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DEVELOPMENTS IN USSR MACHINE TOOL BUILDING INDUSTRY

MINISTER OUTLINES MEANS OF ATTAINING 1955 GOAL -- Moscow, Pravda, 17 Dec 52

[The following are excerpts from an article written by A. Kostoyusov, Minister of Machine Tool Building USSR.]

The machine tool building industry must design, perfect, and put into series production approximately 700 new type sizes of machine tools and 150 new types of presses and forging machines during the Fifth Five-Year Plan.

Among the machine tools being perfected, the first place is occupied by heavy-duty, heavy, and unique machine tools (34 percent of all machine tools being perfected), and machine tools of increased precision. A considerable development in the production of automatic machine tools must also be assured to the extent that they will comprise 33 percent of the total machine tool output by the end of the Fifth Five-Year Plan. In the production of presses and forging machines, the proportion of automatics and semiautomatics by the end of this period must be 32 percent.

Several hundred new machine tools and machines have already been perfected by plants of the Ministry of Machine Tool Building in the first 2 years of the new Five-Year Plan. For example, the Kramatorsk Heavy Machine Tool Building Plant, with the aid of the Moscow Krasnyy Proletariy Plant, has set up the production of a number of heavy machine tools, the most powerful of which are intended for machining parts up to 4 meters in diameter and up to 32 meters long. In the past 2 years, the Kolonna Heavy Machine Tool Building Plant has set up production of several types of vertical boring mills on which parts up to 5 meters in diameter can be machined. At present, the plant is engaged in the erection of an even more powerful vertical boring mill which will machine parts 10-12 meters in diameter. The Novosibirsk Tyazhstankogidropress Plant has mastered the production of heavy planing machines. The table of the largest of these machines permits machining parts 8 meters long and 3 meters wide.

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To fulfill assignments indicated by the new plan, all reserves at plants must be fully utilized and shortcomings must be eliminated. Some enterprises of the ministry are not meeting their obligations. Among the lagging plants are the Kuybyshev Srednevolzhskiy Machine Tool, Chelyabinsk Tool, and Dmitrov Milling Machine Plants.

A large number of enterprises have not achieved rhythmic operation. For example, last-minute speed-up flourishes at the Moscow Plant imeni Ordzhonikidze and Internal Grinding Machine Plant. This situation is due mainly to the fact that production planning is not subjected to the requirements of rhythmic operation. Too frequently, production of parts is started, with no consideration being given to the requirements of the technological cycle, but only to the availability of metal, castings, or forgings.

In the organization of rhythmic operation, machine tool builders must be helped by other ministries. Enterprises of the Ministries of the Automobile and Tractor Industry and of the Electrical Industry must improve the supply of bearings, motors, and electrical equipment. The same is true of the Ministry of Heavy Machine Building. Many plants of this ministry delay the filling of cooperative orders, and are late in supplying machine tool builders with large castings and forgings.

Great improvements must also be made in the technology of machine tool building. The technology at many foundries and forging shops of machine-tool building enterprises is at a very low level.

An analysis has revealed that faulty castings comprise 52.5 percent of total losses due to rejects. Extremely large quantities of faulty castings are produced at the Kiev Plant imeni Gorkiy, the Chkalov Machine Tool Building Plant, the Khar'kov Plant imeni Molotov, and a number of other enterprises. Necessary measures must be taken to correct this situation.

Certain factors must be kept in mind in designing new machine tools. Their weight must be decreased with concurrent improvement in their quality. The designer's chief objective must be to solve the problem of crushing and removing chips from machine tools. Machine tools must also be adequately rigid and withstand vibration to ensure wear-resistance of all parts.

To increase the productive capacities of existing plants, a huge reserve lies in the wider application of constant-flow methods. This reserve must be utilized, especially in the production of heavy-duty machine tools and press and forging machines.

For more successful fulfillment of assignments, the experience of innovators must be extensively disseminated and all innovations and progressive methods emanating from socialist competition must be upheld and developed.

IMPORTANCE OF AUTOMATIZATION IN NEW FIVE-YEAR PLAN -- Petrozavodsk, Leninskoye Znamya, 23 Dec 62

A Pavlov, deputy minister of Machine Tool Building USSR made the following statements concerning Soviet machine tool building in the new Five Year Plan in an article published in Leninskoye Znamya, 23 December 1962.

Whereas at the beginning of the Third Five-Year Plan, the types (tipazh) of automatics and semiautomatics constituted 8 percent of the total types of machine tools, in the new Five-Year Plan, the types of automatics and

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semiautomatics will be expanded to 33 percent. Mechanized and partially automatized machine tools will comprise 64 percent of all the types of machine tools produced.

On the basis of plans of the Central Design Bureau of Press and Forging Machine Building, an automatic transfer machine line is being built for the production of heavy hauling and lifting chains. The cutting, bending, cleaning, welding, insertion of spacers (rasporka), and other operations are all done on automatic equipment. The machines and unit-type machine tools making up the line are electrically interlocked. The entire line is controlled from a central panel.

The line is made up of 175 units of equipment. The participation of workers in the production process has been brought to a minimum. The entire production process will be attended by only 30 men per shift. The input of labor for one ton of products will be only 15 percent of present input at plants.

Workers of the bearing industry, having had considerable experience of their own in the automatization of production and inspection of balls and rollers, have urgently presented the need to machine tool builders for conducting work on designing complex automatic transfer lines for machining large bearing rings, heat treatment, assembly, and packing of ball and roller bearings. A design bureau was created for this purpose. In a very short time, it had designed automatic transfer machine lines which are now being manufactured at 15 machine tool building plants.

At present, the manufacture and adjustment of lines are being completed for automatic shops where tractor piston pins are processed. The high productivity of the new equipment will make it possible to reduce the production area 7.5 times and decrease the number of workers 15 times.

Meanwhile, the planning and manufacture of automatic lines for the production of plowshares and moldboards are in progress. Automatization of all operations in the manufacture of these items has been provided for in the plans. Each line will consist of 32 different types of machines, metal-cutting machine tools, aggregates for heat treatment, etc.

#### ASSEMBLE ANOTHER AUTOMATIC LINE -- Moscow, Vechernyaya Moskva, 27 Oct 52

The Moscow Machine Tool Plant imeni Orashonikidze has assembled another automatic transfer machine line of unit-type machine tools.

The line consists of four twin machine tools and is intended for machining automobile engine blocks. One hundred cutting tools operate simultaneously on the line. All processes are automatic. The blocks flow constantly from machine tool to machine tool on a special transport. The time for machining the parts can be counted in minutes.

#### PROGRESS AT KRASNYY PROLETARIY PLANT IN 1952 -- Moscow, Vechernyaya Moskva, 25 Dec 52

The Moscow Krasnyy Proletariy Plant imeni Yefremov has completed the 1952 plan for gross and commodity production as well as for the quantity of machine tools. The plant also reduced the cost of production in excess of plan.

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In 1952, the plant manufactured and introduced for use in production more than 2,100 high-duty attachments and dies and approximately 5,500 various type designations of tools. These products helped the plant workers to increase labor productivity considerably, to improve the quality of its products, and to shorten the production cycle.

Moscow, Moskovskaya Pravda, 28 Dec 52

In 1952, the Moscow Krasnyy Proletariy Plant has developed 15 new models of machine tools and machines. Among them is an eight-spindle semiautomatic vertical lathe. It can simultaneously machine eight parts up to 400 millimeters in diameter. Dozens of cutters, drills, reamers, and other cutting tools operate at the same time on this machine tool. Only the installation of the blank and removal of the finished part are done by hand. The rest of the production cycle is automatic.

Heavy-duty lathes for machining outer and inner ball-bearing rings up to one meter in diameter have been developed by the plant for the ball-bearing industry.

In 1952, the plant perfected and produced three automatic transfer machine lines for the manufacture of metal frames for reinforced concrete columns intended for the construction of buildings.

REDUCE COST OF PRODUCING AUTOMATIC MACHINE TOOLS -- Minsk, Sovetskaya Belorussiya, 9 Dec 52

Personnel at the Leningrad Automatics Plant have reduced the cost of manufacturing automatic turret lathes by almost one third. The cost of producing long-bed automatic lathes has been cut by 8,000 rubles. This success is the result of introducing an advanced technology. Precision casting has been adopted in the foundry workshop.

In 1952, the total cost of producing automatic machine tools has been reduced by more than 20 percent. In 11 months, 2,700,000 rubles were saved.

CHANGES IN DESIGN SAVE METAL -- Tallin, Sovetskaya Estoniya, 12 Dec 52

A group of hydraulic slotting machines are being manufactured at the Gomel' Machine Tool Building Plant imeni Kirov for shipment to the Kuybyshev GES project.

To meet successfully the assignments of the Fifth Five-Year Plan, a great deal of initiative is being displayed at the plant. For example, Berезin, engineer, has improved the design of the machine-tool table. Whereas this unit had previously been made up of 252 parts, it now consists of only 147 and weighs 205 kilograms less. At the same time the operating qualities of this machine tool have been improved and the labor consumption in its manufacture has been decreased 15 percent.

As a result of design and technological improvements, every 12th slotting machine is being produced from metal saved. Labor spent in the manufacture of one machine has been decreased by 124 hours.

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Minsk, Sovetskaya Belorussiya, 14 Dec 52

Stakhanovites and engineers at the Gomel' Plant have introduced a number of innovations. The manufacture of bushings, gears, and base plates has been converted to chill and precision casting. The laying out of patterns for forgings has been improved and the allowances for machining have been decreased.

TAKE MEASURES TO IMPROVE TECHNOLOGY AND INCREASE OUTPUT OF ABRASIVES --  
Tashkent, Pravda Vostoka, 16 Sep 52

In accordance with the new Five-Year Plan, which specifies that the capacity of existing enterprises must be increased by reconstruction installation of new equipment, and mechanization of production, the Tashkent Abrasive Tool Plant is now taking a number of measures to improve technology and increase production. For example, accumulators of high and low pressure and a powerful press have been assembled in the molding shop. This equipment is now being tested. Putting the new aggregates into operation will considerably ease the labor of workers, improve the quality of pressed abrasive wheels, and accelerate the output of tools.

USE OF ELECTRIC-SPARK METHODS IN LITHUANIA -- Vil'nyus, Sovetskaya Litva,  
25 Dec 52

The Vil'nyus Electric Meter Plant has begun using electric-spark methods for hardening tools.

Many enterprises in the Lithuanian SSR are now equipped with electric-spark units. These include the Zhal'giris Machine Tool Building and the El'fa Electrical Equipment Plants in Vil'nyus.

Unfortunately, this valuable equipment is being only slightly utilized. The reason is the lack of technical knowledge. It is the duty of the Institute of Technical and Physical Sciences, Academy of Sciences Lithuanian SSR to aid these plants in training their workers to master and utilize this equipment to the utmost. -- R. Krivets, engineer

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