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# USSR MATERIALS AND MATERIALS PROCESSING EQUIPMENT

Number 25

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USSR MATERIALS AND MATERIALS PROCESSING EQUIPMENT

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I. CHEMICAL INDUSTRY

Industry-wide Appraisal

REVIEW OF PROGRESS MADE SINCE MAY 1958 PLENUM -- Moscow, Ekonomicheskaya Gazeta, 9 Jun 60

In the 2 years since the May 1958 Plenum of the Central Committee of the CPSU which adopted the decree on accelerated development of the USSR chemical industry, much constructive work has been done in the chemical enterprises, councils of the national economy, construction sites, scientific research and planning institutes, and design bureaus. Some of the results of this work are cited below.

Total output of the USSR chemical industry as a whole in the first quarter of 1960 was 23.2 percent greater than in the first quarter of 1958. Similarly, in some synthetic materials, production of synthetic alcohol was 108 percent greater, carbamide resins 107 percent greater, epoxy resins 191 percent greater, and polyethylene doubled.

The volume of capital construction in 1959 was 52 percent greater than in 1958. There will be a sharp rise in 1960 so that the volume of construction in 1960 will be 230 percent of that in 1958. The initial results of the great drive for accelerated development of the chemical industry are now appearing, in that one after another, in various sections of the USSR, chemical industry enterprises are going into operation. In 1959, chemical fiber enterprises went into operation in Krasnoyarsk and Kiev, a motor vehicle tire plant started production in Baku, and polyethylene output began at the Sverdlovsk Plastics Plant.

In 1960, the first stage of the Ryazan Artificial Fiber Plant has been completed and has gone into operation; in the Krasnoyarsk group of chemical industry enterprises, the following units have gone into operation: cord production facility of the artificial fiber plant, first stage of the tire plant, and the first stage of the cellulose production facility.

On his visit to the Sumgait Synthetic Rubber Plant, Khrushchev expressed his wish that plants still producing rubber from alcohol convert to this plant's new method of producing rubber directly from the butane of petroleum gases. The Stalinogorsk Chemical Combine successfully mastered the output of an intermediate for lavsan fiber production. The chemical fiber plant in Kursk added new capacity for lavsan production.

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The Soviet government has appropriated funds liberally for the development of the chemical sciences. In the past 2 years, the number of personnel in scientific research and planning institutes has almost doubled. The task of scientists, designers, and planners has been to reduce the cost of technological processes, increase the efficiency of equipment, and improve product quality.

Important problems remain and must be solved as quickly as possible. One is low-cost, large-scale production of synthetic polyisoprene and polybutadiene rubbers to ensure an improvement in tire quality. Another is the production of new kinds of synthetic fibers and plastics. It will also be necessary to develop as soon as possible new pesticides and fertilizers for agriculture, new dyes and inks, detergents, reagents, resins, and other products. The time lag between development of a process by scientists and its introduction in industry must be reduced. Automation of technological processes has special importance in the development of chemical production.

Shortcomings in the chemical industry development program include lags in getting into operation the Cherkassy Artificial Fiber Plant and the chemical fiber plant in Kursk. Suppliers not coping with equipment deliveries include the Kiev Bol'shevik Plant, Sumy Plant imeni Frunze, Uralkhim-mash Plant, and Leningrad Plant imeni Karl Marx. The last-named plant sent low-quality and defective equipment to the Kiev Artificial Fiber Combine and the Engel's Artificial and Synthetic Fiber Plant.

As to shortcomings in the planning institutes, Giprokhim [State Institute for Planning of Chemical Industry Enterprises] was late in providing documents for construction of the Aktyubinsk Chrome Compounds Plant. Another planning institute of the State Committee for Chemistry of the Council of Ministers USSR failed to deliver on time the blueprints for construction of the Kuybyshev Synthetic Alcohol Plant. -- S. Tikhomirov, deputy chairman of State Committee for Chemistry of Council of Ministers USSR

NEW INSTITUTES, DESIGN BUREAUS SET UP -- Riga, Sovetskaya Latvija, 3 Jun 60

Four new scientific research institutes [for chemistry?] have been opened in Yaroslavl', Leningrad, Tambov, and Moscow since the May 1958 Plenum of the Central Committee CPSU, which adopted the decision on accelerated development of the USSR chemical industry. In addition, about 30 institute affiliates and design bureaus have been organized. In the past 2 years, the total number of specialists in the chemical industry engaged in solving scientific problems and in design work has increased by several thousand.

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Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 22 May 60

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The following have recently been established in the Ukraine: An Institute of the Chemistry of Polymers and Monomers, Academy of Sciences Ukrainian SSR; an affiliate of the All-Union Scientific Research Institute of Artificial Fibers; a Ukrainian Scientific Research Institute of Plastics; an Experimental Design Bureau for Synthetic Products; and other organizations.

Construction Project Bottlenecks

Omsk Synthetic Rubber Plant

LATE EQUIPMENT DELIVERIES THREATEN OPENING DATE -- Moscow, Ekonomicheskaya Gazeta, 2 Jul 60

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The Omsk Synthetic Rubber Plant is one of the great construction projects of the chemical industry; it will produce rubber directly from butane, omitting the alcohol stage. Also planned for production at the plant are latex, acetone, phenol, and alcohol. Full automation of process control through the use of the latest electronic equipment is provided for in the construction plan.

The first stage of the enterprise, which will produce rubber, is scheduled to go into operation in 1960. Personnel for the new plant are being trained in other plants and in trade schools. However, as the opening date approaches, grave apprehensions are being felt about on-time deliveries of technological equipment by the suppliers.

For example, the Kurgan Chemical Machine Building Plant should have begun to deliver equipment in April 1960, but so far has produced nothing. The Podol'sk Machine Building Plant imeni Ordzhonikidze was to have delivered two powerful converters weighing 370 tons each in the second quarter of 1960 but has not yet begun their manufacture, which takes at least 5 months.

Delays in delivery of the technological equipment are the result of inefficient planning, and the supplier enterprises are in no way at fault.

Soyuzglavkhimkomplekt [All-Union Main Administration for Chemical Equipment?] placed an order for 170 units of equipment for the first stage of the enterprise, stipulating delivery in the fourth quarter of 1960, that is, at a time when the plant was scheduled to be in operation. Soyuzglavelektro [All-Union Main Administration for Electrical Equipment?] has ordered transformers for October-December delivery, but has placed no order for oil switches.

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The planning organs sometimes fail to specify delivery dates and at times even fail to name the supplier. Rosglavmashsbyt [Main Administration of Machinery Sales RSFSR] placed an order with the Myshega Fittings Plant in Tul'skiy Economic Region for steel valves, although a shop for the production of such valves had not yet been built. Orders for instruments were placed in the Mordovskiyy and Azerbaydzhan economic regions; however, one of the plants had not yet organized production of the items ordered and had to decline the order. -- V. Vorob'yev, chief engineer, Omsk Synthetic Rubber Plant.

Dnepropetrovsk Tire Plant

BUILDING MATERIAL SHORTAGE ONLY ONE OF MANY PROBLEMS -- Kiev, Pravda  
Ukrainy, 29 May 60

The Dnepropetrovsk Tire Plant being erected in the outskirts of Dnepropetrovsk will supply tires of many sizes, with tubes and tubeless, for the young Ukrainian motor vehicle industry as well as the motor vehicles and tractors already in use in the republic. The main building built of precast reinforced concrete will cover an area of 65,000 sq m.

The builders, Trust No 17, are fulfilling the plan but not their obligations. In the first 4 months of 1960, they undertook to expend 34.6 million rubles, but actually expended only 29 million rubles. In January, the [Dnepropetrovskiy] sovnarkhoz approved measures designed to get the plant into operation ahead of schedule but these have been only partially successful. A shortage of workers and a lack of machinery have continued. So far, no structure being built has been completed and, consequently, assembly of equipment has been on a limited scale only. Especially slow has been progress made on the pumping installation located on the Dnepr, the refrigeration installation, the compressor installation, and the water pipeline. The project suffers from a shortage of pipe, asphalt, reinforced (armirovannoye) glass, and floor tiles.

Serious protests have been made to Gosplan Ukrainian SSR. Much auxiliary equipment is to be manufactured in domestic enterprises without regard for the fact that the builders are obligated to complete construction of the plant by 7 November 1960. Production of refrigeration, air conditioning, and electrical equipment, ventilators, and magnetic starters has been planned so that delivery will be made in the third and fourth quarters of 1960, too late to meet the deadline for getting the plant into operation. Gosplan Ukrainian SSR must reschedule production of this equipment to permit delivery in the second quarter and the first half of the third quarter of 1960.

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To produce, the plant will require raw material and chemicals of uniform and high quality. Gosplan Ukrainian SSR should determine now who the plant's regular suppliers will be so that supply problems may be solved well in advance and normal operation of the plant and the quality of its product ensured.

It is also time to think about personnel. About 500 workers are in training for this plant at the technical schools in Yaroslavl' and Voronezh. Other people are being trained at the operating tire plants of the country. It will be more difficult to obtain engineers, but some will be found.

Housing will be in short supply for workers, other employees, and engineers. Gosplan Ukrainian SSR allotted 9,000 sq m instead of 17,000 sq m for their needs, while the city soviet will apparently provide less than 5,000 sq m.

Cherkassy Artificial Fiber Plant

HAPHAZARD MATERIAL DELIVERIES PLAGUE BUILDERS -- Kiev, Pravda Ukrainy,  
29 May 60

The Cherkassy Artificial Fiber Plant is being built on the outskirts of the city. Some ten production-type shops have gone into operation and the main technological shops of the plant, a TETS [heat and electric power station], and other structures are being built.

Despite the earnest efforts of the builders (Special Construction Trust No 2) to get the plant into operation on schedule, they meet frequent difficulties which they must overcome. When a shortage threatened to halt work on the artificial silk building, for example, trust workers with the cooperation of personnel from a scientific research institute learned how to produce precast reinforced concrete units on the site.

The construction project has been poorly supplied with cement and low-alloy steel. For instance, the Krivoy Rog and Makeyevka steel plants ship reinforcing steel irregularly. Acting particularly irresponsibly, the Khar'kov Metal Structures Plant has not yet delivered a single ton of structures even though it received the metal needed for their manufacture in the third quarter of 1959.

Tons of pipe are delivered to the project, but not be specialized kind. Millions of items of equipment are sent, but not according to technological types. At present, about 200 types of equipment needed to complete the structures which are to go into operation in 1960 are still lacking.

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The TETs is scheduled to be completed by 7 November 1960 and the first stage of the fiber plant by 15 December 1960.

Chernigov Synthetic Fiber Plant

UNCOORDINATED PLANNING SLOWS CONSTRUCTION PROGRESS -- Kiev, Pravda  
Ukrainy, 20 May 60

The Chernigov Synthetic Fiber Plant is being built by Trust No 4 of the Kiyevskiy Sovnarkhoz. The experimental production shop is in operation and construction of the main building, all auxiliary shops, and all service buildings is under way. Even a modest estimate indicates that the plant should be fully completed not in 5 years but in 3 years. However, early operation of the plant is being threatened.

It is known that in addition to drawings, the planning institute provides the builders with a plan for organization of operations. For some reason, the planners consider this document merely an enclosure and its preparation a mere formality. The Kiev Promstroyproyekt [Institute for Planning in the Construction Industry] provided a plan for organization of operations which does not take into account all the peculiarities of a chemical industry construction project, which was carelessly prepared, and which did not provide for modern construction technology.

Even if it had been well prepared and all the latest technological accomplishments taken into account, the fact remains that it was not approved by Gosplan [State Planning Committee] Ukrainian SSR or by Gosstroy [State Committee on Construction of the Council of Ministers USSR] and for that reason material resources have not been allocated under it. This means that the plan and all it provides for are merely paper. Even though the plant should go into operation in a few years, it is not now clear what even the first stage will be like. The plant management says one thing, the sovnarkhoz something else, and the builders have their own ideas. If the plan for organization and of the operations had been properly approved, progress would be at twice its present rate.

It is known that construction is fastest and most economical when carried out in accordance with standard plans. However, there are as yet no standard plans for the construction of synthetic fiber enterprises, and plants are planned and built individually, resulting in slowed construction of an enterprise. For example, the plan for the main building of the Chernigov project calls for reinforced concrete elements in 300 sizes, when 200 sizes would be enough. The auxiliary shops are to be built in styles different from that of the main building, which will be done at the expense of construction time.

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Technology of the plant has been planned by the Moscow Institute for Planning of Artificial Fiber Enterprises, construction and sanitary engineering by the Kiev Promstroyproyekt, electrical supply by Elektroyproyekt [Institute for Planning in the Electrical Industry?], heat and power by Kiev TEP [Teploelektroyproyekt? All-Union State Institute for Planning of Thermal Electric Power Plants], but no one has planned control and measuring instruments and automation so far. Each planning organization gives its own types and sizes, and much time is required to coordinate the differences.

There should be a unified center for planning synthetic fiber enterprises, so that all problems could be solved there. Also, the construction project could be planned as a whole rather than as separate units. For example, the experimental production shop in Chernigov was built with four stories; now, there is general agreement that the shop should have been built only two stories high. This situation would not have occurred if the plans of the various organizations had been coordinated.

An affiliate of Giproyiv (State Institute for Planning of Artificial Fiber Enterprises) has been created in Kiev, but it is still a small and weak organization. It should be strengthened and expanded to become a strong, all-round planning institute. Then the large-scale chemical industry envisaged by the Seven-Year Plan will develop at the rate provided by the plan.

Luganskiy Sovnarkhoz Chemical Plants

UNCERTAIN MACHINERY DELIVERIES MAY DELAY NEW BUILDING COMPLETIONS --  
Kiev, Pravda Ukrainy, 20 May 60

The chemical enterprises and construction organizations of the Luganskiy Sovnarkhoz have achieved certain successes. The chemical enterprises fulfilled the 1959 production plan and the plans for the first 4 months of 1960. A total of 159 production units (zvena) have been mechanized and automated, while at the Lisichansk Chemical Combine the transition has been made from automation of individual sets of equipment to full automation of shops.

On the other hand, the Lisichansk Chemical Combine expended an excess of 4.3 million cu m of natural gas, 870 tons of coke, and hundreds of tons of other materials in the first quarter of 1960 alone. Similar losses of raw materials and power sources were permitted at the Rubezhnoye Chemical Combine and the Verkhneye Donets Soda Plant. Both Director Gogin and Chief Engineer Sichkov underestimated the importance of experimental installations at the Lisichansk Chemical Combine.

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Luganskkhimstroy [Lugansk Chemical Industry Construction Trust] had an unsatisfactory record in 1959 and there has been little improvement in 1960. Director Bushnev of the Rubezhnoye Chemical Combine, Director Vasil'chenko of the Verkhneye Donets Soda Combine, and others complained that Luganskkhimstroy was covering up unsatisfactory progress on buildings scheduled to go into operation with favorable-appearing average figures.

Chemical industry construction projects [of the sovnarkhoz] were not fully supplied with material and technical resources in 1959. It is not clear at present when buildings scheduled to go into operation in 1960 will receive the needed pumps, compressors, control and measuring instruments, electrical equipment, cables, and all kinds of fittings. Materials have been allocated for delivery largely in the second half of the year: only 189 tons of 465 tons of stainless steel sheet and 46.6 km of 156 km of cable have been allocated for delivery in the first half of the 1960.

Design documents do not reach the construction projects on time. The Lisichansk affiliate of GIAP [State Institute of the Nitrogen Industry], the Rubezhnoye affiliate of Giproorgkhim [State Institute for the Planning of Organic Chemical Industry Enterprises?], and other scientific research and planning institutes are at fault in this respect.

#### Mineral Resources Development

LARGE CHEMICAL CENTER WILL BE BASED ON NEPHELINE SYANITE DEPOSIT -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 20 May 60

Razdan is a new industrial center of Armenia. Among the 50,000 inhabitants who will live in the new city of Razdan will be workers of the mining-chemical combine and of the capron fiber plant which will be built there.

The mining-chemical combine is planned for construction in Razdan because of the vast deposits of nepheline syanite nearby. Manvel Manvel'yan, Corresponding Member of the Armenian Academy of Sciences, and his associates who made the discovery analyzed the deposit as being composed of sodium silicate, calcium silicate, and a still unidentified mineral which they called Yerevanite.

The alumina content of nepheline syanite may permit the Yerevan Aluminum Plant to halt alumina shipments from the Urals. Nepheline syanite is also useful in the production of cement and soda. Yerevanite will find application in the glass industry.

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The capron fiber plant to be built near the mining-chemical combine will be one of the largest chemical industry projects in Armenia. It will produce capron cord for motor vehicle tires.

NEW TUNNELING METHOD USED AT APATITE DEPOSIT -- Moscow, Ekonomicheskaya Gazeta, 3 Jul 60

Apatite, an excellent raw material for the production of superphosphate fertilizers, is found throughout the Khibiny Mountains [on the Kola Peninsula.] At present, the apatite combine [Kirovsk Apatite Combine imeni S. M. Kirov, Murmanskaya Oblast] is developing a new high-altitude mine complex on the Rasvumchorr [Razvumchorr] Plateau. Apatite will be mined by the open-pit method and moved to ore chutes by powerful trolley cars.

Rather than transport the apatite ore over the mountain, Glavtonnel'-metrostroy [Main Administration for the Construction of Tunnels and Subways] is driving a tunnel through Rasvumchorr Mountain. Two underground railroad stations will be established in the tunnel to which shafts will lead from the top of the plateau. The depth of these shafts will be such that they could accommodate two Eiffel Towers. From the ore chutes, apatite ore will cascade to the underground stations where it will be loaded into dump cars and dispatched to the combine's new concentrating mill.

This is the first such tunnel to be built in the USSR beyond the Arctic Circle. Its first stage will be 2,300 meters long and the second stage 4,500 meters long. There are great difficulties in digging a tunnel in the polar region. The hurricane-like Arctic winds are particularly troublesome. Despite the difficulties, however, the builders are making good progress. Using the latest methods, Tunneling Crew No 1 is completing 110 running meters of the full dimension of the tunnel per month. This is about twice the progress that was made in the Abakan tunnels.

In contrast to the old way of digging a tunnel in two phases, first the top and then the bottom, metal scaffolding is now erected in the tunnel to accommodate 12 drillers, who simultaneously prepare the entire face of the tunnel for blasting. Two powerful MPR-6 machines move the rock, which is then transported to the tunnel entrance in small rail cars, from where trucks haul it into the valley for use as railroad bed ballast. The first stage of the tunnel will be completed by the end of 1960.

NEW PHOSPHATE ROCK DEPOSIT IN SIBERIA -- Moscow, Komsomol'skaya Pravda,  
16 Jun 60

Geologists have found phosphate rock in the Eastern Sayan Mountains, near the city of Artemovsk, along the Abakan-Tayshet railroad line, which is under construction. Laboratory analyses have indicated a high phosphorite content. This is the first time that a deposit of mineral fertilizer raw material has been discovered in a populated area of Siberia or the Far East. Bore testing and other prospecting operations are now being carried out.

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SULFATE COMBINE ON SHORE OF SALT LAKE -- Leningradskaya Pravda, 21 Jun 60

There are more than 3,000 salt lakes in the Kulunda Steppe region. A sulfate combine is being built on the shore of Lake Kuchuk, the largest of the salt lakes. The combine builders have pledged to begin pumping salt water into man-made Lake Selitrennoye by July 1960.

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Riga, Sovetskaya Latviya, 24 Jun 60

The largest of the more than 3,000 salt lakes in the Kulunda Steppe region is Lake Kuchuk, on the shore of which a sulfate combine is being built. Having almost finished the 7-km-long main feeder canal, the builders are now rushing to completion two pumping stations and other complex engineering installations.

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#### Rubber Raw Materials

PLANT BEGINS METHYL STYRENE OUTPUT -- Moscow, Ekonomicheskaya Gazeta,  
1 Jun 60

The first methyl styrene, a raw material used in the production of synthetic rubber, has been produced at the Ufa Synthetic Alcohol Plant. The plant has pledged to get into operation by July 1960 two new shops which will produce polyethylene and butyl alcohol.

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NEW CARBON BLACK METHOD DEVELOPED -- Moscow, Promyshlennno-Ekonomicheskaya  
Gazeta, 25 May 60

Black carbon black, a rubber filler, is produced in connection with the combustion of natural gas. For colored rubber products, white carbon black is needed. A new, technologically simple, and inexpensive method of producing white carbon black has been developed at the Vinnitsa Superphosphate Plant.

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The first dozens of tons of "belaks," as the new product has been named, has been dispatched to the Kalinin Artificial Leather Combine. Shoe sole leather manufactured with it has been characterized by increased microporosity and elasticity. Vinnitsa "belaks" can be used as a filler in the production of 200 types of industrial rubber products. Vinnitsa chemists are now developing another so-called ammonia method of deriving white carbon black.

Synthetic Rubber

NAIRIT MADE IN SEVERAL TYPES -- Yerevan, Kommunist, 22 May 60

One of the products made by the Yerevan Plant imeni Kirov is "nairit," an important type of synthetic rubber widely used in the USSR. It combines good qualities of resilience and elasticity with characteristics of great resistance to deterioration by benzene, oil, and ozone.

"Nairit" is used in the cable industry and in the production of industrial rubber products as a substitute for lead and natural rubber. In the footwear industry, type NT "nairit" is used in place of natural gutta-percha. A new type, "liquid nairit," is used for covering and hermetically sealing equipment, structures, and installations.

"Nairit" is the cheapest of all rubbers made in or imported into the USSR. The Seven-Year Plan provides for considerably greater output of this product through expansion of existing facilities and construction of new plants. The most important technological measure to be undertaken is continuous polymerization of chloroprene, the starting monomer in "nairit." The present technology of periodic polymerization of chloroprene in batches produces a product of widely varying characteristics and qualities. The plant laboratory and the Yerevan affiliate of the Leningrad VNIISK (All-Union Scientific Research Institute of Synthetic Rubber) have worked for 2 years on a special experimental installation for the continuous polymerization of chloroprene. The research and experimental work has been concluded and the new technology is now undergoing production-type tests.

The plant laboratory and VNIISK affiliate are also developing a new method of determining the degree of polymerization. The method is based on measurement of the speed of dispersion of ultrasonic waves in the emulsion and latex. The ultrasonic method for determining degree of polymerization is advanced and precise; it also creates the possibility for automatic control over degree of polymerization. So far, however, many technical problems remain unsolved and research work is continuing.

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Almost all technological processes except the polymerization process in the production of "nairit" are now continuous at the Yerevan Plant imeni Kirov. When continuous polymerization of chloroprene has been mastered, a fully continuous, fully automated technological cycle of producing synthetic polychloroprene rubber, or "nairit," will have been created and standard high quality of the product will be ensured.

RESIN RUBBER DEVELOPED -- Riga, Sovetskaya Latvija, 7 Jul 60

It was announced at the All-Union Conference of Chemists held in Voronezh that the Voronezh Synthetic Rubber Plant imeni Kirov has developed and mastered the technology for production of resin rubber. Resin rubber will permit the tire plants of the country to produce longer lasting motor vehicle tires than those made now.

Tires, Rubber Footwear

NEW TRUCK TIRE LASTS LONGER -- Moscow, Ekonomicheskaya Gazeta, 5 Jun 60

The Omsk Tire Plant has created a new type of truck tire for use under the difficult conditions of mining operations. The new tire has a useful life almost double that of an ordinary tire. Long-term testing of the new tire in the pits of Siberia has proved its high quality.

FOOTWEAR STAMPED BY MODERN EQUIPMENT -- Moscow, Ekonomicheskaya Gazeta, 19 Jun 60

The Leningrad Krasnyy Treugol'nik Industrial Rubber Products Plant is celebrating its 100th anniversary. The plant has become a highly mechanized enterprise; it produces rubber footwear by the stamping process. Conveyer lines have been installed in some shops. One Mars-200 automatic control station is in operation; another is being installed. All shops are provided with the latest equipment.

Plastics, Chemical Fibers

MOLDING MATERIAL HAS VARIED APPLICATIONS -- Moscow, Vechernyaya Moskva, 21 May 60

"AG-4" is a new plastic molding material named after its developer, Moscow engineer Aleksandr Stepanovich Gulyayev. The new plastic is only one fourth as heavy as steel, withstands heavy pressure, will not burn,

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and is more durable than some types of alloy steel. It may be used to produce boats, and also electrical equipment which will be suitable for long term use under temperatures exceeding 200 degrees. Other products which may be made from "AG-4" include window sashes, window frames, doors, vats, and drain pipes.

SOURCE OF FURFURAL DEMONSTRATED -- Tbilisi, Zarya Vostoka, 21 May 60

Nina Solomonovna Tsitsishvili, head of the Department of Organic Chemistry, Tbilisi State University, has demonstrated that grape vine prunings, now usually burned by kolkhozniks, contain pentosans which, after appropriate processing yield furfural, a raw material for the production of synthetic fiber.

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POLYPROPYLENE FIBER TO BE EXHIBITED -- Moscow, Vechernyaya Moskva, 21 May 60

The All-Union Scientific Research Institute of Synthetic Fibers recently created an unusual material, polypropylene, from petroleum processing residues. Polypropylene is the strongest and lightest of all existing artificial fibers. It resists acids and alkalis, does not become waterlogged, and serves as an excellent filter. It retains its elasticity even under the extremely cold conditions of the Soviet Far North.

From polypropylene fabric, it will be possible to produce ladies' shirts, blouses, jumpers, and other kinds of consumer goods.

The new fiber will soon be seen in the Chemical Pavilion at the Exposition of the Achievements of the National Economy.

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FIRST LAVSAN FROM EXPERIMENTAL FACILITY -- Moscow, Pravda, 1 Jul 60

The Kursk Synthetic Fiber Plant, under construction on the outskirts of Kursk, produced its first lavsan fiber when an experimental facility went into operation on 30 June 1960. The builders of the plant have pledged to get the main building into operation ahead of schedule.

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PLANT TO START WITH VISCOSE CORD FOR TIRES -- Moscow, Ekonomicheskaya Gazeta, 8 Jun 60

The large artificial fiber combine under construction near Balakovo in Saratovskaya Oblast will produce mainly viscose cord for the tire industry. The first stage of the enterprise will be ready for production in 1961. A facility for the production of staple fiber and cellophane will go into operation later.

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FIRST STAGE OF CAPRON FACILITY COMPLETED -- Moscow, Ekonomicheskaya Gazeta, 14 Jul 60

The Barnaul Artificial and Synthetic Fiber Plant is one of the most important construction projects in the Altay region. It is already producing viscose tire cord and carbon disulfide; experimental production of synthetic fiber has also begun.

The builders of the plant had pledged to put the first stage of the capron production facility into operation by July 1960. They have honored their pledge. A building with a total area of 90,000 sq m has been erected, and over 1,000 units of technological equipment have been installed. To provide automatic operation of most production processes, over 3,000 units of control and measuring equipment have been installed. Air conditioning equipment with a productivity of 80,000-120,000 cu m of air per hour, manufactured by Altayskiy Kray machine building plants, has been put in place.

Fertilizers, Pesticide

OUTPUT UP, COSTS DOWN, EXPANSION UNDER WAY -- Tallin, Sovetskaya Estoniya, 20 May 60

Rail shipments of phosphate fertilizer, superphosphate, sulfuric acid, and other products leave regularly from the Maardu Chemical Combine. The combine has pledged to exceed the 1960 phosphate fertilizer plan by 2,500 tons.

Reconstruction work was recently done in plant No 2, doubling its output. At present, the superphosphate shop is being reconstructed; this is expected to effect a 50-percent increase in production.

Costs have been cut to the point that the combine is operating in the current quarter without government subsidy. To enable the combine to fulfill the Seven-Year Plan for fertilizer production in 5 years, mining operations are being expanded and construction of a flotation plant speeded up.

ANOTHER AMMONIA PRODUCER BEGINS OUTPUT -- Moscow, Ekonomicheskaya Gazeta, 9 Jul 60

A large ammonia production facility has gone into operation at the Kemerovo Chemical Combine. Its product will be used for fertilizer production.

Moscow, Komsomol'skaya Pravda, 21 Jun 60

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The Kemerovo Chemical Combine, built by Construction Trust No 96 in the outskirts of Kemerovo, produced its first ammonium nitrate on 20 June 1960. During the rest of 1960, the plant will produce tens of thousands of tons of fertilizers.

NEW MIXED FERTILIZER CREATED -- Ashkhabad, Turkmenkaya Iskra, 14 Jun 60

CPYRGHT

Ammonium nitrate and superphosphate have been the main fertilizers used on USSR cotton fields. Now the Chirchik Electrochemical Combine, in cooperation with the Academy of Sciences Uzbek SSR, has created a new mineral fertilizer, a mixed nitrogen-phosphate fertilizer which it has named SUM-1. The fertilizer appears as small white, flaky crystals. It contains 24 percent fixed nitrogen and 10 percent phosphoric oxide (phosphoric anhydride).

Production of SUM-1 fertilizer is more economical than output of other fertilizers. It is possible to produce from the same amount of raw material one ton of potassium nitrate or 1,165 kg of SUM-1 and 275 kg of calcium nitrate. The calcium nitrate may be used as a fertilizer or as a defoliant on cotton plants prior to the harvest.

The Chirchik Electrochemical Combine has set up an installation in its mineral fertilizer shop to produce mixed fertilizers, and the plant is now preparing for large-scale output of SUM-1 fertilizer.

COTTON PESTICIDE SHOWN TO BE EFFECTIVE -- Frunze, Sovetskaya Kirgiziya, 13 Jul 60

CPYRGHT

The Kurgan Medical Preparations Plant has begun production of phyto-bacteriomycin, useful in the struggle against cotton plant bacteria. Tests have demonstrated its effectiveness.

Sulfur Dioxide

PRESERVATIVE CONTAINER SHORTAGE AGAIN POSES THREAT IN FOOD CANNING SEASON -- Moscow, Ekonomicheskaya Gazeta, 2 Jul 60

CPYRGHT

The 1960 fruit and vegetable canning season is about to begin. To carry it out successfully, supplies of liquid sulfur dioxide must be available.

CPYRGHT

The Chernorech'ye Chemical Plant in Gor'kovskiy Sovnarkhoz is a producer of liquid sulfur dioxide. However, in 1959, the plant had to stop making deliveries in mid-season when it ran out of shipping containers. Liquid sulfur dioxide is usually shipped in cylinders which the consumers are supposed to return.

In the winter, many sovnarkhozes usually display little interest in sulfide dioxide cylinders; but with the advent of summer, orders flow to Chernorech'ye from all parts of the country. However, the Stalinabad Canning Combine, for example, has not yet returned any of the 180 cylinders sent there; 2,627 cylinders, or about one third of the chemical plant's total inventory, are still in the Ukraine.

Because the cylinder shortage was often the reason that canning enterprises failed to fulfill their plans, an attempt was made to increase the number of cylinders from 9,000 to about 20,000. The Gor'kovskiy Sovnarkhoz requested, pleaded, and demanded, but all in vain. Rosglavmetallosbyt [Main Administration of Metals Sales RSFSR] in 4 successive years refused to increase cylinder production.

Another way to alleviate the existing situation is to create bulk stations in areas where large quantities of sulfur dioxide are needed. The Ukrainian SSR is the largest consumer of sulfur dioxide. In May 1960, the Chernorech'ye Chemical Plant requested Ukrglavkhimsnabsbyt [Main Administration of Chemical Supply and Sales Ukrainian SSR?] to organize storage of sulfur dioxide in tanks, from which orders for smaller quantities could be filled. The request was immediately refused with the explanation that the various Khimsnabsbyt offices and the major sulfur dioxide consumers lacked favorable conditions for organizing bulk stations as well as the cylinders that would be required to distribute bulk supplies.

It seems strange that the Ukraine, which consumes over 400 tons of sulfur dioxide annually, cannot organize a bulk station, while the In-ozemtsevo Wine Plant Stavropol'skiy Kray, a mere 25-ton per year consumer, has the capability. Bulk stations must be organized in all areas that have a recurring need for sulfur dioxide. They are the solution to the shipping container problem. -- S. Shashkov, deputy director, Chernorech'ye Chemical Plant

#### Alcohol

NINE ALCOHOL PLANT BUILDINGS IN OPERATION SOON -- Moscow, Komsomol'skaya Pravda, 13 Jul 60

Six production buildings have gone into operation at the Saratov Synthetic Alcohol Plant. Installation of complex technological equipment has been finished in three more buildings and testing of the equipment has begun.

- 16 -

CPYRGHT

Starch

SEAWEED POWDER SUBSTITUTES FOR STARCH -- Moscow, Ekonomicheskaya Gazeta,  
8 Jul 60

The Ivanovo textile mills use thousands of tons of starch annually to finish fabrics. The Ivanovo Scientific Research Textile Institute (IvNITI) and specialists from the kokhma Cotton Combine, seeking a substitute for starch, tested a powder which they had made of seaweeds obtained in Arkhangel'sk. The results were excellent. It was estimated that this product could replace at least 60 percent of the starch now used in the textile industry of the country.

CPYRGHT

II. CHEMICAL EQUIPMENT

Compressors

NEW COMPRESSOR TO BE USED IN GAS SEPARATION PROCESS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 27 May 60

The Moscow Kompressor Plant, the main supplier of refrigerating equipment to enterprises for the large-scale production of chemicals, has shipped a new-type compressor to the Sterlitamak Synthetic Rubber Plant. It has been designed for cooling the industrial process of separating hydrocarbon gas. The new machine has two heat-removal capacities, 680,000 and 510,000 kilocalories/hr.

NEVSKIY PLANT SOLE DEVELOPER OF COMPRESSORS -- Leningradskaya Pravda, 9 Jun 60

Soviet industry is in dire need of a specialized plant for the production of compressors, because the facilities of the Leningrad Nevskiy Plant, the only enterprise developing compressors and compressor units, are quite inadequate for satisfying the needs of the industry.

Pumps

PUMPS FOR CHEMICALS AND METALS -- Kishinev, Sovetskaya Moldaviya, 17 Jun 60

The Akmolinsk Pump Plant [the Akmolinsk Chemical Equipment Plant] has completed the first pump for toxic organic liquid compounds weighing less than ordinary water. Instead of lubricating oil, its packing glands will be filled with gas, the use of which will be instrumental in achieving a high vacuum. The plant has also started the assembly of a new type of pump for concentrated sulfuric acid. It will be capable of delivering the acid to a height of 300 meters.

Bucharest, Revista de Chimie, Vol 11, No 6, 1960 p 364

A metallurgical plant in Riga has begun the series manufacture of pumps for liquid metals, destined for the chemical and metallurgical industries.

Supply

DELAY EQUIPMENT FOR CHEMICAL COMBINE -- Moscow, Ekonomicheskaya Gazeta, 15 Jun 60

CPYRGHT

The Lisichansk Foundry and Machinery Plant (director; Mel'nikov), the Poltava Turbine Machinery Plant (director; Zudin), and the Yasinovataya Mine Development Equipment Plant (director; Kuznetsov) [Yasinovataya Machine Building Plant?] have not yet started filling important orders for the chemical combine under construction in Lisichansk.

III. PETROLEUM AND GAS INDUSTRIES

Production and Reserves

OIL AND GAS PRODUCTION REPORTED FOR FIRST HALF OF 1960 -- Moscow, Sovetskaya Rossiya, 13 Jul 60

CPYRGHT

The Central Statistical Administration of the Council of Ministers USSR reports that 70.7 million tons of crude oil and 22.5 billion cu m of gas were produced in the USSR in the first 6 months of 1960. This was 15 percent more oil and 29 percent more gas than produced in the same period of 1959.

[Comment: According to press reports, in the first quarter of 1960, the USSR produced 34.5 million tons of oil and 11.9 billion cu m of gas, which was 16 percent more oil and 30 percent more gas than in the same quarter of 1959. The targets for 1960 are 144 million tons of oil, 11.2 percent more than in 1959, and 53.2 billion cu m of gas, nearly 40 percent more than in 1959.]

MORE MULTIPLE COMPLETION OIL WELLS TO GO ON STREAM IN KRASNODAR REGION -- Baku, Bakinskiy Rabochiy, 27 May 60

Krasnodar -- Three more multiple completion oil wells are scheduled to go on stream in the Kuban River Valley of Krasnodarskiy Kray in 1960.

CPYRGHT

The Chernomor' Oil Field Administration already has on stream a quintuple completion well that is producing 3-4 times the oil being produced in adjacent conventional wells. The verticle hole of the quintuple well runs to a depth of nearly 2,000 meters, from where five offset holes deviate in different directions.

CPYRGHT

Kuban specialists have developed an electric drilling rig for drilling multiple completion wells.

COMMERCIAL DEVELOPMENT OF MULTI-STRATA GAS FIELD BEGINS IN UZBEKISTAN -- Riga, Sovetskaya Latviya, 12 May 60

Andizhan -- Commercial development of the new multistrata Severnyy Sokh Gas Field in the eastern part of the Fergana Valley has started. Three of the six discovered strata are being developed. Some of the natural gas wells, which penetrate to various depths, are each producing up to 100,000 cu m of gas daily.

The gas from the field is fed into the Severnyy Sokh-Fergana and Severnyy Sokh-Kokand gas lines. The search for gas in this area still continues.

SOVIET POTENTIAL GAS RESERVES ABOUT 60 TRILLION CUBIC METERS -- Bucharest, Revista de Chimie, Vol 11, No 6, 1960, p 352

The Soviet Union's proven natural gas reserves are estimated at more than 19 trillion cu m. Considering that many regions in Siberia and in the Central Asian republics have not yet been geologically explored sufficiently, the nation's potential gas reserves are estimated at about 60 trillion cu m.

INCREASE IN GAS RESERVES ANTICIPATED IN UZBEKISTAN -- Tashkent, Pravda Vostoka, 14 Jun 60

By the end of 1965, the gas reserves of Uzbekistan will be the second largest in the Soviet Union; only the RSFSR will rank higher. Geological exploration during 1959-1965 is expected to be more effective in Uzbekistan than elsewhere in the USSR. Geological exploration costs in Uzbekistan are expected to be 50 percent below the average throughout the USSR.

It is anticipated that three or four gas fields will be discovered in Uzbekistan in 1960. Two fields were discovered in 1959 and one field in 1958.

Drilling

DRILLING IN AZERBAIDZHAN BEHIND SCHEDULE -- Baku, Bakinskiy Rabochiy,  
6 Jul 60

Some 20,500 meters more hole were drilled in the Azerbaydzhan oil industry during the first 6 months of 1960 than in the same period of 1959. The drilling offices of the Leninneft', Azizbekovneft', and the Siazanneft' oil field administrations, and drilling offices No 3 and No 5 of the Aznefterazvedka Trust exceeded their goals for both exploratory and development drilling. Nevertheless, the goals throughout the Azneft' Association were fulfilled only 94 percent for exploratory drilling and 98.4 percent for development drilling. Efforts to fulfill the goal for faster drilling speed also failed, and drilling costs per meter increased 37.50 rubles in exploratory drilling and 3.40 rubles in development drilling.

Only 65.8 percent of the drilling time is being used productively throughout the industry. Some 14.3 percent of the working time was spent to eliminate the 96 breakdowns that occurred in drilling during this 6-month period. Even though the drilling of superdeep holes in Azerbaydzhan requires the use of durable bits, the bits produced in Baku are shipped elsewhere because of poor planning. The Baku drillers are supplied with bits from Perm' that are unsuitable for use in the rock of Azerbaydzhan.

DRILLING TRUST CONVERTING TO SLIM-HOLE DRILLING --- Baku, Bakinskiy Rabochiy, 12 Jun 60

Al'met'yevsk -- The Al'met'yevburneft' Trust is doing more and more slim-hole drilling. It expects to convert completely to this type of drilling in 1962.

PROSPECTORS SEARCH FOR MORE GAS IN ARCTIC CIRCLE REGION OF SIBERIA -- Moscow, Trud, 5 Jul 60

Yakutsk -- Drilling rigs of the Severoyakutskiy Geological Exploration Expedition are getting closer to the Arctic Circle, and prospecting operations are expanding following the discovery here of rich natural gas deposits with reserves of more than 25 billion cu m of gas. One crew completed a well to a depth of 3,502 meters within a short time at the Bergeinskiy site.



Gas Discoveries

IMPORTANT GAS STRIKE MADE IN KARAKUM DESERT OF TURKMENISTAN -- Moscow, Trud, 25 May 60

The small village of Darzava in the Karakum desert of Turkmenistan has been becoming an important gas center since geologists brought in a powerful gas well several kilometers from the village in May 1959.

Since this discovery, an expanded drilling program has been under way. Another powerful gas well was produced on 20 January 1960, and two more wells have been produced since then. More than 500 billion cu m of gas was discovered through the exploration of some 3,500 sq km of gas bearing area of the Darzava deposit. Besides gas, there is crude oil in this region.

There is some discussion about building a gas line from Darzava through Bukhara toward the Urals, instead of from Gazli [in Uzbekistan] through Bukhara. The new route would be 300 km shorter.

TENTH GAS FIELD FOUND IN UZBEKISTAN -- Tashkent, Pravda Vostoka, 10 Jul 60

Another gas field, the Severnyy Mubarek field, has been found in Uzbekistan. This is the tenth gas field discovered in the Kzyl-Kum desert of the republic. The discovery well flowed more than one million cubic meters of gas per day.

GAS FOUND IN KEMEROVSKAYA OBLAST, RSFSR -- Kiev, Pravda Ukrainy, 23 Jun 60

A flowing natural gas well with a pressure of 28-30 atmospheres has been brought in from a depth of 420 meters near the village of Borisovo in the Krapivino area. The new discovery is located 70 km from Kemerovo. The newly discovered gas bearing site is about 7 km long and 2 km wide.

Oil Discoveries

SEARCH FOR OIL IN SIBERIA BRINGS RESULTS IN TYUMENSKAYA OBLAST --  
Moscow, Sovetskaya Rossiya, 1 May 60

CPYRGHT

A well with a daily output of 30 tons of .833 gravity crude oil has been brought in by geologists in the northern part of Tyumenskaya Oblast, some 350 km from Tyumen and 220 km from Serov in the Ural Mountains. The well was completed to a depth of 1,428-1,436 meters in the Jurassic formation. It is estimated that this initial output will be doubled eventually.

Laboratory tests showed that the oil contains up to 50 percent light fractions. Four more wells are being drilled in this region to evaluate its prospects.

OIL FIELD FOUND IN KUYBYSHEV REGION -- Moscow, Vechernyaya Moskva,  
12 Jul 60

CPYRGHT

Another oil field has been found in the Yuzhno-Kuybyshevskiy oil bearing region, where geological prospecting has been expanded on a broad scale. The discovery well, with an output of more than 200 tons of high-grade light crude oil per day, was produced from a depth of about 1,900 meters near the village of Blagodarovka in the steppe on the eastern side of the Volga.

MORE OIL FOUND IN UDMURTSKAYA ASSR -- Moscow, Sovetskaya Rossiya,  
8 Jun 60

CPYRGHT

Izhevsk -- Geologists brought in another flowing oil well in the Udmurtskaya ASSR. Of the 26 deep test wells drilled in the republic to date, 15 turned out to be flowing wells. The latest discovery is near the village of Tarasovo, along the right bank of the Kama River.

[Note: Tarasovo is located south of Sarapul near the republic's boundary line on the northeastern part of the Bashkirskaya ASSR. The Udmurtskaya ASSR also borders on the Tatarskaya ASSR and Permskaya Oblast.]

The oil reservoirs in the Udmurtskaya ASSR lie at depths which favor development by means of inner and outer water flooding to maintain the necessary pressure.

CPYRGHT

The commercial reserves of the previously discovered Vyatskiy field have been evaluated and permission has been granted to start development there.

Prospectors are expanding their search for oil in the Udmurtskaya ASSR by means of deep structural drilling and seismic exploration in the areas of Sarapul, Grakhaovo, Nylga, and elsewhere.

### Refining

NEW STATE STANDARDS TO BE ESTABLISHED FOR MODERN ENGINE FUELS -- Moscow, Standartizatsiya, No 4, Apr 60, p 11

The All-Union Scientific Research Institute for Oil and Gas, in association with the Azerbaydzhan, Checheno-Ingushskiy, Kuybyshevskiy, and Bashkirskiy sovmarkhozes, is expected to develop state standards for new brands of fuels for the modern high-compression engines, increased-power diesel engines, and gas-turbine engines. The question of developing such standards came up at an 8 February 1960 conference of the Committee on Standards, Measures, and Measuring Instruments.

About 75 percent of the brands of petroleum products produced by the USSR oil industry, including 70 percent of the liquid and gaseous fuels, 83 percent of the lube oils, and 75 percent of the greases, are produced according to specified standards.

PARTIALLY BUILT REFINERY ALREADY PRODUCING PETROLEUM PRODUCTS -- Tashkent, Pravda Vostoka, 7 Jun 60

Although its construction has not yet been completed, the Fergana Oil Refinery is already producing gasoline, diesel fuel, and mazut. The new enterprise has succeeded in other respects besides going on stream before its completion. The crude oil coming from its desalting unit contains 28-35 milligrams of salt per liter instead of 50 milligrams as permitted by norm. The crude of the Vannovskiy Oil Refinery, on the other hand, contains 80-110 milligrams of salt per liter. The Fergana refinery has also improved the extraction of light products at its atmospheric-vacuum still.

The refinery was at first producing mazut of low quality but this has been remedied by light cracking in the primary distillation unit. The quality of mazut has improved, and the extraction of light products and diesel fuel has increased.

Pipelines

GAS LINE TO BE BUILT IN FAR NORTH REGION OF SIBERIA -- Moscow, Trud,  
16 Jun 60

CPYRGHT

The Soviet Union plans to lay a gas line about 400 km long over permafrost ground in its Far North Region during the Seven-Year Plan. The line will connect Yakutsk (the capital of the Yakutskaya ASSR), Pokrovsk (a brick producing center), Bestyakh (where a huge cement plant is under construction) and the nearby villages of Zhatay, Markha, and Tabaga with a huge natural gas deposit of more than 21 billion cu m that has been discovered in an area near the mouth of the Vilyuy River. The construction plans for the projected line are being drawn up by the Gipropdzemgaz Institute.

GAS LINE OPENED TO GROZNYI -- Moscow, Sovetskaya Rossiya, 21 Jun 60

CPYRGHT

Groznyy -- A gas line has been placed in service from Achaluki to Groznyy. The new line, 77 km long, runs via Karabulak.

Gas has now replaced coal as fuel in the Novogroznyy TETs [Heat and Electric Power Station].

IV. SOLID FUELS

Coal

NEW COAL DEPOSITS SURVEYED -- Kishinev, Sovetskaya Moldaviya, 24 Jun 60

CPYRGHT

Geological surveyors of Rudnyy Altay have completed a preliminary survey of the recently discovered Belokamenskiy deposit of bituminous coal. Altay coal has a low ash content and a calorific value of 8,000 calories. The selection of technological samples has been completed at the Kenderlykiski deposit of coal and bituminous shale. Trial (probnaya) extraction of bituminous coal has been started in this deposit, located in the depths of Vostochno-Kazakhstanskaya Oblast.

SOLID FUEL REPLACED BY GAS AT KRASNY DVIKATEL' PLANT -- Tashkent, Pravda Vostoka, 8 Jun 60

Samarkand -- With the advent of Bukhara gas, there have been many changes in the Krasny Dvigatel' Plant imeni V. I. Lenin. First, gas was used to replace solid fuel; then gas was used to help maintain the necessary temperature of the molten metal after it went from cupola furnaces to the special apparatuses from which it is taken to be poured into molds.

The next problem is that of replacing coke with gas. Recently one of the cupola furnaces was converted to gas and the others are to be converted also. Replacing coke with gas will result in a saving of about 240,000 rubles per year.

#### Shale

YKHKVISKIY RAYON IMPORTANT FOR ESTONIAN SHALE INDUSTRY -- Tallin, Sovetskaya Estoniya, 19 Jun 60

Five underground shale mines and one open-pit shale mine, the Vivikond, are located in Ykhviskiy Rayon, Estonian SSR. In the near future, one more underground mine and the largest shale open pit in the USSR will be put into operation here.

The mines are provided with powerful equipment, including cutters, electric locomotives, and highly productive conveyers. The first experimental shale-preparation mill in the world, which has been built at Mine No 10, will prepare shale by the sedimentation method.

Although the shale industry of the rayon is young, it has achieved good production indexes. At present 83 times as much shale is being extracted as in 1947. In 1965, the shale industry of the Estonian SSR will produce 50,000-54,000 tons of shale daily, and Ykhviskiy Rayon will be responsible for 40,000-45,000 tons, or 80-83 percent of this amount.

V. FERROUS METALLURGY

Ore Extraction

TUL'SKAYA OBLAST IRON ORE TO BE EXTRACTED BY OPEN-PIT METHOD --  
Moscow, Ekonomicheskaya Gazeta, 2 Jun 60

A large deposit of iron ore, discovered near the city of Kireyevsk, Tul'skaya Oblast, will be mined by the open-pit method. Tula miners have accumulated extensive experience in the use of this effective method. Mechanized pits have been put into operation and the working front has been equipped with walking excavators. Production costs per ton of raw material for blast furnaces have been cut almost in half.

The Tula Iron Ore Administration is a profitable enterprise. Its workers have determined to extract at least 88 percent of all ore by the open-pit method by the end of the second year of the Seven-Year Plan.

KUSTANAY IRON ORE EXTRACTION TO INCREASE -- Alma-Ata, Kazakhstanskaya Pravda, 15 Jun 60

At the end of the Seven-Year Plan period, the Kustanayskiy Economic Region will hold third place in the USSR in the extraction of iron ore.

Agglomeration Installations

NOVO-TULA PLANT TO HAVE LARGE AGGLOMERATING MILL -- Riga, Sovetskaya Latviya, 7 Jul 60

Within a little more than a year, the framework of a large agglomerating mill has risen beside the blast furnace shop of the Novo-Tula Metallurgical Plant. The first agglomerating belt has been put into operation and 10,000 tons of high-grade fluxed agglomerate have already gone to the blast furnace shop of the Novo-Tula Plant.

Installation and testing of equipment entering into the complex of the second agglomerating belt are being completed. Before the end of 1960, the third and last belt will also be producing.

AGGLOMERATING MILL UNDER CONSTRUCTION AT NOVO-LIPETSK PLANT -- Kishinev, Sovetskaya Moldaviya, 24 Jun 60

CPYRGHT

The construction of a large agglomerating mill has been started at the Novo-Lipetsk Metallurgical Plant. It will be a highly mechanized and automated enterprise. The first unit of the mill will be put into operation in 1962.

Blast Furnaces and Pig Iron Production

FIRST KARAGANDA BLAST FURNACE IN OPERATION -- Alma-Ata, Kazakhstanskaya Pravda, 3 Jul 60

CPYRGHT

On 2 July 1960, at 1837 hours, the first blast furnace of the Karaganda Metallurgical Plant was blown in; it will produce its first pig iron on 3 July. This will be the first pig iron produced in the Kazakh SSR.

Moscow, Komsomol'skaya Pravda, 7 Jul 60

CPYRGHT

Only a few days have passed since the first blast furnace of the Karaganda Metallurgical Plant started operating and there are already many customers for its products. The plant shipped the first consignment of pig iron to enterprises of Tashkent and Fergana. Pig iron is also ready for shipment to the Stalinabad Plant imeni Ordzhonikidze.

EARLY COMPLETION PLANNED FOR YENAKIYEVO BLAST FURNACE -- Kiev, Pravda Ukrainy, 23 Jun 60

CPYRGHT

It is planned to blow in the Komsomol blast furnace which is being built at the Yenakiyev Metallurgical Plant on 1 October 1960, one month ahead of schedule. The new furnace will produce 1.5 times as much metal as the old one.

CHEAPEST UKRAINIAN PIG IRON -- Moscow, Ekonomicheskaya Gazeta, 30 Jun 60

CPYRGHT

The Dneprodzershinsk Metallurgical Plant imeni Dzerzhinskiy produces the least expensive pig iron in the Ukrainian SSR. This plant has just started to issue products above the 1960 half-year plan.

CHUSOVOY BLAST FURNACE OPERATORS ACHIEVE HIGH PRODUCTION INDEX -- Moscow, Ekonomicheskaya Gazeta, 25 Jun 60

CPYRGHT

The Chusovoy Metallurgical Plant has produced thousands of tons of pig iron above the 1960 first half-year plan. A number of the blast furnace operators of the plant have achieved the high coefficient of 0.55 in the utilization of the working volume of their blast furnace.

NEW BLAST FURNACE TECHNOLOGY CALLS FOR USE OF MAZUT -- Moscow, Ekonomicheskaya Gazeta, 1 Jul 60

CPYRGHT

Blast furnace operators of the Chusovoy Metallurgical Plant, in cooperation with associates of the Ural Institute of Ferrous Metals, have developed a new technology for producing vanadium pig iron in a blast furnace with the use of mazut.

Results of the first experimental melts indicated that the liquid fuel considerably improves the technical and economic indexes of the melt. The productivity of the furnace rose 9.5 percent, consumption of coke was cut 10 percent, and the quality of the pig iron improved.

ALCHEVSKIY PLANT USES NATURAL GAS IN PIG IRON PRODUCTION -- Moscow, Moskovskaya Pravda, 8 Jun 60

CPYRGHT

The first pig iron has been produced with the use of natural gas at the Alchevskiy Metallurgical Plant imeni Voroshilov Luganskaya Oblast. This has resulted in steadier operation of the blast furnace, an increase in the temperature of the blast, a rise in the productivity of the aggregate, and a 10-percent saving in expensive coke.



Cupola Furnace

NEW CHARGING DEVICE -- Moscow, Ekonomicheskaya Gazeta, 23 Jun 60

CPYRGHT

Innovators at the Kazakhstan Metallurgical Plant have designed an original device for the mechanized charging of a cupola furnace. It consists of an inclined bridge and an automatically operating bucket. The entire cycle of operations lasts 1 1/2 minutes.

Open Hearth Furnaces

TRANSCAUCASUS PLANT REBUILDS OPEN-HEARTH FURNACE -- Tbilisi, Zarya Vostoka, 17 Jun 60

CPYRGHT

Workers of the Transcaucasus Metallurgical Plant imeni I. V. Stalin with the collaboration of the construction and installation personnel have completely reconstructed open-hearth furnace No 1 in record time. The capacity of the furnace has been increased by many thousands of tons per year. On 15 June 1960, the new open-hearth furnace produced its first steel.

LARGEST OPEN-HEARTH FURNACE IN OPERATION AT CHEREPOVETS PLANT -- Moscow, Sovetskaya Rossiya, 12 Jul 60

CPYRGHT

The construction of a new open-hearth furnace, the largest at the plant, was completed more than 2 months ahead of schedule at the Cherepovets Metallurgical Plant. On 12 July, gas will be supplied to the working area of the furnace. Its early start will enable the steel workers to produce tens of thousands of tons of extra metal. In a few days the aggregate will produce its first heat.

UZBEK PLANT STEPS UP STEEL PRODUCTION -- Moscow, Ekonomicheskaya Gazeta, 7 Jun 60

CPYRGHT

The Uzbek Metallurgical Plant has more than doubled the planned capacity of its open-hearth furnaces, considerably reduced the production cost of steel, and carried out 90 percent of the heats by high-speed methods. Steel production per square meter of open hearth area has averaged 10 tons. Now the operators are endeavoring to extend the running period of the furnaces between repairs to 600 heats.

ZAPOROZH'YE OPEN-HEARTH FURNACES HIGHLY PRODUCTIVE -- Moscow, Ekonomicheskaya Gazeta, 25 Jun 60

CPYRGHT

At the Zaporozh'ye Metallurgical Plant the production of steel per square meter of hearth area rose from 8.7 tons per calendar day in 1956 to 9.82 tons in 1959; in 1960 it has already exceeded 10 tons. Thus the 185-ton furnaces have produced during the year an average of 228,000 tons of steel each and certain operators have produced 237,000 in their furnace.

Continuous Steel-Pouring Installations

LARGEST UNIT BEGINS PRODUCTION -- Moscow, Pravda, 12 Jul 60

On 11 July 1960, the largest installation in the world for the continuous pouring of steel was put into operation at the Stalino Metallurgical Plant. Finished billets and slabs may be obtained on this installation within a few minutes. The processes of pouring the metal into molds and rolling ingots on blooming or slabbing mills are eliminated.

The installation is placed alongside the open-hearth furnaces in a large, unusual pit, 25 meters in diameter and 30 meters deep. The steel, tapped from the furnace into a teeming ladle, is brought to the installation and poured into an intermediate ladle, from which it enters crystallizers where the shape is imparted to the billet. The molten metal, passing from the crystallizers, enters into a zone of secondary cooling and, gradually moving downward, continues to solidify. At the 18th meter of its course, the hardened metal is cut to a fixed length by a moving oxygen cutter. Then the billets are tilted by an automatic mechanism from a vertical to a horizontal position, moved to roller conveyers, pushed onto a special platform, and delivered by hoist to the surface, where they are loaded onto railroad flatcars and sent to the sheet rolling mill.

This entire production cycle, converting 140 tons of molten steel into finished billets, takes about one hour.

NINE INSTALLATIONS IN OPERATION IN USSR -- Moscow, Agitator, No 11, Jun 60, p 20

A new, progressive, continuous method of pouring steel is being introduced in the USSR. Although only two experimental installations for the continuous pouring of metal are in operation in the US, there are already nine in the USSR.

CPYRGHT

Ferroalloys Production

NEW TYPES OF FERROALLOYS FROM AKTYUBINSK PLANT ++ Alma Ata, Kazakhstanskaya Pravda, 8 Jun 60

At the beginning of the second year of the Seven-Year Plan, an experimental shop was put into operation at the Aktyubinsk Ferro-Alloys Plant where ferroalloys workers are conducting successful scientific investigations. Now Aktyubinsk builders have completed a new experimental shop for the metallurgists.

In this shop, the process of obtaining ferrochromium is different from that used in other shops. The metal will be obtained not in electric furnaces or by the converter method but in vacuum furnaces. This will mean entirely new and high-quality types of ferroalloys for the USSR.

Rolling Mills

CHEREPOVETS SHEET ROLLING MILL COMPLETED -- Moscow, Ekonomicheskaya Gazeta, 28 Jun 60

Several years ago, the metallurgical base of the north, being constructed in Cherepovets, had one blast furnace. Later installations and units included several more large blast furnaces, large-capacity open-hearth furnaces, agglomerating mills, coke batteries, a blooming mill, and a 2800 rolling mill.

Today [28 June?] the largest 1700 sheet mill in the USSR and Europe is being put into operation. It is an extension of the 2800 plate mill and is assembled in a line with it. Thus the construction of the sheet rolling shop is completed.

In 1961, the enterprise will put into operation another large blast furnace, a coke battery, three 250 agglomerating mills, a cold rolling shop, open-hearth furnaces, and a number of other installations.

Leningradskaya Pravda, 24 Jun 60

Tests of the main units of the 1700 rolling mill are being continued at the Cherepovets Metallurgical Plant. Several strips have already been rolled on the working stands. This aggregate is an extension of the 2800 plate mill put into operation at the plant in November 1959. It will produce sheet steel 1.8-8 mm thick and up to 1.5 meters wide.

LATVIAN METALLURGICAL PLANT ACQUIRES NEW ROLLING MILL -- Moscow, Izvestiya, 2 Jul 60

CPYRGHT

A 350 section-rolling mill has been put into operation at the Sarkanays Metalurgs Plant in Liyepaya, Latvian SSR. This mill has 1.5 times the capacity of the existing mill and with the start of its operations the enterprise's output of section rolled stock will be more than doubled. The control of the aggregate is automated.

NEW UNITS FOR PLANT IMENI IL'ICH -- Moscow, Ekonomicheskaya Gazeta, 16 Jun 60

CPYRGHT

In 1961, the Zhdanov Metallurgical Plant imeni Il'ich will acquire the following new units: one 1150 slabbing mill, a mill for cold rolling sheet steel, and one new open-hearth furnace shop. The plant will become the largest metallurgical enterprise in the southern part of the USSR.

USSR CLAIMS ROLLING MILLS EXCEED US MILLS IN CAPACITY -- Moscow, Agitator, No 11, Jun 60, p 20

CPYRGHT

Soviet rolling mills exceed American rolling mills in productivity. For example, the USSR has continuous, hot rolling sheet mills with a yearly productivity of 3.5 million tons while the productivity of the most powerful mills in the US does not exceed 2 million tons.

#### Pipe Production

NEW METHOD FOR PREPARING FLAT-WELDED PIPE -- Moscow, Ekonomicheskaya Gazeta, 9 Jun 60

CPYRGHT

The Institute of Welding imeni Paton has worked out a simple and very economical method of preparing thin-wall flat-welded pipe for the petroleum and gas industries. Two steel strips, 200-280 mm wide are laid on each other, welded at the edges, and wound in a roll. Delivered to an oil well, such a roll is unwound in a strip up to 250 meters long. Air is forced into nozzles welded to both ends of the flat strip, which is inflated into a pipe.

Twenty-one fewer railroad cars are needed to transport 100 km of such pipe 114 km in diameter than to transport the same amount of pipe made by ordinary methods. Production of the new pipe has been mastered by the Zaporozh'ye Metal Structures Plant.

A consignment of the new pipe has been sent to petroleum workers of Bashkiria.

CHELYABINSK PLANT TESTS PIPE-WELDING INSTALLATION -- Minsk, Sovetskaya Belorussiya, 30 Jun 60

Construction of a large shop for the furnace welding of pipe has been completed at the Chelyabinsk Pipe-Rolling Plant. Test runs of aggregates are under way. The pipe-welding installation has been completely mechanized and the production process has been extensively automated. In the near future the shop will issue its first products.

Moscow, Pravda, 15 Jul 60

On 14 July 1960, the new shop for the furnace welding of pipe was put into operation at the Chelyabinsk Pipe-Rolling Plant. The shop, which has no equal in capacity in the USSR, will produce hundreds of thousands of tons of pipe annually. Its first products are already being shipped to Siberia and Kazakhstan.

NEW PIPE-WELDING SHOP PRODUCES FIRST SIBERIAN PIPE -- Moscow, Ekonomicheskaya Gazeta, 17 Jun 60

An electric pipe welding shop has been put into operation at Novosibirsk Metallurgical Plant imeni Kuz'min and the first Siberian pipe has been obtained.

Now hundreds of enterprises and structures of Siberia and the Far East will be provided with local products. This will improve delivery and permit a saving of tens of millions of rubles for railroad transport.

KHAR'KOV BUREAU DESIGNS FURNACE FOR HEATING WELDED PIPE -- Minsk, Sovetskaya Belorussiya, 24 Jun 60

A highly productive furnace for heating and quenching welded pipe made of stainless steel has been designed by the Khar'kov Elektropech' Design Bureau with the collaboration of specialists of the Moscow Elektropech' Design Bureau and a number of other enterprises. The furnace is more than 40 meters long including equipment for loading and unloading.

The pipe will be heated by electric current in an atmosphere of protective gas, and will be quenched in a water spray. The design provides for complete automation and continuous operation of the furnace. One operator can manage the furnace from a panel with push button control.

MOGILEV PLANT PRODUCES PIPE BY SEMICONTINUOUS METHOD -- Minsk, Sovetskaya Belorussiya, 8 Jun 60

CPYRGHT

The Mogilev Metallurgical Plant imeni Myasnikov, utilizing the experience of the experimental installation of the Sinarskiy Pipe Plant in the city of Kamensk-Ural'skiy, has become the first plant in the USSR to master mass production of cast iron pressure pipe by the semicontinuous method.

Coke

NEW COKE BATTERIES -- Moscow, Komsomol'skaya Pravda, 26 May 60

CPYRGHT

New coke battery No 6 has been put into operation at the Krivorozhstal' Metallurgical Plant.

Moscow, Pravda, 3 Jul 60

CPYRGHT

On 2 July 1960 another large coke battery, the second since the beginning of the Seven-Year Plan, was put into operation at the Magnitogorsk Metallurgical Combine. On 3 July the new battery will produce its first coke.

ZAPADNYI SIBIRSKIY COKE-CHEMICAL SHOP UNDER CONSTRUCTION -- Kishinev, Sovetskaya Moldaviya, 24 Jun 60

CPYRGHT

The construction of a coke-chemical shop has been begun at the building site of the Zapadnyy Sibirskiy Metallurgical Plant. The large coke batteries will be equipped with the most modern domestic mechanisms and instruments.

VI. NONFERROUS METALLURGY

Metal Conservation

VARIOUS SOVIET ENTERPRISES TO REDUCE CONSUMPTION OF NONFERROUS METALS -- Moscow, Planovoye Khozyaystvo, No 5, May 60, pp 60-65

CPYRGHT

Despite constantly increasing production of nonferrous metals and an anticipated increase by 1965 of 100-200 percent over 1958 output, there still remain shortages of nonferrous metals in the USSR. All efforts must be made to conserve nonferrous metals and to use them more efficiently.

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By altering the design of its water radiator, the Moscow Small Displacement Motor Vehicle Plant can save about 75 tons of rolled brass annually and decrease the consumption of lead-tin solder.

At the Moscow Motor Vehicle Plant imeni Likhachev, copper tubing in the fuel system will be replaced by steel-copper tubing and by aluminum tubing, thereby saving 100 grams of copper per ZIL-164 and 200 grams of copper per ZIL-150.

The Gor'kiy Motor Vehicle Plant is putting into production a new type of radiator for its trucks; each of these radiators will require 640 grams less copper and 300 grams less rolled brass. In addition to a significant conservation of nonferrous metals, the plant will save up to 6 million rubles annually.

Considering that millions of steam fittings and plumbing fixtures are produced and that large amounts of nonferrous metals are used in their production, old designs should be revised with the view of decreasing their size and wall thickness. By this expedient alone the consumption of nonferrous metals could be cut by at least 50 percent in the manufacture of such products.

In the cable industry much has already been accomplished in substituting other materials for copper and lead. During the past 5 years, more than 200,000 tons of copper and lead were conserved as a result of new cable designs and perfected methods of production. In 1959 the cable industry produced 58 percent of its cable output with aluminum, instead of copper; conductors and more than 60 percent of its cable sheathing with aluminum and plastics instead of lead.

The total saving of copper as a result of producing cable with aluminum conductors during the next 7 years will amount to about 400,000 tons, based on the rate of copper consumption in 1958. Some 300,000 tons of lead will be saved by 1965 under the same conditions. Meanwhile, the absolute consumption of lead, disregarding the total growth in cable production, in 1965 will be lower than in 1958.

#### Copper and Molybdenum

CYCLONE METHOD URGED FOR SMELTING COPPER CONCENTRATES -- Alma-Ata, Kazakhstanskaya Pravda, 21 Jun 60

The Balkhash Mining and Metallurgical Combine started experimenting with the cyclone method of smelting copper concentrates in 1957. The operation of a specially constructed semi-industrial cyclone furnace

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proved highly satisfactory, with the following results: the volume of the charge which was smelted in the cyclone furnace was twice as great as with conventional furnaces, the copper content of the matte was 1.5 times as great; and 50 percent less fuel was consumed.

Such results would indicate the desirability of introducing the cyclone method on an industrial scale, yet the construction of such an industrial furnace had not yet been started as late as the first quarter of 1960. It was only after the oblast party organization interceded that the construction of such a furnace was recently put into full swing.

CONSTRUCTION OF COPPER-MOLYBDENUM COMBINE LAGS -- Yerevan, Kommunist, 2 Jul 60

Operation of the first section of the Agarak Copper and Molybdenum Combine has been scheduled for the third quarter of 1961. However, construction of the combine is proceeding at a slow pace.

Operation of the first section presupposes the completion of an open-pit mine, a concentration mill, a high-voltage electric power line linking Kadzharan and Agarak, and a number of subsidiary shops.

By the end of 1961 an area of more than 10,000 sq m will be required for the living quarters of workers employed by the combine, but only 900 sq m has been planned.

Lead and Zinc

DRILLING RIG INCREASES PRODUCTION IN LEAD-ZINC MINE -- Alma-Ata, Kazakhstanskaya Pravda, 21 Jun 60

A pneumatic percussion-type drilling rig installed on a DT-54 tractor at the Kayraktinskiy Lead-Zinc Mine in Karagansinskaya Oblast has doubled the labor productivity of drill operators at that mine.

Manganese

GEORGIAN SSR MANGANESE INDUSTRY TO EXPAND -- Tbilisi, Zarya Vostoka, 12 Jul 60

An especially important component of the manganese industry in the Georgian SSR will begin operation in 1960. The enterprise will include a new mine and the new Darkveti Concentration Mill.



Gold

NEW GOLD-MINING DREDGE OPERATING IN TRANSBAYKAL -- Moscow, Ekonomicheskaya Gazeta, 2 Jul 60

CPYRGHT  
A new gold-mining dredge was recently put into operation at the Klyuchi Mine in Mogochinskiy Rayon. It was in operation 3 months ahead of schedule and processes up to 8,000 cu m of rock daily.

Labor Productivity

SEVERAL KAZAKH MINES SHOW STANDSTILL IN LABOR PRODUCTIVITY -- Alma-Ata, Kazakhstanskaya Pravda, 9 Jun 60

CPYRGHT  
Labor productivity in a number of mines in the Kazakh SSR remained at the same level in 1959 as it was in 1953. This was true of the Achisay, Berezovka, and Belousovka polymetal mines, among others.

VII. METALLURGICAL EQUIPMENT

WORLD'S MOST PRODUCTIVE ROLLING MILL UNIT -- Moscow, Ekonomicheskaya Gazeta, 7 Jun 60

CPYRGHT  
The Novo-Kramatorsk Machine Building Plant has started work on equipment for a cold-rolling shop of the Magnitogorsk Metallurgical Combine. The basic unit of the shop will be the most productive in the world and will operate in conjunction with a 2500 hot-rolling mill. The rolling process will be fully mechanized and automated, with a special butt-welding machine joining the metal into one continuous strip.

EQUIPMENT FOR MODERNIZING ROLLING MILLS -- Kiev, Pravda Ukrainy, 7 Jun 60

CPYRGHT  
The Novo-Kramatorsk Machine Building Plant will produce equipment a month ahead of schedule for the modernization of the 1700 continuous strip rolling mill at the Zhdanov Plant imeni Il'ich. All technical documents have been developed, and over 1,000 tons of various parts and mechanisms for this mill have already been produced.

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The Novo-Kramatorsk Plant is also accelerating the delivery of equipment for the modernization of the 1680 mill at the Zaporozhstal' Plant. In the first 6 months of 1960, the plant will produce several above-plan ore-grinding mills for the Krivoy Rog combines, and two hydraulic hoists for the Bukhtarminskaya GES (Hydroelectric Power Station).

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A 420-ton-capacity foundry crane is now being produced by the plant, which is also developing engineering plans for the world's largest dump-forming bridge.

PLANT PRODUCES METALLURGICAL, FORGING EQUIPMENT --Moscow, Ekonomicheskaya Gazeta, 3 Jun 60

During the Seven-Year Plan, the Elektrostal' Heavy Machine Building Plant is planning to produce 31 hot-rolling pipe mills and 85 cold-rolling pipe mills with a high degree of mechanization and automation in all operations.

The plant is now working on a unit for rolling pipes 30-102 mm in diameter at a speed of 700 meters/min, and with a productivity of 350,000 tons per year. A similar pipe mill in the US has a rolling speed of 270 meters/min and a productivity of 220,000 tons per year.

The plant is being specialized in the production of pipe mills, medium graded-stock mills, and ore-concentration, crushing, and grinding equipment.

Moscow, Leninskoye Znamya, 16 Jun 60

The Elektrostal' Heavy Machine Building Plant has recently completed and stand-tested the second 30-ton-capacity forging manipulator.

BLOWERS, COMPRESSORS FOR METALLURGICAL PLANTS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 22 May 60

The Leningrad Nevskiy Machine Building Plant has sent to the Krivoy Rog Metallurgical Plant a powerful blower with a capacity of 6,500 cu m of air per minute and a unit consisting of a compressor and a steam turbine.

Moscow, Mashinostroitel', Jun 60, p 40

The Leningrad Nevskiy Plant has developed plans for a blower unit for the largest blast furnaces in the world with capacities of 2,000 cu m and over, which will be constructed during the Seven-Year Plan. The centrifugal compressor of this blower installation can deliver 5,500 cu m of air per minute and build up a pressure of up to 4.5 atmospheres. Its condenser-type drive turbine has a capacity of 22,000 kw and is designed for high initial parameters of 90-atmospheres pressure at 535-degrees temperature.

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The new unit will be 15 percent more economical in operation than blowers currently used in ferrous metallurgy.

MILL FOR DRAWING WIRE FROM MOLTEN ALUMINUM -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 27 May 60

The [Dneprodzerzhinsk] Dneprovskiy Machinery Plant has completed ahead of schedule a continuous mill for drawing wire from molten aluminum. This unit has 13 stands and is completely mechanized although only partially automated.

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