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SURVEY OF SOVIET HEAVY INDUSTRY (1)

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## SURVEY OF SOVIET HEAVY INDUSTRY (1)

This is a series report, published approximately biweekly, which contains items of interest on Soviet heavy industry as reflected in articles, short news items, announcements, etc., appearing in various USSR publications. The items contained in this report fall under the broad categories listed below in the table of contents.

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## MACHINE TOOLS

New Horizontal-Cutting Machine

The Lusavanskiy Cutting-machine Plant collective, taking part in the competition for a worthy welcome to the July Plenum of the Party's Central Committee, started production of a new horizontal-cutting machine, Model 2614, one year ahead of schedule. The tool is unique in its high productivity. The diameter of the spindle has been increased from 65 to 80 mm. During initial testing at the plant, the machine worked with great accuracy. At present the plant collective is engaged in beginning mass-production of the new tool. (Kommunist, 13 July 1960. Partial translation)

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New Threading and Grinding Machine

A new semi-automatic threading and grinding machine has been produced by the Moscow Co-ordinate Cutting Machine Plant. This universal unit, Model 5822A, is designed for the grinding of milling taps and other high-accuracy parts. Its production costs have been reduced considerably, since more than 90% of its parts come from mass-production machine tools. (Ekonomicheskaya Gazeta, 6 July 1960. Partial translation)

### New Boring Machine

The collective of the Kaunas Machine Tool Plant is readying the first units of the new "KC-02" co-ordinate boring machine for the twentieth anniversary of Soviet Lithuania. During the last pre-holiday shifts, competition in the daily over-fulfilment of shift norms has developed. Experimental shop milling machine operator Ionas Virshulis is outstanding in his highly productive work. Every day he fulfils one and a half to two norms per shift. (Sovetskaya Litva, 8 July 1960. Full translation)

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### New Automatic Grinding Machines

The Leningrad Plant imeni Il'ich has altered production: instead of simple grinding machine units, automatic machines are being produced which are capable of accuracy up to one micron.

One of them is designed to grind bearing rings. With great accuracy the machine effects correction of the grinding circle. This means that the auxiliary time has been shortened and productivity has been increased. The machine grinds 120 parts per hour, twice as many as on present machines.

A more serious problem now stands before the tool makers, that of constructing by the end of the year eight new model automatic tools for the final working of instrument bearings. The smallest of these bearings has a diameter of only one millimetre and is indispensable for the production of micro-instruments. The machine is accurate to half a micron. (Ekonomicheskaya Gazeta, 9 July 1960. Full translation)

### New Automatic-Control Turret Lathes

At the Alapayev Machine Tool Plant mass-production of new turret lathes, Model 1P-371, has begun. These are powerful units with elements of automatic control, on which it is possible to machine large-size parts. The new lathes are equipped to lift heavy parts. The control levers have been replaced by push-button control. (Ekonomicheskaya Gazeta, 10 July 1960. Full translation)

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### MACHINERY IMPROVEMENTS

#### New Pumps for Transferring Chemicals

The All-Union Scientific Research Institute, the Central Design Bureau, and a hydraulic machine-construction test plant built an economical three-plunger pump under the brand name "KhTR-4/100". The flow of the new pump is regulated by a range of 50-100%. It will be used for the transfer of water-alcohol condensate.

The pump's flow is regulated by alternating plunger piston movement. Globoid transmission and a high-speed electric motor of 2950 RPM are employed in the construction of the new pump.

Hermetically sealed electric pumps for the transfer of poisonous and toxic liquids without leakage have also been developed for the first time.

A pump with the brand name "2TsG-3Kh2" has been developed for the transfer of liquid hydrogen sulfide, and one with the designation "2Kh-6E -- for lactam oil, nitric acid, and its mixtures with organic products.

The packing of the pumps was effected with the aid of glands with asbestos packing, which was permeated with fluororic lubricant. In order to remove the vapor (continued)

### Chemical Pumps (continued)

produced by the liquid being transferred, a vent was incorporated in the fanar of the bracket as well as a connecting pipe for removing the liquid.

The new pumps successfully withstood all tests. (Ekonomicheskaya Gazeta, 2 August 1960. Full translation)

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### International Land-Reclamation Machinery Tests

At the Western Machine-testing Station not far from Minsk, international land-reclamation technology tests have begun. They are being conducted at the decision of the Council for Mutual Economic Aid.

Machinery for laying tile drains, trenching machines, earth-spreaders, ditch-cleaning and other machinery were submitted to tests under actual operational conditions by The Czechoslovak Socialist Republic, Polish People's Republic, and the DDR. The remaining European nations within the socialist camp sent representatives and observers.

Many Soviet machines for the draining and reclamation of swamplands are being tested, such as power shovels, tile-drainage machines, underbrush-cutters, rooting machines, special swamp tractors, trenching machines, machines for plowing under bushes, various harrows and other technological innovations.

Testing of the land-reclamation machinery will be conducted by the specialists of the Western Machine-testing Station and from the European socialist countries. (continued)

Machinery Tests (continued)

Representatives of the All-Union and Byelorussian Ministries of Agriculture, the All-Union Scientific Research Institute for Hydrotechnology and Land-Reclamation, the Byelorussian Academy of the Agricultural Sciences and other organizations are taking part in the tests.

The results of the tests will be expressed in the form of recommendations for the production of better land-reclamation machinery, which will answer the demands of modern agrotechnology.

The international testing of land-reclamation technology will last three months. (Sovetskaya Belorussiya, 2 August 1960. Full translation)

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New Cement-Carriers

In accordance with the decisions of the XXI Congress of the KPSS, the Pavshinsk machine-builders are setting up the production of new machinery for cement plants and construction projects. In the past six months a new model seven-ton cement-carrier has been designed and constructed. This transport machine completely eliminates the need for manual loading, and particularly unloading, of cement. The machinery has completely mechanized the unloading of cement and its transfer to storage shed or building levels.

The seven-year plan also brought to life a 12 ton cement carrier. The original model of this highly-productive machine is on exhibit in Moscow at the Exhibition of the Achievements of Soviet National Economy. Already these machines are appearing on the job every day. They will find extensive use on the construction projects in Moscow, in the Moscow Oblast', and in other cities and rayons of our country. Several days ago a new double-chamber pneumatic pump came from the factory to the Exhibit. This new piece of machinery is designed to transport cement from the mills to the cement plants' ready-cement storage areas. (continued)

New Cement Carriers (continued)

(Leninskoye Zhamya, 2 August 1960. Partial translation)

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Country's Largest Automatic Sheet-Steel Stacking Machine

The Irkutsk Heavy Machine-Construction Plant imeni V.V. Kuybyshev has begun shipment on our country's first automatic large-dimension sheet steel sorting and stacking unit. The test model will service Europe's largest rolling-mill, the "2500", at the Magnitogorsk Metallurgical Combine. (Moskovskaya Pravda, 2 August 1960. Partial translation)

Automatic Loaders

At the "Udarnik" plant in Minsk, an assembly line for D452 automatic loaders has gone into production. Labor productivity has been increased 30 percent by this, production costs have been lowered 27 percent, and the quality of production has improved. (Sovetskaya Belorussiya, 2 August 1960! (Partial translation)

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 BEARINGS
New Bearing Testing Equipment

Everyone who is in any measure acquainted with machinery knows that it is no easy task to replace bearings. One must dismantle the entire mechanism and waste much time in doing so. It is therefore easy to see what a gigantic savings will be gained by developing bearings with a life of from one and a half to two times that of the present ones.

In the laboratory of the Chief Designer of the Kuybyshev Bearing Plant No Four, bearings on special stands are turning at great speeds. They are being subjected to longevity tests. Comrade Pikovskiy, the plant's Chief Designer, says the following: "In response to the decisions of the July Plenum of the Central Committee of the CPSS, our collective set itself the goal of prolonging the life of several types of bearings by two to three times. We formerly did not know why some bearings last a long time and why some don't."

"After a fruitful search we came up with new calculations for the construction of a separator. We soon drew up the blue-prints, and the plant started production(continued)

New Bearing Testing Equipment (continued)

of 50 new types of bearings in the second quarter of this year."

"Now we are more boldly replacing the riveted, so-called "snake" separators with punched ones. The shift to the progressive punching technique makes it possible to economize on non-ferrous metals."

"The plant's testing facilities are being expanded. A special building is being planned for the testing facilities and laboratories where the new test stands will be located. One of these hydraulic stands, on which it will be possible to test bearings at a speed of 50,000 RPM, is the invention of the young innovator, Vladimir Barsukov. We gave him design assignments when he was still a manual machinist. Now Vladimir is about to graduate from the institute. He is one of our best designers."

By creating new, rugged, long-lived bearings, the engineers and designers are fighting determinedly for the title of Design Collective of Communist Labor. (Komsomol'skaya Pravda, 2 August 1960. Full translation)

Automation Delays in Bearing Plant

Our collective, inspired by the program for the further building of Communism which was adopted by the XXI Congress of the KPSS, is struggling for the successful realization of the seven-year-plan and for the transformation of the plant into a fully automated one. The planning of new fully and partially automated shops is proceeding at a rapid rate: This will ensure that 80 percent of the bearing production will be fully automatic. The potential of the plant will increase 75 percent by the end of the seven-year-plan (with a two-shift system). At the same time, the metal use co-efficient will be raised 35-40 percent, labor consumption will be lowered two to two and a half times, bearing life will be increased considerably, and production costs will be decreased, etc. Costs of reconstructing the plant will pay for themselves within three and a half years.

The work on the automated Cardan bearing shop is in full swing. It will go into production early in 1961.

This year our collective made a major contribution toward the use of new techniques and the (continued)

Bearing Plant Delays (continued)

perfection of technology. 125 units of existing equipment have been modernized. 29 new machine tools have been installed, including 21 that are fully automatic. 23 automatic control mechanisms and instruments have been incorporated.

Our plant collective together with 13 other enterprises in the capital initiated social review of the level of technological production processes. In many shops measures are being worked out which will insure the perfection of existing technological operations and the introduction of new ones.

The Department of Plant Reconstruction and Automation Technological Planning, which was formed in March of this year, has solved its first major task. By June 15th it worked out, together with the State Institute for the Planning of Automation of Industry, a plan for the reconstruction and complex automation of production. Right now the shop technical councils are discussing the plan for reconstruction of GPZ-1. This plan will be studied shortly by the plant's technical council.

Work on the automatic Cardan bearing shop has (continued)

Bearing Plant Delays (continued)

moved into a more serious phase. Everything that was planned on paper by the technicians and designers now will be tested, as they say, in metal.

However, we have high hopes on the machine tool builders. The Moscow Grinding Machine Plant (Director Kharitonov), for example, began the testing and perfection of one experimental flat-grinding and two automatic internal-grinding machines with a delay of six months. The factory "Stankoagregat" is supposed to produce 68 automatic internal-grinding machines patterned after the two experimental models, but it has not yet received these models from the Ministry of Agriculture. Comrade Kharitonov, at a meeting of the MGK of the KPSS, gave his word to get the experimental machines into operation in June, but he has not kept his word. The plant "Stankoagregat" (Director Sidyuk) is also running behind schedule. It has produced parts for only 15 machines of this type instead of 68.

As I have mentioned, the plan for plant reconstruction has been basically completed, but the State Institute for the Planning of Industrial Automation (Director G. Kazakov) is holding back progress in the energetics and transport sections of the plan for the automatic (continued).

Bearing Plant Delays (continued)

Cardan bearing shop. It is imperative that the institute, no later than 1 October, issue blue-prints for the first buildings, where the automatic shops will be situated. Otherwise, this will not be included in the 1961 Moscow City Construction schedule.

Anxiety is also caused by the fact that the Bearing Industry Central Design Bureau has not yet completely freed the premises for the new shop, although the deadline was long ago. This is holding up construction work and is threatening to delay completion of the automatic Cardan bearing shop. It must be said that eight automatic presses for this shop, which have arrived from Barnaul, have no place to be installed. Nor are the high-quality electric furnace plants, "Kalibr" and others, fulfilling their obligations. We hope that the Economic Council and planning organ will take proper measures.

This is all the more important because it is often necessary to face difficulties which might have been averted if the planning organs had acted more energetically. Examples are numerous. The USSR Gosplan, eight months after deciding to reconstruct our plant, finally (continued)

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Bearing Plant Delays (continued)

got around to including the construction of the automatic Cardan bearing shop into the State Plan for 1961. As far as the rest of the automatic shops are concerned, nothing has been done.

The Moscow City Economic Council also allows inadmissible delays. Right up to the present it has not approved the schedule for the planning, construction, and operation of automatic production lines.

The decisions of the July Plenum of the Central Committee of the CPSS obligate us to step up the pace of comprehensive automation and mechanization of production and of new methods and technology. There is no doubt that our collective in creative co-operation with the scientists, specialists, and machine-builders' collectives, will fulfil its obligation with honor. (Moskovskaya Pravda, 2 August 1960. Partial translation)

## INDUSTRIAL SAFETY

Infractions of Industrial Regulations

About two months ago K. Atamov, director of the Rostov Bearing Plant, triumphantly demonstrated his plant's first experimental Cardan bearings to the Economic Council, Oblast' Committee of the Machine Construction Workers' Union, and other organizations. None of the leaders of these organizations thought to inquire as to working conditions in the new shop.

A thunder clap, as they say, was heard on a clear day. It was discovered that Comrade Atamanov, with the knowledge of Comrade Abelev, head of the Economic Council's Agricultural Machine Construction Board, set up production in a shop which had not been passed by the commission, without technical inspection permission and without sanitary supervision. Upon arrival in Rostov, Comrade Khramtsov, head of the Labor Protection Department of the Central Committee of the Machine Construction Workers' Union, and (continued)

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Infractions of Industrial Regulations (continued)

after him a technical inspection group from the Oblast' Trade Union Council, went out to the spot. During this time thunder was literally pealing. Then the rainstorm passed. Almost a third of the new building no longer had a roof. On the floor of the Cardan bearing shop ran streams of water. The equipment and expensive machinery had been covered in a hap-hazard manner with tar-paper. However, water had poured onto the switch boxes and other electrical equipment. Ventilation in the shop is not yet in operation. The installation of the electric overhead cranes has not been completed. The shop's water-supply system is deficient. The locker-rooms have no equipment at all. The shower-rooms have no hot-and-cold shower heads. The Presidium of the Rostov Oblast' Committee of the Machine Construction Workers' Union discussed the matter of putting the bearing shop into production before the shop had been properly equipped and requested the Oblast' Council of Trade Unions to put a stop to all these infractions and to hold responsible the director of the plant, Comrade Atamanov, and the head of the Agricultural Machine Construction Board of the Economic Council, Comrade Abelev. (continued)

Infractions of Industrial Regulations (continued)

The leaders of the Rostov Economic Council should draw from this the necessary lessons. As late as in March of this year the Presidium of the All-Union Central Council of Trade Unions announced in a resolution that this particular Economic Council was not paying proper attention to the protection of labor and to the provision of factory workers with healthy and pleasant working conditions. (Trud, 1 June 1960. Full translation)

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MISCELLANEOUSNew Industrial Enterprises in Armenia

Construction of the plant "Strommashina" is underway near the city of Leninakan (Armenian SSR). This is the first enterprise of its kind in the Trans-Caucasus and will produce stone-cutting and stone-processing machinery. Plants for the manufacture of vacuum-electric furnaces of a semi-industrial type will soon begin production in the same city. These plants will also produce high-quality machinery and electric meters for non-industrial use.

The production of small synchronous electric motors is being set up in the rayon center of Stepanavan, and in the city of Oktemberyan a plant for the production of magnetic amplifiers is being equipped. (Bakinskiy Rabochiy, 28 July 1960. Full translation)

Tractor Parts Production

Setting up new production lines, the workers at the Alma-Ata Mechanical-Casting Plant fulfilled the seven-month program ahead of schedule and sent to the virgin-land sovkhozes of Kazakhstan additional tens of thousands of pistons and bushings for DT-54 tractors and more than 100 thousand wrist-pins for GAZ-51 trucks.

This year the plant over-fulfilled its production plan for the republic's agricultural needs by nearly four million rubles. (Ekonomicheskaya Gazeta, 2 August 1960. Full translation)

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