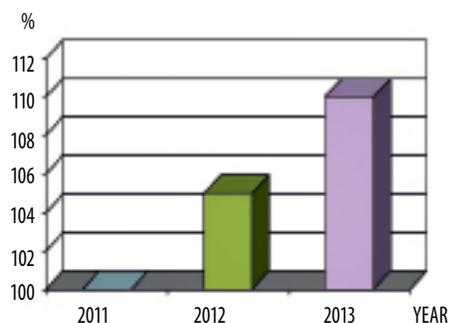
– The goal of our Integrated Information System Implementation Unit is to support the reorganization of NLMK's Repair Service and ensure that the Company's managers receive all the essential data on the restructuring process required for accurate decision-making.

We have successfully completed the first stage of SAP ERP implemen-

Improved labor efficiency due to repair personnel development (reference year 2011 - 100%)



Improved labor efficiency due to SAP ERP implementation (reference year 2011 - 100%)

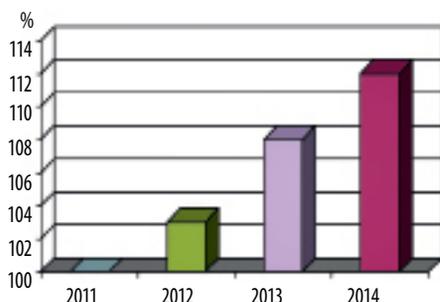


CV

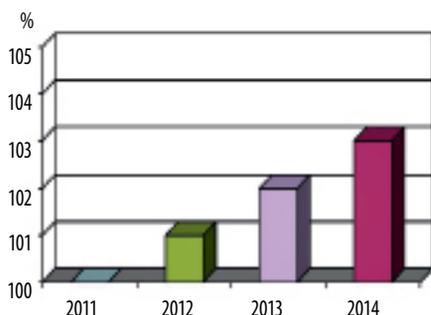
Anatoly Khebnev was born in 1972 in Dushanbe. He is a mechanical engineer. He graduated from the Baltic State University, and then the Saint Petersburg International Institute of Management. He joined NLMK in 2005 as Head of Control Inspection. In 2006 he became Chief AM Expert. Since 2007 Mr Khebnev works as Head of Integrated Information System Implementation Department.



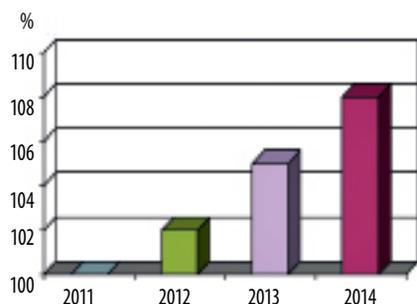
Improved labor efficiency due to enhanced equipment efficiency (reference year 2011 - 100%)



Improved labor efficiency due to streamlined diagnostics system (reference year 2011 - 100%)



Improved labor efficiency due to better repair planning (reference year 2011 - 100%)



tation. We are now getting ready to launch the R&M management module. The project is estimated to take 6 months. We will need to compile detailed descriptions of all the equipment and maintenance processes, train our personnel to work with the new system and link R&M planning activities with NLMK's key production operations. The new system will allow creating a mechanism for proac-

tively monitoring R&M activities, and in some cases even moving away from planned repairs to condition-based repairs. What exactly does this mean?

All equipment comes with a release certificate prescribing the schedule and type of maintenance activities. More often than not these prescriptions are of universal nature, i.e. they do not take into account the real working conditions, failure history, quality of repairs, etc. That's why the manufacturers usually prefer to factor in a good safety margin. Full compliance ensures the highest equipment availability ratio, but at the same time leads to the highest costs because at times the equipment's actual state might not even require repairs.

One Out of Three

Nizhneserginsky, Berezovky and Ural Plants' Repair Services were merged to form an independent service company within NLMK Group in order to reduce maintenance costs. At the same time we were executing projects on optimizing warehouse inventory and setting up a single R&M service. A Service Level Agreement was signed specifying the division of responsibility in all cases of equipment downtime. Each incident is subject to investigation by a special committee.



That is why alongside planned repairs companies all over the world are applying the so-called condition-based methodology. However, a larger scope of information is needed to support decision-making using this R&M strategy, including the entire background of operations recorded in an information system and an extensive set of condition diagnostics tools.

Moreover, we have to constantly improve spare parts production and procurement processes, reducing delivery time and increasing the quality. All these activities, alongside boosting the efficiency of R&M services via centralization will reduce the cost of ownership, improving NLMK's overall performance.

Vladimir Nastich:
“There will be no salary cuts and some raises”

– There is an item in our R&M Process Development Program that says: “Whenever employees are transferred to centralized repair services with no changes in the scope of their responsibilities, their salary level remains unchanged.” Therefore, we are guaranteeing the same level of income when there are no changes in the scope of activities or the required skill level with the exception of cases involving compensation for hazardous working conditions.



VLADIMIR NASTICH, SENIOR VICE-PRESIDENT – DIRECTOR GENERAL

The reorganization will create new opportunities for the personnel by expanding their professional focus

Taking into account the fact that R&M Center units are formed by transferring workers from different departments with their

own labor compensation specifics, we are developing new regulations on personnel remuneration and motivation aimed at boosting the efficiency of R&M services, avoiding salary cuts and in some cases even ensuring raises.

Less is More

For an ordinary person the word “metal scrap” evokes nothing but rusty “junk”. But for steelmakers this “junk” is a highly valued commodity. According to the International Iron and Steel Institute, over 40% of global steel is made from scrap.



In 2008 it took approximately 3.3 million tonnes of scrap (almost 16% of Russia’s scrap handling index) to meet the needs of Novolipetsk Steel and Nizhneserginsky Steel Mill. Even during the financially harsh 2009 the Company “digested” around 2.4 million tonnes (17%) of scrap. As you can see, the Company’s stability is directly dependent of this “rusty junk”.

Developing in-house scrap handling systems is among our strategic priorities. Meeting this goal will guarantee a reliable and cost-efficient resource supply.

The challenge is in the hands of Vtorchermet NLMK. The Company employs around 5000 people in 37 regions around the country. Many of them have decades of experience and an excellent business reputation. Experience combined with the most advanced scrap processing

tools yields great results. In 2009 the Russian steelmakers’ scrap consumption reduced by 34% on average. At the same time, Vtorchermet’s performance contracted by just 9.5%.

The Company has 31 scrap shearing machines from leading global manufacturers, including Metso Lindemann (Germany), Copex (France), Sierra (Italy), two shredders, several dozens of stationary and mobile shear press machines, scrap trucks and manipulators, ensuring top quality of scrap supplied to Novolipetsk Steel and NLMK-Long Products. An additional shredder with a capacity of 38 tph has recently been launched at the Vtorchermet NLMK Center production site in the town of Mytishchi (Moscow region). And of all the scrap processing techniques, shredding offers the greatest potential, ensuring high quality, low energy consumption and greater process

flexibility.

The Company’s overall processing capacity is up to 4 million tonnes of scrap per year.

The construction of a new mini-mill in the Kaluga region using scrap as raw material, as well output expansion at Novolipetsk Steel under the Technical Upgrade Program will require Vtorchermet to increase production to 5.5 mln tpa by 2015.

This is a challenging task. We must not only expand the Company’s production facilities, but also restructure its system of management. The project is off to a good start. New companies are emerging, such as Vtorchermet NLMK Urals, Vtorchermet NLMK Center, Vtorchermet NLMK North, etc. The 37 regional Vtorchermet’s will be replaced by around 15 large scrap handling companies with common business processes and management systems.

Our goals for 2010 include a 25% growth of scrap collecting, a 30% increase of scrap processing, as well as an 18% decrease of specific costs per tonne of scrap. We are constantly pushing the industry forward. For instance, Vtorchermet is an active participant in the RF Ministry’s of Industry and Trade 2010 pilot on recycling old cars. Highly efficient special purpose equipment allowed the Company to lead this project in 15 regions around Russia. Within the first three months (March-May) Vtorchermet recycled around 10000 cars, a record number for the project. ♻️

Denis Gramatchikov

Haute Couture Armor

What we wear and how we wear it is factored by many things. Science and technology have often modified clothes and style in a fundamental fashion. Tights and turtlenecks appeared with the invention of synthetic materials. The haute couture suits and accessories of the 1960's were inspired by the idea of intergalactic travels that emerged with the space flight era. However, chemistry, let alone astonautics haven't had such an effect on fashion as steelmaking at its high time.



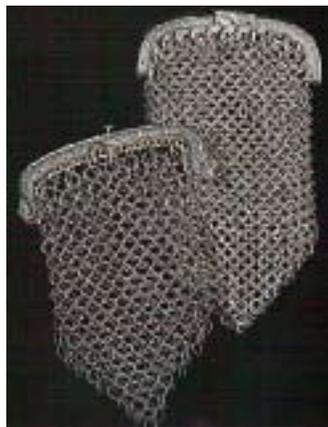
Several thousand years BC people learned to treat non-ferrous metals, such as gold and copper. They used gold nuggets to make jewelry initially intended for religious rituals, and only later to emphasize so-

cial status and highlight the beauty of the human body. Copper was mainly used for making weapons, the latter being a mandatory attribute of a warrior and gradually it turned into a must element of men's

wear. And even today, our suits and accessories reinvent the shapes of armor and special devices for carrying metal weapons.

Medieval Born

The Middle Ages are traditionally considered to be a period of decline for the European civilization: the great Antique culture ceased to be, alongside unique knowledge and love for luxury. Steelmaking, however, was not touched by this degradation. On the contrary! The barbarian kingdoms that were in a perpetual state of war with each other and the entire world, deprived of resources, badly needed the most exquisite weapons. This gave birth to the unique European metallurgy based on smelting iron in huge furnaces with intensive blowing, and its main product, the knight's armor. The warriors' protective wear was being perfected throughout the entire Middle Ages. Initially, armor was made in the shape of a shield with very thick walls because it had to protect the warrior from chain, axe and spear blows, but not from swords, however, as Europeans haven't yet learned to make good blades at the time. Such armor protected only the torso of the warrior rather than his entire body. Another type of early medieval armor was a "waistcoat" made from leather belts with weaved-in pieces of iron. Sometimes iron plates were simply sewed onto a leather coat. Many centuries later, in the 1970's, British fashion



DAMASCENED HELMET,
BELONGED TO TSAR MIKHAIL
FEDOROVICH. XVIII
CENTURY

SILVER RING-ARMOR PURSE,
ENGLAND. 1816

MEDIEVAL SPANISH HELMET.
MID-XVITH CENTURY



pioneers Malcolm McLaren and Vivienne Westwood, designing youth clothing, rediscovered the combination of leather and metal plates, breathing new life into the famous biker jackets (leather coats with a diagonal zipper) that started to be decorated with pieces of metal and all sorts of staples.

During the Palestine Crusades, knights discovered the Arab mail armor and gladly added it to their wardrobe. “Iron shirts” and “iron pants” (mail armor often covered the entire body) started the age of “haute couture” in knights’ wear. Made of multiple layers of wire rings, these hauberks were extremely expensive, and only the rich aristocracy could afford them. These “garments” were very exquisitely and richly decorated. Some iron rings were replaced by gold and silver ones. Good mail armor would evoke awe and admiration among contem-

poraries. “It pains the eyes to look at warriors in armor shining brighter than water in the sun”, reads one of the ancient Russian manuscripts from the 14th century.

Mail armor wasn’t, however, just part of war gear. It had a huge impact on fashion. For instance, “iron pants” predetermined the appearance of such garments as stockings.

Retro Robo Mania

By the 14th century steel processing technologies were perfected, and Europe started producing swords capable of crushing even the multilayered hauberks. The challenge of time was picked up by the solid armor that plate-covered the warriors’ entire body. Knights in such armor started to resemble fantastic robots. This type of protective wear came to be known as “gothic” or “white” armor, and it critically altered the style of both

medieval and modern clothing.

“White” armor required as much craftsmanship as the making of good swords. It was assembled from thousands of parts held together by movable joints.

And naturally, this complex and extremely expensive garment had to be richly decorated. The late Middle Ages saw the appearance of around five different types of “white” armor finishing techniques still used by jewelers and even some fashion designers to this day.

First of all, the knights’ protective wear was damasked. Metal was heated in special furnaces until it acquired a characteristic color: black, purple, red or grey. The latter was extremely hard to obtain, and such armor had an exceptionally noble appearance and was valued very highly. Unfortunately, the secret of this grey coloring has been lost.

After damasking, the craftsman placed gold plates or gold wire over the armor shell and flattened it carefully on the still warm metal with a hammer, creating intricate patterns, usually the knight's coat of arms.

Armor was embossed using various instruments. Sometimes a different technique was used, known as damascening, the art of inlaying wire and non-ferrous metal plates into the armor. This method is still popular today for accessory decorations. Three years ago almost every collection of fashionable bags was decorated with Swarovski crystals with the application of this technique.

"Nielloing" was especially popular in the Middle Ages. An engraved drawing was filled with a dark mass called "niello", a black metallic alloy of silver, copper, and lead. The development of alchemy lead to the emergence of new methods: drawings on helmets, breast plates and tassets were etched with acid or gilded using mercury.

The apogee of craftsmanship for Medieval weapon-smiths in manufacturing and fine-finishing knights' armor wear came at the end of the 15th – beginning of 16th century with the so-called "Maximilian" armor (apparently first made for the Emperor Maximilian I). It was a truly perfect means of protection with a unique design: the entire surface was fluted which made the armor stronger and lighter at the same time, and multiple curved parts deflected the opponents' direct blows.

Moreover, Maximilian armor had an elegant shape that imitated the silhouette of the Medieval costume. Knees, elbows and shoulders had iron puffs, prototyped by similar elements of clothing fashionable at the time.

The armor itself had a significant impact on the fashion of the Middle Ages and the centuries to come. The necessity to ride a horse wearing arming wear lead to the appearance of special cuts on the small metal skirt, later "inherited" by the long-tailed jackets. Wide metal bases that protected the legs of the rider gave birth to dome-shaped skirts. "White" armor had a great impact on headwear design. Helmets and skullcaps worn under them predetermined many different styles of hats and caps, such as the egg-shaped cervellieres and cabassets popular in the 16th century, as well as the all-time favourite, the beret.

Fashion Set In Steel

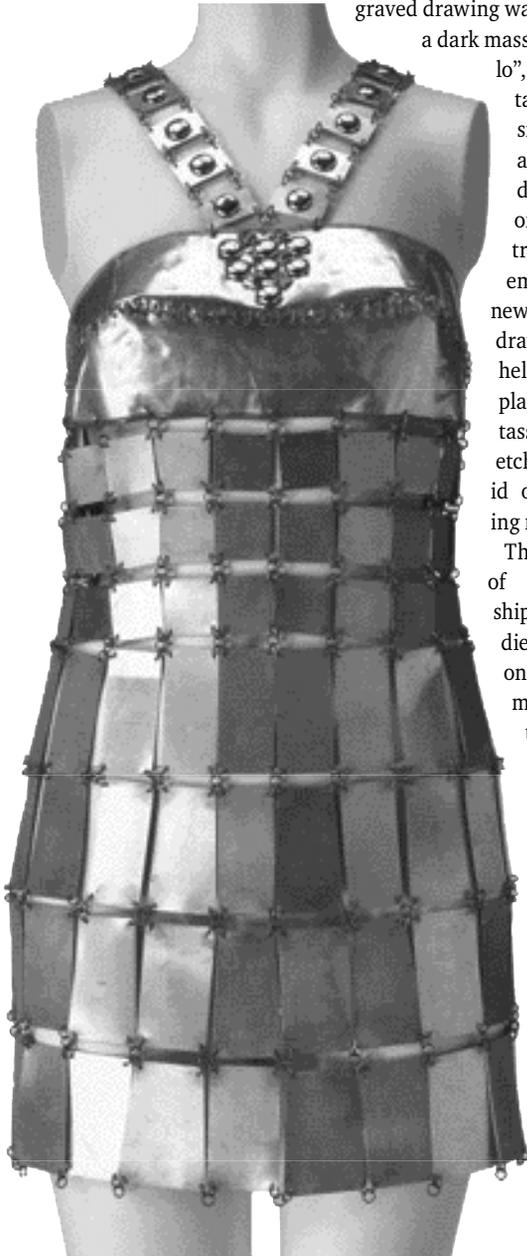
Being ideal against all types of silent weapons, "white" armor proved helpless against fire arms. With the spread of guns in the 16th century, knights together with their armor gradually ceased to be. For a long while, steel lost its star role in fashion and had to settle for episodic appearances. The only exception came with corsets and crinolines: up until the 19th century their ribs were made from steel.

Only the advent on new, exceptionally light metals set the stage for the return of this material, if not into everyday life, then onto the runway. For instance, mail frocks and ringmail coifs found their way into women's wardrobe following the invention of soft (low carbon) steel in 1856.



MAXIMILIAN ARMOR WITH A GROTESQUE VISOR

PACO RABANNE. ALUMINUM DRESS. 1966



RING-ARMOR BRACELET, XXTH CENTURY

In 1960's young designers started experimenting with new materials, aluminum and plastic, revolutionizing the world of fashion. At the time, every show by the haute couture designer Paco Rabanne ended in a scandalous sensation. The legendary Coco Chanel nicknamed Rabanne "métallurgiste de la couture" (the steelworker of dressmaking) for his aluminum dress (1966). Rabanne remained true to his style and used a lot of metal details in his designs up until 1999 when he left the world of fashion.

Today metal is back in style. Metallic colored fabrics, sparkles and paillettes are extensively used for female collections. Men's models are decorated with tin gray plates, badges and buttons.

