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SURVEY OF SOVIET HEAVY INDUSTRY (6)

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## SURVEY OF SOVIET HEAVY INDUSTRY (6)

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 Machine Tool

The designers of the Vilnyus Zhalgiris Machine Tool Plant have created a new broadly universal milling machine. This model is distinguished by high operational qualities and will find broad application at the country's machine and instrument plants.

The new machine tool is being successfully demonstrated at the Exhibit of the Achievements of Soviet National Economy. Recently the Main Exhibit Committee for the creation of an economical milling machine awarded the plant collective a diploma of the second degree. Chief Designer Comrade Novikov and Designer Comrade Bol'shakov were awarded major silver medals, and the plant's chief engineer, Comrade Rusak, the Chief Technologist, Comrade Radomysel'skiy, and Leading Technologist, Comrade Shimkus, were awarded minor silver medals. (Sovetskaya Litva, 5 July 1960. Full translation).

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### State Loans for Modernization of Machinery

Four complex mechanized enterprises and 217 complex mechanized shops and sections were organized in the first year and a half of the Seven-year Plan, and 40 automated, semi-automated, rotary and complex mechanized lines, 216 conveyor assembly lines went into operation. More than 25,000 units of technological equipment were modernized in this period.

Many enterprises used short-term loans from the State Bank for this purpose. In two years, enterprises have received more than 240 million rubles in loans for new equipment. This has caused a savings of 305 million rubles. We must confess, however, that the heads of some enterprises underestimate this valuable reserve for speeding up the pace of technological progress and through this are impeding the growth of mechanization and automation. (Leninskoye Znamya, 13 July 1960. Partial translation).

### Semi-Automated Locomotive Diesel Lines

One more innovation has come off the assembly stand of the gigantic machine tool plant, the Leningrad Plant imeni Sverdlov. LR-159 is the designation given by the specialists to the semi-automated machine for the cutting of connecting rods for diesel locomotives. This is the latest, the seventh, model of machine tools for the production lines of the Khar'kov and Kolomna Locomotive Plants. Now the powerful diesel engines for the locomotives will be completely machined on semi-automated special equipment. Its application will raise productivity five or six times.

The new component, like previous models, is equipped with mechanisms for the exact placement of the six-ton parts on the flat surface of the machine tool. The subsequent machining of the blank is done automatically. The cutting of openings in such large connecting rods as for a locomotive is done with an accuracy up to 1/100 of a millimetre.

All the semi-automated models for the production

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### Semi-Automated Locomotive Diesel Lines (cont'd)

of diesel engines for locomotives were developed in the design bureau of the plant. The development of this equipment has enabled mass production to begin on main-line locomotives in a very short time. (Ekonomicheskaya Gazeta, 14 July 1960. Full translation).

### New Machine Tools

The machine tool builders of Belorussia met the July Plenum of the Central Committee of the CPSU with new, remarkable victories for labor. In the second year of the Seven-year Plan, production was started on about 150 new models of universal component and special machine tools and six automated lines at the machine tool plants of Minsk, Vitebsk, and Gomel'.

Great interest is being aroused by the milling-cutting automatic tool with programmed control produced at the Minsk Machine Tool Plant imeni S. M. Kirov. It is for cutting ferrous metals and works according to a given program. One operator can handle up to ten of these tools.

Recently a vertical broaching dual position semi-automatic machine was produced at the same plant. The productivity of the new tool is twice that of the old model and it weighs 30% less.

The Gomel' machine tool builders filled an order by the Leningrad Metal Works for a semi-automatic tool

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### New Machine Tools (cont'd)

with a full programmed machining cycle. The tool is equipped with a hydrotracking system, a photo-electric activator, and electronic elements. The tool is used for steam turbine blade profile copy planing.

Competing for a worthy welcome to the July Plenum of the CC of the CPSU, the machine tool builders constructed six automated lines and started production on semi-automatic lathes and more than 90 models of component machine tools in the first six months of this year. The machine tool builders of Belorussia will present the country with dozens of new models of high productivity machine tools and automated lines by the end of the year. (Ekonomicheskaya Gazeta, 14 July 1960. Full translation).

Removing Obsolete Machinery

The enterprises of the Moscow Oblast' Economic Rayon are increasing the production of new commodities. At the same time, obsolete items are being removed from the market. 80 new products have been developed at the machine construction plants since the beginning of the year. The collective of the Kolomna Heavy Machine Construction Plant is coping with the task especially successfully. Production on the new aggregate 1532T will begin instead of the Model 1-M-532 vertical boring and turning machine.

The Yegor'yevskiy "Komsomolets" Machine Tool Plant is starting production on new universal tooth milling tools for cutting cylindrical and worm-drive wheels with a diameter of 800 millimetres. The new tool has many advantages over the old model. According to the plan for the technological re-equipment of industry, all obsolete machinery will be removed from production in the next few years. It will be replaced by new machinery,

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Removing Obsolete Machinery (cont'd)

which will correspond to the achievements and level of modern technology. (Leninskoye Znamya, 15 July 1960. Full translation).

### New Machinery

New equipment has been installed at the Kishinev Truck Repair Plant. A press-shears, flat grinding, broaching, and mortising tools as well as other machinery have gone into operation. At the same time, old machinery is being modernized, and valuable innovations are being incorporated into production. the RPM rate was increased on lathes by means of a transmission mechanism. Nine employee suggestions implemented by the plant have reduced labor-consuming processes and have led to a savings of more than 180,000 rubles. (Sovetskaya Moldaviya, 28 July 1960. Full translation).

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### Rotary Production Line

The Plant imeni Likhachev's first automated rotary production line will be installed in the armature shop. It will be used for the production of cover nuts for joining the tubing used in our trucks. If we were to machine these nuts on the previous equipment, it would require 22 persons and 1,000 square metres of productive space. Only four persons per shift will work on the rotary line, and it will occupy only 140 square metres.

The new process increases the productivity of a worker almost four times. Besides this significant increase in labor productivity, use of the rotary line will make it possible to shift from the present mechanical machining methods for cover nuts by automatic turning onto cold pressing. This will save hundreds of tons of steel per year.

We should also take the fact into consideration that, as comparative figures show, the production of rotary lines is considerably cheaper than the acquisition of conventional equipment for the same program. In part-

### Rotary Production Line (cont'd)

icular, the cost of the automatic machine tools for the cover nut line in the armature shop is twice that of the rotary line.

We must take this into consideration. That is why it is so important to consider the possibility of the broad use of rotary lines in those areas of production where they are economically feasible, in reference to the planning of new technological processes connected with plant reconstruction. (Moskovskaya Pravda, 28 July 1960. Partial translation).

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### Machinery Improvements

Great work has been accomplished lately at the industrial plants of the Brest Oblast'. Startling changes have taken place at the Baranovich Truck Component Plant. The collective has changed over from the repair of various engines to the production of components for MAZ trucks. A group of Baranovich specialists has had an advanced training course at the Minsk Truck Plant. Other workers at the plant have quickly set up areas for new equipment, installed special equipment for the addition of subsidiary machine tools, and extended the galvanic and thermal sections as well as the compressor section for the production of compressed air. About 100 units of metal working equipment and 60 new machine tools with special rapid-operation devices were put into operation within a short period of time. The plant has begun production on hydraulic jacks and truck shock absorbers.

The plant collective is determinedly laboring over the perfection of technological processes. Metal blanks were formerly heated in compartment kilns for



### Machinery Improvements (cont'd)

hardening, but now they are heated by high frequency electric current. a foreign-made machine tool formerly was used for the machining of shock absorber taps. It was underpowered, and the blanks had to be machined on universal machine tools in order to satisfy the needs of the section. This meant a waste of much time and money. Innovators adapted a domestically produced machine tool for the machining of shock absorber taps. This has cut the process in half.

As a result of all these measures, total production rose 24.0% in comparison with last year, and the average production per worker almost doubled. (Sovetskaya Belorussiya, 9 August 1960. Full translation).

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### New Aggregate Machine Tools

The machine tool units produced by the Moscow Plant imeni Ordzhonikidze are comprised of 85-90% standardized components. The July Plenum of the Central Committee of the CPSU recommended that party organizations disseminate this valuable experience of the Moscow machine tool builders.

Special machine tool units are finding broader and broader application at machinery construction plants. Several blanks are machined on them at once by a large number of tools and from various sides, all on an automatic cycle. Thanks to this, high labor productivity is being achieved. The job of the worker comes down to a mere placing of the blank and removal of the ready part. These machine tools are replacing universal equipment which is operated by highly qualified workers.

Until recently, much time was spent on the production of aggregate machine tools, and their cost was high. The Special Design Bureau No 1 of the Moscow City Sovnarkhoz worked out a scale of standardized and unified

New Aggregate Machine Tools (cont'd)

components for aggregate machine tools. The power components which transmit the work movement to the tool or the blank being machined are the basic ones. Together with other standardized components (bed plates, top surface, revolving drums, etc.), they make it possible to group equipment of different technological uses, such as drilling, counterboring, threading, cutting and milling.

The SDB-1 has worked out about 500 separate standardized components. Their use has shortened the time spent on the planning and development of aggregate machine tools, the organization of their mass-production, and has decreased their cost. Thanks to the comprehensive standardization of components, it is possible to regroup them into new aggregates upon a change in design of the part to be machined. The use of one of these machine tools will save an average of 100,000 rubles a year.

Standardized components produced at the Moscow "Spetsstanok", "Stankoagregat", "Kalibr" Plants, and Plant imeni Kalinin as well as at the Appliance Plant

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New Aggregate Machine Tools (cont'd)

and a few peripheral plants are being used with equal success in the creation of automated production lines. The aggregate machine tools and these production lines are designed for modern cutting rates and will pay for themselves within a year, in some cases even sooner. Thus, equipment made from standardized components is a technological improvement and highly effective from the standpoint of economy. (Vechernyaya Moskva, 27 July 1960. Full translation).

## AUTOMOTIVE INDUSTRY

### New Bus

Various models of new vehicles are on exhibit in front of the Machinery Pavilion of the Exhibition of the Achievements of Soviet National Economy in Moscow. One's attention is drawn by the LAZ-697 highway cruiser bus. It is equipped with well-upholstered seats, and the roof is covered with a fabric covering, which can be removed for better ventilation and improved viewing. (Sovet-Skaya Litva, 3 August 1960. Full translation).

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### Ultra-Compact Car Production

The day is approaching when the first ultra-compact "Zaporozhets" automobiles will come off the assembly line of the Zaporozh'ye "Kommunar" Plant. The collectives of many of the country's plants are participating in the creation of the "Zaporozhets". "The honor of furnishing the future ultra-compact with its many rubber parts", writes V. Gurskiy, "will fall to the Kursk Rubber Industrial Products Plant. They are coping with their task well. The foam rubber backs and seats produced by them have won high praise from automobile builders. The plant has now begun mass production on these items."

There are also many critical letters in Trud's mail. N. Danilov, chairman of the workers' committee of the Staro-Minsk grain sovkhos (Krasnodar Kray), is dissatisfied with the quality of the production of the Pavlovsk Bus Plant. The PAZ-651 bus which the sovkhos received from the plant this May has already broken down due to factory imperfections. (Trud, 9 August 1960. Partial translation).

Trucks for Cotton Harvest

A few days ago a train carrying 80 ZIL-585 trucks left the station at Mytishchi (Moscow Obl.) for Chardzhou. The Mytishchi machine builders shipped these trucks off ahead of schedule as a token of friendship to the cotton growers of Turkmenia. The Mytishchi plant is producing an additional 70 ZIL-585 trucks for the republic's cotton growing regions.

The Gor'kiy Truck Plant is shipping 450 trucks to Turkmenia for the needs of the cotton-collecting campaign. The first large shipment of 73 GAZ-51 trucks, sent out by the plant ahead of schedule, has already arrived in the cotton areas. (Turkmenskaya Iskra, 9 August 1960. Full translation).

Compact Pickup

The test model of the compact KMZ-2 truck has been constructed at the Kiev Motorcycle Plant. It weighs 530 kilograms, carries half a ton, and has a top speed of 80 kilometres per hour. This machine is being shown at the Exhibition of the Achievements of Science and Technology of the Ukraine. (Bakinskiy Rabochiy, 11 August 1960. Full translation).

MISCELLANEOUS

Defective Bicycles

A year ago I read an article in Sovetskaya Rossiya, claiming that the Penza Bicycle Plant was producing poor quality bikes. It seems that the Penza Sovnarkhoz and the plant directors were going to take measures to improve their products.

Not long ago I bought a bicycle from this plant in the Murom /Vladimir Obl./ department store. I will say frankly that I didn't want a Penza bike, but there were no others. In the bike's papers was the date of production: 2 June 1960. "Well," I thought, "by now they are surely producing good bikes." But my hopes proved to be false.

When I got home and tried to adjust the bike, I saw that it was impossible to ride it. It was impossible to tighten the seat, which freely swung around the entire 360 degrees. The nuts, not screwing on, freely slipped

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Defective Bicycles (cont'd)

along the thread of the adjustment bolt.

I am not the only one to get taken. My neighbor, V. Sokolov, had bought one of these bikes somewhat earlier. He is also having a hard time with it. He can't tighten the handlebar. Many of us in Murom have bought Penza bicycles, and everyone has something negative to say about it. Isn't it possible to make the plant directors stop producing defective bicycles? After all, this is hurting the working man's pocketbook. (Sovetskaya Rossiya, 9 August 1960. Full translation).

### Liquid Metal Pumps

Pumps for the transfer of metals in a liquid state have been developed by the Institute of Physics of the Latvian SSR Academy of Sciences. They operate on a completely new electromagnetic principle. The pump has a pipe of ceramic material or stainless steel and has no valves or other moving parts. The metal is pumped by a magnetic field. Upon creation of a magnetic field moving along the pipe, the liquid metal begins to move. The use of electromagnetic pumps will improve the operations of foundries. (Sovetskaya Belorussiya, 9 August 1960. Full translation).

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### Production Specialization

The development of specialization and cooperation as the economically most efficient forms of production organization is one of the necessary conditions for the rapid growth of the productivity of social labor. The economic councils and planning organs have done considerable work lately on the concentration of the various types of production, the liquidation of small, inefficient shops and plant sections, and the ordering and correct distribution of commodity production as well as the improvement of economic ties.

In the Moscow (city) and Leningrad Economic Administrative Rayons, more than 200 small shops and sections doing casting, forging, and producing bolts, nails, etc., have been shut down. The more than 60,000 square metres of space freed through this is being used for increasing production and developing the production of new items. Specialization of the production of the SK-3 self-propelled combine in the Rostov and Zaporozh'ye Economic Rayons has caused a production increase of tens

Production Specialization (cont'd)

of thousands of units per year, without the need of constructing additional facilities.

The Odessa Plant imeni Yanvar'skogo Vosstaniya specializes in the construction of self-propelled cranes. The production of crane-carrying vehicles has been stopped and transferred to the Ivanovo Sovnarkhoz. Thanks to this, the plant's total production has increased 20%. The Bryansk Sovnarkhoz has sharply curtailed cooperative deliveries of cast-, forge-, punch-processed and other products. There is a yearly savings on transport costs of about four million rubles.

Much has been done, but the level of specialization in our industry is still far from modern demands. The possibilities in further improvement of specialization and cooperation are clearly not being used to their fullest extent by the planning organs, sovnarkhozes, and enterprises.

First of all we should mention that the instructions of the June (1959) Plenum of the Central Committee

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Production Specialization (cont'd)

of the CPSU regarding the development of the Seven-year Plan for specialization in industry and construction work have not yet been carried out. The production index of many specialized enterprises in the leading branches of industry have not yet been defined. In many cases plant specialization in economic rayons is worsened because of an increased line of products. This happened at the Metal Works in Leningrad and at the Milling Machine Works in Gor'kiy, as well as at other plants.

The creation of various types of machines, mechanisms, and instruments from a narrow assortment of standardized and unified parts and components is an important characteristic of technological progress. Therefore, parts specialization acquires a particularly great significance. However, the specialized plants which produce semi-finished goods and widely used parts and components, which are essential for the development of inter-rayon and inter-branch cooperation, are being organized very slowly. This also holds for the creation of assembly plants, working on a basis of broad cooperation with allied enterprises. The

Production Specialization (cont'd)

condition of the centralization and specialization of the production of technological equipment, means of mechanization and automation leaves much to be desired.

We have learned in practice that consistent and profound specialization is possible only if the problems of the given branch of industry as a whole and of each economic rayon are considered. Consequently, it is imperative to increase sharply the role of republican and central organs in coordination with the plans of the sov-narkhozes.

Measures concerning individual plants in one or another economic rayon usually affect analogous plants in other rayons. They too must correspond to the technological policy in a given branch of industry. Therefore, successful specialization within the confines of one rayon is possible only under the condition that it emanates from the general plan of specialization for that branch of industry.

The above-mentioned specialization in compressor

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Production Specialization (cont'd)

and refrigeration equipment production in the Moscow (city) Economic Rayon can be used as an example. This problem was successfully solved by the sov-narkhoz in that it considered the peculiarities in the specialization of that branch of industry in the Union as a whole.

Coordination of the activities of the sov-narkhozes in the specialization of production of semi-finished products, parts and components of mass application is even more imperative. Without coordination the interests of one economic rayon do not take into consideration the interests of the neighboring rayons. As a result, such a scale of specialized production arises that the potentials of highly effective equipment and up-to-the-minute technological processes are not taken advantage of.

Last year the Odessa Sov-narkhoz pledged to organize production in forty specialties: iron and steel casting, forging, punching, electrodes, nuts and bolts, cogged wheels, etc. during the Five-year Plan. This pledge is being realized. The production of nut and bolts, etc.,



Production Specialization (cont'd)

has been concentrated at the Plant imeni Ivanova and the Plant imeni Oktyabr'skoy Revolutsii. The first plant produces them up to eight millimetres, and the second plant -- up to 20-24 millimetres.

There is no doubt that such specialization is, in general, a good thing. On a national economic scale, however, it cannot be called entirely economical, since highly specialized production can be organized at a larger volume. For example, according to the figures of the "Giprometiz" Institute, the annual production of fastening devices in a standard shop furnished with modern equipment is 40,000 tons. Consequently, we must create specialized shops for the production of bolts and nails, etc., to satisfy the needs not of one, but of several economic rayons.

The slow pace of standardization, normalization and unification of parts, components and products is seriously braking the specialization of industry. The large number of types and sizes, even of widely used

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Production Specialization (cont'd)

products, is hindering the organization of centralized production. For example, more than 750 type sizes of fastening devices are used in the radio industry, and over 600 different sizes of various types of screws are used in the communications industry. The situation is about the same in the instrument industry, where screws of 19 types of design are used, as well as nuts of 17 types and rivets of 10 types.

The number of fastening device types and sizes could be decreased considerably by broadening the specialization of their production. According to "Giprometiz" figures, the number of bolt types could be decreased by 37, and the number of different sizes could be decreased by 40% without disadvantage to the consumer.

Economic interests stubbornly demand a strengthening of economic stimuli for the development of specialization and cooperation. For this purpose, the following are imperative: in the first place, an increase in the interest not only of the workers in the plant but of the

Production Specialization (cont'd)

sovnarkhozes; in the second place, a standardization of prices for the products of specialized plants and on those products which are produced cooperatively.

Precise organizational form must be given to all work on the specialization of production. First of all, cells should be created in all planning links, which would be concerned with specialization, keeping in mind that the latter has a dual nature: branch and inter-branch. Facts indicate that specialization departments and groups in several republics have been dissolved in past months.

In our opinion, it is logical to earmark special funds for work on specialization in the over-all plans for capital investment. In conclusion, it is about time that the USSR PSU get state accounting to a condition which would reflect the present state and dynamics of the development of specialization and cooperation in industry. (Ekonomicheskaya Gazeta, 9 July 1960. Full translation).

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