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SURVEY OF SOVIET HEAVY INDUSTRY (13)

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SURVEY OF SOVIET HEAVY INDUSTRY (13)

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 and other publications. The items contained in this report fall under the broad categories listed below in the table of contents.

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METALLURGY AND MINING

Nickel Welding

The collective of the Berdichevskiy "Progress" Machinery Plant met great difficulty in producing chemical equipment from nickel. Welding was in particularly poor shape. The seams were porous and contained cracks. The colleagues of the Chair of Welding of the Zhdanovskiy Metallurgical Institute aided the plant in mastering automatic and semi-automatic nickel welding under a layer of ceramic flux.

A teacher at the institute, Engineer G. Kuz'min, helped cope with the flux preparation right at the plant and taught the welders the new technological process. At many of the country's industrial enterprises nickel welding is still being done by the manual argon-arc method, by means of which it is impossible to attain high productivity and high quality welding.

The new method of nickel electro-welding increases productivity two to three times in comparison with the manual argon-arc method. This method allows the achievement

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Nickel Welding (cont'd)

of high quality weld seams. The plant collective was the first in the Soviet Union to begin industrial use of automatic and semi-automatic nickel welding under a layer of ceramic flux. The cooperation on the part of scientists and production workers was quite useful. The plant has shipped nickel equipment to chemical enterprises, and the scientists had the possibility of assimilating new, progressive methods of welding under production conditions, together with production workers. Right now the institute laboratories are developing a method of nickel welding with low-carbon content steel, which will subsequently be assimilated at the plant. (Ekonomicheskaya Gazeta, 24 November 1960. Full translation)

New Ladle

The Orsk Yuzhuralmash Plant has made a 330-ton capacity pouring ladle for a metallurgical enterprise in Krivoy Rog. It is of a welded type and is the largest ladle ever made in the USSR. (Bakinskiy Rabochiy, 2 November 1960)

MACHINE TOOLS

Press with Television

At the Voronezh Forge-press Plant imeni M. I. Kalinin, a model P-992 press was recently completed and shipped to the consumer. It is designed for testing various designs. One of its component parts is an industrial television unit. It makes it possible to observe the press in operation constantly, from any convenient spot and at any distance, a fact which is very important. The uninterrupted observation makes it possible to obtain more complete data on deformations taking place during the process of testing. Distance controls maintain safe work conditions for operating personnel.

Another part is also characteristic. The press's cylinders are without flanged packing, as customary, but ground-in. This makes it possible to determine the actual force being applied on the design being tested. The speed of movement of the press's slide-block is regulated, which makes it possible to conduct tests on designs made up of the most varied materials, according to mechanical properties. In order to place the objects to be tested under

Press with Television (cont'd)

the press a special mechanically driven cart is provided. The press has a force of 800 tons. (Ekonomicheskaya Gazeta, 20 November 1960. Full translation)

CONSTRUCTION AND EARTH MOVING

Excavator Production

The Tallin Excavator Plant and the Paydeskiy Road-building Machinery Plant will specialize in the production of construction and road-building machinery. Basic production and the production of spare parts will increase by more than two times in 1965 compared with 1960.

The production of excavators for land reclamation purposes and light autograders will increase significantly. A special design bureau and experimental base will be set up at the Tallin Excavator Plant for developing and testing new ideas in construction and road-building machinery. (Ekonomicheskaya Gazeta, 12 November 1960. Partial translation)

Electric Excavators

The Kovrov Excavator Plant has produced new E-7515 electric excavators for work underground. They are highly maneuverable and highly productive. (Ekonomicheskaya Gazeta, 22 November 1960)

New Scraper

The Minsk Udarnik Plant has recently made and tested an experimental D-457 scraper. (Sovetskaya Belorussiya, 12 November 1960)

Excavators for Cuba

The Tashkent Excavator Plant has received an order for 10 E-352 excavators for Cuba. (Trud, 12 November 1960)

Aswan Dam Equipment

The Novosibirsk Trud Machinery Plant will produce the equipment for the construction of the Aswan Dam in the United Arab Republic. (Trud, 16 November 1960)

Canal-lining Machine

The Special Design Bureau for Irrigation of the Uzbek Sovnarkhoz has developed the UDA self-propelled machine for lining canal beds with concrete. It can cover 100 square meters of canal area with a 10-cm layer of concrete in one hour. The first Soviet-made machine of this type has been sent to the Fergana Valley for testing. (Moskovskaya Pravda, 27 November 1960)

ELECTRICAL POWER EQUIPMENT

First Lithuanian Turbine

The machinery builders of the Pergale Plant (Kaunas) have finished building the first turbine created by Lithuanian designers. Until this turbine was produced the enterprise copied turbines on the model of the Leningrad and Kaluga plants. The first production model of the Lithuanian turbine is designed for the Sterlitamakskiy Chemical Plant and heralds the beginning of production at the Kaunas enterprise of a series of steam turbines for the heavy chemical industry. (Sovetskaya Kirgiziya, 25 November 1960. Full translation)

New Steam Turbine

At the Leningrad Metal Plant the VK-100-5 steam turbine, with a capacity of 100,000 kw, has been removed from production and replaced by the VK-100-6 turbine of the same capacity. The specific heat expenditure in the new turbine is less than 6%. In the first quarter of 1961 43 steam turbines with a capacity of 100,000 kw apiece will be modernized. These turbines are now in operation at various electric power stations. This will save about 26 million rubles per year.

At the Izhorskiy Plant a centralized base will be set up for producing large-size parts with the use of various types of welding. This will replace many thousand tons of all-cast and all-forged parts with welded parts.

During 1961-1964 the smelters, rolling mills, pipe drawing mills and press shops at the Kirovskiy, Izhorskiy, Nevskiy and other plants will be reconstructed. This will make it possible to increase labor productivity by at least 50%, increase steel smelting, increase rolling production and forging, which will insure a solid metallurgical base for Leningrad machinery construction. (Ekonomicheskaya Gazeta, 10 November 1960. Partial translation)

New Turbine

The Kaunas Pyargale Turbine Plant is developing plans for an R-2.4-14/2.5 turbine. (Sovetskaya Litva, 26 November 1960)

Nuclear Steam Turbine

The Khar'kov Turbine Plant imeni Kirov has recently completed the first steam turbine for the Novo-Voronezhskaya Atomic Electric Power Station. It has a capacity of 70,000 kw. (Pravda, 29 December 1960)

HOISTING AND LOADING MECHANISMS

Faulty Planning in Industry

As an example of incorrect economic organizational ties we can mention the production of travelling cranes and auxiliary carriages at the Tashkent Pod"yemnik Plant. 20 industrial enterprises of Moscow, Leningrad, the Latvian SSR, Perm', Izhevsk, Khar'kov and Tomsk deliver to this plant (a general supplier) cooperatively various electrotechnical and other equipment, comprising 35-40% of the value of the finished products. The Central Asian Republics use no more than 3-5% of the total production of the Pod"yemnik Plant. There is every reason in the world to question our central planning organs! Is not the main plant situated too far away from the basic suppliers of the equipment to be assembled and from the consumers of the finished products? (Ekonomicheskaya Gazeta, 20 November 1960. Partial translation)

Universal Crane

Various machines for the electrification of railroads are built by the collective of the Uglichskiy Repair-Mechanical Plant. Series production has just begun on the new KTS-5-3 crane, which has a load capacity of two tons. The crane is designed for setting up power transmission poles as well as telephone poles, but it can also be used as an all-purpose hoisting machine for construction, assembly, loading-unloading and other operations.

Differing from the cranes formerly produced by the plant, the new crane is electrically driven. Its own generator can be used as an electric power station for electric welding, illumination, etc. The machine is operated from a special cab or from a mobile console. Caterpillar treads assure firmness and stability, maneuverability and operational reliability.

The Uglichskaya newcomer has passed tests under severe field conditions. Test machines of this type have worked on the construction of the Abakhan -Tayshet Railroad. They helped in constructing apartment houses in Murmansk, Kazakhstan, and electrified the railroad by Khar'kov. Although the crane has been highly praised everywhere,

Universal Crane (cont'd)

the engineers of the plant are already thinking of ways to perfect it and make it universal in the full sense of the word. A group of innovators proposed in particular to supplement the design with a telescopic boom. This proposal was accepted. (Ekonomicheskaya Gazeta, 24 November 1960. Full translation)

Floating Crane

The Krasnyye Barrikady Shipyards in Astrakhanskaya Oblast has produced a 5-ton capacity floating crane with a boom length of 30 meters for the Kremenchugskaya GES. (Sovetskaya Belorussiya, 30 November 1960)

CHEMICAL INDUSTRY

Chemical Equipment Production

In the Penzenskiy Economic Rayon favorable conditions have been formed for the new rapid development of exact instrument construction, multi-branch machine construction and, most of all, the chemical and textile industries. It is enough to say that hundreds of millions of rubles are being spent for the construction and reconstruction of chemical machinery enterprises -- Penzkhimmash, Kuzkhimmash, the Penza and Bessonovskiy Compressor Plants as well as the First and Second Fittings Plants. This creates all the necessary conditions in order for the general volume of production to increase at least four times for these enterprises in the Seven Year Plan. During eight months of the current year alone the production of equipment for the chemical industry increased 23% in comparison with the same period last year.

Many measures have been taken at chemical machinery

Chemical Equipment Production (cont'd)

plants which have allowed many production sectors to be mechanized, and several production lines and conveyors have been introduced for producing parts and components of chemical equipment, compressors and fittings. The total savings from the introduction of technological measures in 1959 was greater than one and one half million rubles, and for the nine months of the current year -- more than a million rubles.

Among the chemical machinery enterprises of the economic rayon, a leading role is played by the Penzkhimmash Plant. In 1964 three and one half times as much chemical equipment will be produced as at present. Right now, preparing for the fulfillment of the increased plan for next year, the plant collective has received a new production building, a block of auxiliary shops, and a woodworking shop, all of which has increased plant space by 27%. The rearranging of sectors and the efficient placing of equipment as well as the assembly line production and the creation of a separate shop for producing standardized components will make it possible as early as 1961 to produce 37.5% more chemical equipment than this year.

Chemical Equipment Production (cont'd)

Recently much has been done at the plant for organizing and increasing technical services. The design and technological section and the plant laboratories have already gathered some experience in the operational, skilled decision of complex technical problems. In coping with the production of particularly complicated chemical equipment, the plant maintains close contact with the Electric Welding Institute imeni Ye. O. Paton, the chemical machinery construction scientific research institute and other scientific research organizations. All of this makes it possible to perfect production and uninterruptedly assimilate all new types of products. In 1960 the plant began to produce several pieces of equipment for the chemical industry which are comparable to any in the world in technical economic parameters. Reactors are being produced for plastics production with specially designed elastic jackets which support changing loads under high pressures and temperatures, tubular heat exchangers for division of gases, working under conditions of extreme cold, and autoclaves for the production of polimer resins, operating under a pressure

Chemical Equipment Production (cont'd)

of more than 100 atmospheres and a temperature of plus 350 degrees Centigrade. We must, however, admit that Penzkhimmash still has its shortcomings. The established schedule for producing machinery and equipment for enterprises of the heavy chemical industry is not maintained in all the shops. Much must be done in order to improve equipment quality. It is true that in some cases the delays in delivery are explained by unsatisfactory planning of cooperative deliveries and material-technical provision. In respect to this the plant requires real help from planning organs. In general the experience of the Penzkhimmash Plant can serve as an example of how production capacity is sometimes used incorrectly. One of the decisive factors in increasing production and improving economic indices is of course strict specialization, taking into consideration the particular features of the production areas, equipment, hoist-transport facilities, etc.

What is happening at Penzkhimmash? According to plan it specializes in the production of complex multi-ton equipment, but year after year the central planning organs load down the enterprise with a large variety of small-size

Chemical Equipment Production (cont'd)

light-weight equipment, a fact which leads to the little effective use of production space and equipment. There is one more problem which demands rapid solution. This is the problem of the necessity of standardizing chemical equipment components and parts. Chemical equipment design up to the present is done by organizations of various departments. As a result there are too many different types of equipment, in which even components of a similar purpose are different in construction. In our opinion it is about time to introduce and strictly observe a system whereby all technical designs for equipment which are drawn up by organizations not part of the chemical machinery construction system should be reworked with the aim of using standardized components. As for the Penza group of chemical machinery plants, they should be served for this purpose by our branch of the Chemical Machinery Construction Scientific Research Institute, but first of all we should expand this institute and reinforce the cadres. (Ekonomicheskaya Gazeta, 5 November 1960. Partial translation)

Watering Bowls

The Pavlograd Khimmash Plant has produced only 3,000 automatic watering bowls instead of 15,000 units planned for agricultural needs. (Trud, 22 November 1960)

Oxygen Equipment

The Kirovakan Chemical Combine received 850,000 rubles' worth of equipment from the Moscow Oxygen Machinery Plant, and kept it for six months. Not having funds to pay for it, the combine was forced to ship the equipment to an enterprise in Irkutsk which had the funds to pay for it. (Ekonomicheskaya Gazeta, 25 November 1960)

PUMPS AND COMPRESSORS

Mobile Compressors

The Moscow Borets Plant is organizing the production of new 320-hp mobile compressor installations. They are designed for testing oil and gas mains with compressed air. (Moskovskaya Pravda, 17 November 1960)

LUMBER INDUSTRY

Log Reclaimer

The Maymak Machinery Plant has made a floating barge-type vessel for recovering sunken logs. It is equipped with a crane and a grab bucket. (Sovetskaya Rossiya, 23 November 1960)

MISCELLANEOUS

Pressure-cast Engines

The Petropavlovsk Small Displacement Engine Plant is using molds for pressure casting of 2SD engines. (Kazakhstanskaya Pravda, 30 November 1960)

Estonian Plants

The Estonian Sovnarkhoz is organizing specialized plants which will be subordinate to the large enterprises of the Estonian SSR. The Tallin Excavator and Punane Ret Instrument Making plants already have such satellite plants which will permit speedy increase in the production of machines and instruments. (Ekonomicheskaya Gazeta, 24 November 1960)

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