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USSR
ELECTRONIC AND PRECISION EQUIPMENT

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USSR ELECTRONIC AND PRECISION EQUIPMENT

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I. ITEMS OF SPECIAL INTEREST

A. Statistics

During the first 9 months of 1958, 18.4 million timepieces, 2.9 million radio receivers, and 711,000 television sets were produced in the USSR. (Moscow, Izvestiya, 12 Oct 58)

In 1958, 3.7 million radio receivers and radio-phonographs and 890,000 television sets were produced in the USSR. In 1965, 5.8 million radio receivers and radio-phonographs and 3,095,000 television sets will be produced in the USSR. (Moscow, Planovoye Khozyzystvo, Feb 59, p 63)

In 1958, 110 million vacuum tubes, 3.9 million radio receivers, one million television sets, 1.5 million cameras, and 25 million timepieces were produced in the USSR. (Moscow, Vestnik Statistiki, No 2, 1959, pp 19-20)

In 1958, more than 20 million various timepieces, 1.5 million cameras, 3.5 million bicycles, almost 3 million sewing machines, and 4 million radio receivers and radio-phonographs were put on the market in the USSR. (Moscow, Sovetskaya Torgovlya, Feb 59, p 45)

Instrument making in the USSR in 1957 increased to 5.4 times the 1950 level. In 1957, 17.6 times as many computing machines, 5.7 times as many automatic industrial control instruments, and 9.5 times as many electrical measuring instruments were produced as in 1950. (Moscow, Trud, 23 Oct 58)

B. New Products

In the first 9 months of 1958, 16,191 electric motors and 240,000 magnetic starters were produced in the Kirgiz SSR. (Frunze, Sovetskaya Kirgiziya, 21 Oct 58)

[Comment: The production of the above-mentioned articles by any enterprise in the Kirgiz SSR has not been noted previously in available sources.]

C. Plants

Recently, a new automatic cafeteria began operations on ulitsa Stalina, not far from the Oktyabr' Motion-Picture Theater in Frunze. This cafeteria has special automatic equipment, which was produced by the Kiev Oktyabr' Plant [Kiyevskiy zavod "Oktyabr'"]. (Frunze, Sovetskaya Kirgiziya, 12 Oct 58)

[Comment: This is the first time that the name of this plant has been noted in available sources.]

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Group-flow methods of machining were utilized in Leningrad by only one or two plants about 2 or 3 years ago. Now a number of Leningrad plants have adopted these methods successfully, including the Plant imeni Kozitskiy, the Vibrator Plant, and the GOMZ [State Optical Machinery Plant] imeni OGPU. (Moscow, Mashinostroitel', Feb 59, p 2)

[Comment: As far as is known, this is the first time that the imeni OGPU has been used with the GOMZ in any available source. This plant is mentioned in other parts of the same periodical without the imeni OGPU.]

During 1959, the Ternopol' Elektroarmatura Plant (Ternopol'skiy zavod "Elektroarmatura") will produce fluorescent mine lamps. (Kiev, Pravda Ukrainy, 1 Jan 59)

During 1959, the Sumy Instrument-Making Plant (Sumskiy priborostroitel'nyy zavod) will produce its first electronic microscopes. (Kiev, Pravda Ukrainy, 1 Jan 59)

During the Seven-Year Plan, it is expected that a new plant for the production of motion-picture apparatus will be constructed in Tyumen'. (Moscow, Tekhnika Kino i Televideniya, Jan 59, p 3)

D. Consumer Goods Deficiencies

It is not by chance that a number of plants which formerly produced high-quality consumer goods have now curtailed their production. In 1957, the electric tea kettles made by the Leningrad Elektrik Plant, and the coffee makers and electric tea kettles made by the Moscow Elektrosvet Plant were taken out of production. For many years, the Moscow Dinamo Plant produced four high-quality electric hot plates per minute. Not it has stopped making them, and the trade organizations of Moscow have to import hot plates from other economic regions, where they are made by less efficient enterprises. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Oct 58)

Some enterprises already engaged in the production of consumer goods are curtailing the production of such goods. The Kiev Motorcycle Plant has stopped the production of children's bicycles, which were in very great demand. The production of children's bicycles has also been stopped at the Khar'kov Turbine Plant imeni Kirov of the Khar'kovskiy Sovnarkhoz. Children's bicycles are now shipped to the Ukrainian SSR from Moscow, Leningrad, and other cities.

Many enterprises do not fulfill their obligations to put consumer goods into production. For instance, the Khar'kov Machine Plant designed and produced an experimental consignment of the new model M-6 electric sewing machine, but has delayed its series production. Press Plant No 2 [Shtampovochnyy zavod No 2] of the Leningradskiy Sovnarkhoz

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was to have organized the mass production of Leningrad refrigerators in 1958, but failed to fulfill this obligation. The Baku Electrical Machinery Plant did not fulfill its obligation to master the production of room air-conditioners. (Moscow, Sovetskaya Torgovlya, Feb 59, p 12)

In 1958, the production of consumer goods rose significantly. The radio industry produced the Khar'kov seven-tube radio-phonograph, the Dnipro-58 and Oktava-58 radio receivers and radio-phonographs, and the Rubin 201 and Rubin 202 console television sets. These are the first console television sets made in the USSR, and are as good as the best foreign models in sound and picture quality.

However, achievements in the production of consumer goods would be much better if all sovnarkhozes and enterprises approached this task with creativity and enthusiasm for making new varieties available, producing new products, and improving currently made goods. In 1958, a number of sovnarkhozes failed to fulfill their obligations for starting the production of new products. For instance, the Penzenskiy Sovnarkhoz failed to master the production of motorbikes; the Leningradskiy Sovnarkhoz, pocket transistor radios; the Saratovskiy Sovnarkhoz, vacuum cleaners; and the Tul'skiy Sovnarkhoz, electric dishwashers.

So far, mass production of some products, such as the Akkord tape recorder, has not begun despite the fact that substantial funds were spent to prepare for their production. The mass production of new 240-liter-capacity refrigerators has not been organized at the Moscow Motor Vehicle Plant imeni Likhachev and the mass production of Saratov-3 refrigerators has not been started as the Saratovskiy Sovnarkhoz. -- S. Trifonov, Deputy Minister of Trade RSFSR (Moscow, Novyye Tovary, No 1, 1959, p 2)

During the 6-month plant guarantee period, a large percentage of television sets have to undergo repairs without charge because of assembly defects: bad picture tubes, line transformers, channel switches, frame transformers, focusing and deflecting systems, and other deficiencies. More than 85 percent of the Start television sets and more than 60 percent of the Rekord television sets produced by plants of the Moscow Oblast Sovnarkhoz have to be repaired because of such defects. The same is true of 65 percent of the Znamya television sets and up to 75 percent of the KVN-49-4 television sets produced by plants of the Leningradskiy Sovnarkhoz, of more than 60 percent of the Rekord television sets produced by a plant of the Voronezhskiy Sovnarkhoz, and of up to 70 percent of the Rubin sets produced by a plant of the Moscow City Sovnarkhoz. The defects of many television sets can be determined only after repeated attempts to repair them.

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The plant guarantee really does not guarantee to the purchaser that his set will operate well during 6 months; it only entitles him to free repair service in television workshops, which are forced to rectify manufacturing defects.

Many sovnarkhozes and radio plants do not live up to their contractual obligations to supply spare picture tubes and radio components to television workshops. In recent years, it has been exceptionally difficult to get type 18LK picture tubes and components for KVN-49 and AVangard-55 television sets, which comprise more than half of all television sets in use.

During the third quarter of 1958, a plant of the Moscow Oblast Sovnarkhoz failed to supply 46 percent of its allotment of type 18LK5B television picture tubes to workshops. Plants of the Leningradskiy Sovnarkhoz failed to supply more than 90 percent and plants of the Vladimirskiy Sovnarkhoz failed to supply about 60 percent of the planned amount of focusing-deflecting systems for KVN-49 televisicn sets. A plant of the Krasnoyarskiy Sovnarkhoz failed to supply a large quantity of frame transformers, line transformers, blocking oscillator transformers, and other spare parts for Avangard-55 television sets.

Enterprises of the radio industry continuously increase their output of television sets; however, the output of high-frequency cable necessary for installing television sets is not keeping pace. An insufficient allotment of such cable is planned for the Ministry of Communications.

At present, the Scientific Research Institute of the Cable Industry has developed a new type KVT high-frequency cable which is more economical than currently produced type RK cable. The new cable is being produced by plants of the Bashkirskiy Sovnarkhoz and the Moscow City Sovnarkhoz. -- B. Kuybyshev, Chief, Administration of the Television Receiving Network, Radiofication, and Intra rayon Telecommunications, Ministry of Communications USSR. (Moscow, Radio, Feb 59, p 14)

[Comment: From the above it can be ascertained that at least two unidentified plants in Moscow Oblast Sovnarkhoz produce television sets, including the Start and the Rekord, and that an unidentified plant of the same sovnarkhoz produces television picture tubes.]

There is a sharp disproportion between the output of television sets for sale to the populace and the production of high-frequency cable necessary for installing these sets. Despite the many demands made by the Ministry of Communications USSR, the production of this cable as planned by Gosplan USSR is much too low; moreover, this cable is produced in an insufficient number of sizes. The requirements for this cable were met only 52 percent in 1957; the 1958 supply is even worse.

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Because of the shortage of high-frequency cables, Gosradiotrest [State Radio Trust] of the Ministry of Communications USSR and its television workshops cannot meet even the priority demands of installing master television antennas for collective use. It is becoming necessary to forbid the installation of private outdoor antennas and to forbid anyone to connect his set onto existing master antennas.

This situation must be alleviated immediately, because new type KVT high-frequency cables have already been developed by the Scientific Research Institute of the Cable Industry and have been put into production at plants of the Bashkirskiy and Moscow sovnarkhozes. The new cables use only one fourth to one third the expensive chemical materials needed to make older types of cable. -- V. Kuybyshev, Chief, Administration of the Television Receiving Network, Radiofication, and Intrarayon Telecommunications, Ministry of Communications USSR (Moscow, Izvestiya, 26 Oct 58)

I. Chugunov, an engineer from Baku, bought a KVN-49-4 (T-1) television set, No 327357, produced on 30 May 1958. The purchase was made on 13 June 1958, and the set worked for only 10 days. Since then, he has been unable to have it fixed. (Moscow, Radio, Feb 59, p 14)

E. Astronomical Television Unit

N. F. Kuprevich, senior scientific associate of the Pulkovo Astronomical Observatory, has designed the first USSR television unit for astronomic photography and observation and is continuing to improve it. New, more sensitive transmitting cathode-ray tubes have been put into operation, and receiving cathode-ray tubes of higher brightness have been installed. More than 50 photographs of the moon and Mars have already been taken with the new unit. (Leningradskaya Pravda, 13 Dec 58)

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II. LOCAL PRODUCTION AND ORGANIZATION

A. Moscow

The Administration of the Radio Engineering Industry and Instrument Making of the Moscow City Sovnarkhoz makes the following statement in answer to critical comments appearing in Radio:

The enterprises of the sovnarkhoz, which produce the Temp-3, Rubin, Rubin-102, Yantar', and Moskva television sets, constantly strive to improve them.

The plant making the Temp-3 television set has improved the set. The plant making the Rubin set has made strenuous efforts toward improving quality in the process of manufacturing it. It has modernized the Rubin, renaming it Rubin-A, and has begun the production of the new Rubin-102 television set, which has a superior design. --I. Ponomarev, a chief engineer (Moscow, Radio, Feb 59, p 15)

B. Leningrad

During 1958, enterprises of the Leningradskiy Sovnarkhoz produced 14.4 percent more timepieces, 15.6 percent more radio receivers, and 29.4 percent more television sets than in 1957. (Leningradskaya Pravda, 18 Dec 58)

The following plants are subordinate to the Leningradskiy Sovnarkhoz:

Lenpoligrafmash Plant

Vulkan Plant

GOMZ [State Optical Machinery Plant]

Computing and Analyzing Machine Plant

Krasnaya Zarya Plant

Plant imeni Kozitskiy

Radist Plant

Lenteplopribor Plant

Krasnogvardeyets Plant

Elektrik Plant

(Moscow, Mashinostroitel', Feb 59, pp 6-8)

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C. Tashkent

In 1957, the Tashkentskiy Sovnarkhoz abolished the small gray iron foundries at the Tashkent Tashsel'mash Plant and the former Electrical Machinery Plant. It planned to abolish such foundries at the Tashkent Electric Bulb Plant and the Tashkent Prodmash Plant during 1958. (Narodnoye Khozyzystvo Uzbekskoy SSR v 1958 godu (The National Economy of the Uzbek SSR in 1958), book by S. K. Ziyadullayev, Tashkent, 1958, p 32)

[Comment: This is the first time that the subordination of the Tashkent Electric Bulb Plant has been observed in available sources.]

D. Belorussian SSR

From 1959 to 1965, it is planned to organize more than ten new plants for the production of motor vehicle and tractor electrical equipment, measuring instruments, electrical equipment, wires and installation products, cables, and external watch parts in Vitebsk, Gomel', Mogilev, Borisov, Brest, Grodno, Mozyr', Lida, and other cities. -- B. Paremskiy, Deputy Chairman, Gosplan Belorussian SSR (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Dec 58)

E. Transcaucasus Republics

During the first 9 months of 1958, the Armenian SSR produced 141,040 electric motors up to 100 kw in power, 20,209 generators up to 100 kw in power, 12,528 mobile generating units, 12,065 km of lighting cord, 58,516 km of installation wire, 21,086,000 standard light bulbs, and 1,139,000 alarm clocks. (Yerevan, Kommunist, 16 Oct 58)

The Yerevan Elektrotochpribor Plant was the first instrument-making enterprise established in the Armenian SSR. Since its organization in 1947, it has become a modern well-equipped plant, which makes hundreds of thousands of instruments per year -- microammeters, millivoltmeters, high-voltage indicators, current finders, and snap-around amprobes.

The Kirovakan Avtomatika Plant, which produces miniature potentiometers and bridges; the Leninakan Instrument Making Plant, which produces general industrial instruments; and the Yerevan Instrument Making Plant, which makes thermal control instruments such as current-ratio measuring instruments and galvanometers, were organized in 1957.

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To provide a base for the instrument-making and automation equipment industries, these following scientific research institutes were organized: the Scientific Research Institute for Mathematical Machines in Yerevan and the "Avtomatika" Scientific Research Institute for the Automation of Industrial Processes in the Chemical Industry and Nonferrous Metallurgy in Kirovakan. The "Prompribor" Special Design Bureau in Leninakan and the "Avtomatika" Special Design Bureau have also been established.

In 1958, new enterprises are being organized: the Yerevan Electrical Metal-Ceramics Plant, the Leninakan Microelectric Motor Plant, the Sevan Performing Mechanisms Plant, and the Arzni Precision Industrial Jewels Plant.

The production of artistically finished wrist watches is being organized at the Yerevan Timepiece Plant.

During the fourth quarter of 1958, the Yerevan Relay Apparatus Plant, now under construction, is expected to go into operation.

During the Seven-Year Plan, it is expected that the Elektrotochpribor Plant will be expanded and reconstructed, and its output will rise to 2.5 times the present level. The output of instruments of the Yerevan Instrument Making Plant is expected to rise 450 percent after the plant is moved to new premises and expanded, and new instruments such as sets of thermal instruments and thermovacuum meters will be produced there. The reconstruction and expansion of the Leninakan Instrument Making Plant, along with its specialization in the production of moisture meters and viscosimeters, will result in quadrupled commodity output for the plant by 1965.

Construction of the Kirovakan Avtomatika Plant will be completed, and its output in 1965 will be 14 times the 1958 level. The Yerevan Timepiece Plant will be expanded, and its output of timepieces will be increased to 2.5 million [per year in 1965?], of which 500,000 will be wrist watches.

It is planned to organize an optical instrument plant, which will produce instruments for spectral analysis; a plant for the production of industrial control and regulation machinery; and other plants.

Enormous sums of money are being allotted for the construction, reconstruction, and expansion of instrument-making and automation equipment plants. Output of this branch of industry will be more than quadrupled by 1965.

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One of the most serious problems in the organization of new plants and new types of production is the supply of nonstandard equipment and accessories. To solve this problem, the nonstandard-equipment shop of the Armelektro Plant should be expanded. The capacities of the tool shops of the Elektrotochpribor Plant, the Timepiece Plant, and the Armelektro Plant should be increased in order to supply special accessories and tools for newly organized plants.

Much work has to be done by the "Avtomatika" and "Prompribor" special design bureaus, which should be punctual in the development of new designs of equipment and instruments for new plants to produce. -- G. Cholakhyan, Chief, Administration of the Electrical Engineering Industry and Instrument Making, Armenian Sovnarkhoz (Yerevan, Kommunist, 9 Oct 58)

Formerly the Yerevan Timepiece Plant was considered to be one of the leading enterprises in the Armenian Sovnarkhoz. Because of irregular supply and the shortage of certain materials, such as "brof" bronze wire for balance filaments and U10A steel wire for the balance staffs, the plant's production has suffered quantitatively and qualitatively. In September 1958, 23 production sections were shut down for 10 days. In August and September, the plant produced 50,000 fewer alarm clocks than had been assigned.

During the third quarter of 1958, the Moscow Serp i Molot Plant was to have supplied 410 kg of U10A steel wire, but the Yerevan Timepiece Plant received only 119 kg. The Gor'kiy Krasnaya Etna Plant failed to supply more than 30 tons of funded steel band during the third quarter of 1958.

In the past, the Yerevan Timepiece Plant was able to keep a supply of materials on hand sufficient for 45-90 days of work; now the sovnarkhoz has cut the time limit to 30 days and the plant actually has to operate "from hand to mouth."

The fourth quarter has come, and the plant is faced with a stoppage of mass proportions in its assembly shop and other sections. It does not have its basic materials. However, this does not alarm the officials of the Administration of Electrical Engineering Industry and Instrument Making and the Administration of Material and Technical Supply and Sales of the Armenian Sovnarkhoz. For a long time they have been unable to solve this vital problem for the Timepiece Plant. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 29 Oct 58)

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The instrument making and electrical engineering industries are undergoing rapid expansion in the Georgian SSR. In the next year or two, more than 20 new enterprises will be organized. These enterprises will make instruments for automating industrial processes in the light and food industry, equipment for electric locomotives, crane equipment, automatic welding machines, and other equipment. A new plant for the manufacture of washing machines, household fans, electric hot plates, and other consumer goods will also be organized.

At present, many of the plants created in 1958 are getting ready to begin production. For instance, the Staliniri Elektrovibromashina Plant (Stalinirskiy zavod "Elektrovibromashina") expects to produce the first experimental models of electric vibrators [for construction work] by the end of 1958. (Tbilisi, Zarya Vostoka, 16 Oct 58)

During the first 9 months of 1958, 22,800 radio receivers and television sets were produced in the Azerbaydzhan SSR. (Baku, Bakinskiy Rabochiy, 23 Oct 58)

F. Baltic Republics

A further improvement in manufacturing processes is planned for the Riga Electrical Machinery Plant (Rizhskiy elektromekhanicheskiy zavod). By automation, mechanization, and specialization, the plant will double its output of electrical installation products and will increase its output of improved electric record players to eight times the present level. It will master the production of tape recorders for radio-phonographs, and of record players with automatic changers and high-fidelity pickups.

To satisfy the needs of the electrical industry during the next 7 years, it is planned to construct plants for making electrical insulation materials, cable products, and plastic products.

According to the Seven-Year Plan, the Riga VEF Plant and the Riga Plant imeni Popov will increase the production of radio receivers and radio-phonographs to 700,000 per year, including improved models of such equipment.

In 1959, the Riga Plant imeni Popov will begin the production of the new Sakta Class-2 radio-phonograph, which will utilize printed circuits and will have a stereophonic sound system. This set will replace the currently produced Daugava radio-phonograph.

The VEF Plant is mastering the production of the new Latviya radio-phonograph, the Viktoriya high-quality telephone handset, and the Liman automatic telegraph relaying equipment. This plant will also increase its output of telephone exchanges, telephone handsets, and all communications equipment. It will begin the production of an automatic telephone exchange with a new operating system, and new types of telephone handsets. During the Seven-Year Plan, its output of radio and communications equipment will be more than doubled.

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Both the VEF Plant and the Plant imeni Popov will be expanded. In the first quarter of 1959, an automatic line for the production of printed circuits will be put into operation at the VEF plant.

The Riga Electric Bulb Plant is supposed to serve the needs of the Baltic republics, the Belorussian SSR, and Leningradskaya and other oblasts. Its output of bulbs will be doubled. During the Seven-Year Plan, it will have to increase the production of special bulbs for the USSR automotive industry to seven times the present level. The same increase is expected for streetlight lamps with mirror reflectors. It is expected that construction of a building for special bulbs and a laboratory building will be completed as soon as possible.

The preliminary plan figures forecast a 130-percent increase in the production of instruments. The Riga Avtoelektropribor Plant is expected to have a new production building constructed, and its electric power system will be expanded. Small-series production with a large products-list, and a great proportion of experimental production require a substantial expansion of the shops at the Riga Hydrometeorological Instrument Plant and at the Riga Etalon Plant. Consequently, the Latvian Sovnarkhoz must take all possible measures to accelerate the construction of new buildings at these enterprises. --Ya. Damburg, Chief, Administration of Radio and Electrical Engineering and the Metal-working Industry, Latvian Sovnarkhoz (Riga, Kommunist Sovetskoy Latvii, Dec 58, pp 18-19)

During the first 9 months of 1958, enterprises in the Lithuanian SSR produced 11,300 electric welding transformers, 7,200 electric welders, 13 million rubles' worth of electrical installation products, and 1,283,000 electric meters. The production of electric meters was 36 percent over the first 9 months of 1957. (Vil'nyus, Sovetskaya Litva, 16 Oct 58)

During the first 9 months of 1958, 11,300 radio receivers were produced in the Estonian SSR. This is a 23-percent rise over the corresponding period of 1957. (Tallin, Sovetskaya Estoniya, 15 Oct 58)

Several instrument-making plants are being organized in a number of partially constructed or vacant buildings in Estonia.

The production of mercury rectifiers is being organized in the shops of a former locomotive repair plant in Tallin.

A transformer plant to be organized in Yykhvi will be of great importance for the shale basin. (Moscow, Pravda, 13 Oct 58)

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III. ELECTRONIC EQUIPMENT

A. General Information

It is estimated that in 1965 more than 9 million radio receivers, radio-phonographs, and television sets will be produced in the USSR. This means that by the end of 1965, each family will be able to have either a radio receiver or a radio-phonograph, and that the entire populace of urban areas served by television stations will be provided with television sets.

Several years ago, trade organizations could offer only two types of USSR-made television sets and only a few types of USSR-made radio receivers. Now the USSR radio industry makes a wide range of television sets, radio-phonographs, and radio receivers available for sale.

Not long ago, USSR industry began the production of the Moskva projection television set, the Kristall radio-phonograph-television-tape-recorder combine, and several Class I radio receivers and radio-phonographs.

In 1965 USSR radio plants will produce 30-40 different types of radio-phonographs and radio receivers and about 20 types of television sets. At least five types of transistorized radio receivers and television sets are to be produced; color television sets are also to be manufactured. All radios, radio-phonographs, and television sets will be equipped with several speakers for stereo sound. (Moscow, Sovetskaya Torgovlya, Feb 59, pp 10-11)

B. Components

Within the next 7 years, the Moscow Electric Bulb Plant will increase its output 72 percent. It is to master the production of many new vacuum tubes for the radio industry. In the next few years, it will sharply increase its production of subminiature radio tubes, high-reliability tubes, large-screen television picture tubes, and color television picture tubes.

A new conveyer for the vacuum processing of television picture tubes (1) has been installed in the television picture-tube shop. The initial tests of this line showed it to be capable of processing 60-100 tubes of different sizes per hour. (Moscow, Vechernyaya Moskva, 22 Nov 58)

(1) Photo available in source, p 2, left, middle

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The fluorescent lamp laboratory of the Moscow Electric Bulb Plant has developed 125-watt fluorescent lamps. Photoelectron multipliers have been developed in the plant's photoelectron multiplier laboratory. These tubes are used for nuclear studies. (Moscow, Vechernyaya Moskva, 26 Dec 58)

Five automatic lines for the assembly of permanent resistors have been put into operation at the Voronezh Radio Component Plant. Each line will save 150,000 rubles per year.

The assembly of variable resistors has been converted to the conveyer method. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 23 Nov 58)

A new automatic line for zinc-coating large parts has been put into operation at the Riga VEF Plant. In 1959, four more automatic lines for zinc-coating small parts, for nickel-plating parts, and for electrically drying parts after painting will be installed in the painting and electroplating shop. The new lines will double the capacity of the shop without increasing the number of workers. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 14 Dec 58)

The [Saransk] Elektrovypryamitel' Plant is producing the series VG germanium rectifiers. The plant has also developed the types VAGG-9/12-600, VAGZ-6/12-6.5, VAGZ-12/24-12, and VAGZ-35/80-125 rectifier units based on germanium rectifier components.

(Source gives full descriptions of these rectifiers and rectifier units.) (Moscow, Promyshlennaya Energetika, Jan 59, p 64)

The Samarkand Kinap Plant is the producer of the 7VSS-60, 20BSS-1, and 26BS-60 stabilized selenium rectifiers. It formerly produced the BS-65 and BS-60-A selenium rectifiers, which have already been taken out of production. (Moscow, Kinomekhanik, Feb 59, back cover)

C. Radios

USSR seagoing vessels are currently equipped with unusual radio stations. Called "Shlyup" (Lifeboat), these radio sending and receiving sets can easily be set up in lifeboats, or even thrown into the water, which will not damage them.

The Shlyup emergency radio station operates on three frequencies. Production of these sets has been set up at the Sarapul Plant imeni Ordzhonikidze. The Shlyup was displayed at the Brussels World's Fair. (Moscow, Sovetskaya Rossiya, 29 Nov 58)

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The Syurpriz and Sputnik transistor radios have been developed in Leningrad. They receive stations on the long- and medium-wave bands.

The Sputnik weighs about one kg and has seven transistors. Four small storage batteries are used to power it, but a solar battery developed by Moscow scientists can be substituted for these.

The Syurpriz is very much like the Sputnik, except that it has a more powerful loud-speaker and uses two small dry cells instead of storage batteries. (Riga, Sovetskaya Latviya, 21 Oct 58)

The Turist (PMP-56) five-tube, two-band portable radio receiver can be supplied by a 110-, 127-, or 220-volt AC circuit, or by a 75 AMTsG-22 anode battery and two type 1.6-FMTs-U-3 filament batteries. This set sells for 330 rubles without batteries.

The Start-2 television set, in either a five-channel or 12-channel version, with a 290-x-220-mm screen sells for 1,950 rubles. (Moscow, Byulleten' Roznichnykh Tsen, No 4, Feb 59, p 11)

The Riga VEF Plant has developed and produced the Lyuks-2 modernized radio-phonograph. Work has also been completed on the Model M-159 radio-phonograph, which plant workers want to name the "Latviya." In contrast to the Akkord, it has an FM ultrashort-wave band and a ferrite antenna.

In 1959, the radio laboratory will have finished the development of the Kristall high-quality console radio-phonograph. Production of this model is slated to begin in 1960.

The development of a new type of small radio receiver with semiconductors will begin in 1959. It will replace the Turist radio receiver. (Riga, Sovetskaya Latviya, 31 Dec 58)

The Riga Radio Plant imeni Popov has prepared for production of the Sakta radio-phonograph (2) which has a seven-tube superheterodyne receiver and a three-speed record player. It is designed for receiving AM broadcasts in the long-, medium-, and short-wave bands and FM broadcasts in the ultrashort-wave band. A tape recorder attachment can be used with this set.

The long-, medium-, and short-wave circuit block utilizes printed circuits with mounted components; two germanium diodes and one selenium rectifier are used. The set is designed for highly mechanized production.

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The Sakta has three loud-speakers; its sound pressure is 10 bars. Sensitivity on the AM bands is 200 microvolts; on the FM band it is 20 microvolts. The set measures 560 x 410 x 275 mm and weighs 17.5 kg. Input from the AC circuit for radio reception is 50 watts; for record playing, it is 60 watts. The tentative price of the set is 1,100 rubles. (Moscow, Novyye Tovary, No 1, 1959, p 4)

(2) Photo available in source, p 4, bottom

Production of the first Dayna radio-phonographs has been started in Vil'nyus. The Dayna is a seven-tube, five-wave-band set with an electric record player; it will also accommodate a tape recorder. (Moscow, Moskovskaya Pravda, 4 Dec 58)

The Dayna radio-phonograph (3), which is made in the Lithuanian Sovnarkhoz, is designed for receiving AM broadcasts in the long-, medium-, and short-wave bands and FM broadcasts in the ultrashort-wave band. It has a two-speed record player and utilizes two type 2GD-3 electrodynamic loud-speakers.

The average sound pressure at the rated output is 8 bars. Sensitivity is 200 microvolts for AM and 20 microvolts for FM. The set has keyboard controls, a dual tone control, and seven miniature tubes. Its input from the AC circuit is 55 watts for radio reception and 75 watts for record playing.

The Dayna set measures 550 x 380 x 305 mm and weighs 16.6 kg. It sells for 1,100 rubles. (Moscow, Novyye Tovary, No 1, 1959, p 4)

(3) Photo available in source, p 4, top

A Dayna radio-phonograph with a high-quality polished cabinet made of fine wood costs 1,150 rubles. The same set with varnished wood cabinet or a wood cabinet with an imitation fine-wood finish costs 1,050 rubles. (Moscow, Byulleten' Roznichnykh Tsen, No 2, Jan 59, p 6)

D. Television

1. Seven-Year Plan Developments

During the Seven-Year Plan, it is expected that 12.5 million television sets will be produced in the USSR. Thus, by the end of 1965, 15 million television sets will be in use in the country.

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The development of the television network as specified in the Seven-Year Plan can take place only if a vast amount of scientific research work is done in the field of television. Scientists and engineers, and workers of institutes, design bureaus, and laboratories are faced with serious tasks, the most important of which are as follows:

Completion, production, and operation of the entire set of newly developed compatible color television equipment.

A rise in the qualitative and technical-economic indexes of various types of television equipment.

Large-scale introduction of semiconductors into television equipment.

Over-all solution of the problem of raising the quality of television film broadcasts.

Further unification [components and subassembly standardization] of all types of television equipment.

Further development and implementation of methods for taking motion pictures directly from a television screen.

Completion of the development of magnetic recording of moving pictures and introduction of this method at television studios.

Large-scale introduction of television equipment in the production of films for television and for the film-rental network.

Continuation of work on automation at television studios, centers, and rebroadcasting stations.

Development of new types of equipment, and improvement of existing equipment for remote television broadcasting away from studios.

Further improvement and large-scale utilization of television systems in all branches of the national economy, science, and technology. (Moscow, Tekhnika Kino i Televideniya, Jan 59, pp 5-6)

2. Broadcasting Equipment

A small television center has been built at the All-Union Scientific Research Institute of Television. A center of this type makes it possible to transmit studio programs or films. Its equipment is designed for plugging into intercity cable or radio relay lines to get programs from large cities, and can be fitted into a room with an area of only 30 sq m.

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On 24 July 1958, the institute began to ship such equipment to the first small television center in Kherson. (Leningrad, Vecherniy Leningrad, 24 Jul 58)

The All-Union Scientific Research Institute of Television has developed experimental models of low-frequency television equipment for small towns located in the service zones of large television centers. The equipment makes it possible to receive the broadcasts of nearby television centers and to organize local programs with the use of mobile television unit. (Moscow, Leninskoye Znamya, 5 Nov 58)

Enterprises of the radio engineering industry of Leningradskiy Sovnarkhoz have finished producing new mobile television stations for television centers in Moscow, Krasnoyarsk, Omsk, and Karaganda. These stations can operate as far as 20 km away from the television center.

The transmitting equipment of the mobile station is installed in a ZIL-158 bus. This equipment is capable of taking a picture, transmitting the image, and providing audio for the image. The mobile station is made for operation with a stationary receiving unit installed at the television center. (Riga, Sovetskaya Latviya, 13 Nov 58)

3. Industrial Television

Scientific workers of the Khar'kov Polytechnic Institute imeni V. I. Lenin have developed a reliable television unit, which enables a worker at a control panel some distance away to observe the operation of a machine tool and the condition of the cutting tools. Television cameras connected by cables to the control panel are installed near the cutting tools. The received image is transmitted to a screen on the control panel.

Television units of this type have already been installed on very large machine tools. (Vil'nyus, Sovetskaya Litva, 2 Nov 58)

An industrial television installation based on semiconductors has been designed and produced in one of the laboratories of the radio engineering faculty of the Tomsk Polytechnic Institute imeni Kirov. The camera transmitter tube measures only 48 mm in diameter, and the entire installation weighs only about 5 kg. (Moscow, Sovetskaya Rossiya, 3 Jan 59)

Industrially made television equipment does not satisfy all requirements for use at railroad stations. Consequently, the Central Scientific Research Institute of the Ministry of Railways, along with the Design Bureau of the Main Administration of Signaling and Communications, has developed the ZhTU-3 railroad television unit (4), which consists of a camera (5) on a revolving table with a power supply unit; and a receiver unit with a control panel, which is installed in the dispatcher's or duty man's office.

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The receiving unit is based on the Start television set. The camera can be used outdoors in temperatures ranging from plus 40 to minus 40 degrees centigrade, with artificial heating used for the lower temperatures. It can tolerate a relative humidity of 98 percent.

(Source gives information on the operation of television on railroads.) (Moscow, Vestnik Vsesoyuznogo Nauchno-Issledovatel'skogo Instituta Zheleznodorozhnogo Transporta, No 1, Feb 59, pp 12-13)

(4) Photo showing the transmitting unit of the ZhTU-3 available in source, p 12

(5) Photo showing the transmitting camera with housing removed available in source, p 13)

4. Television Receivers

The Third All-Union Conference of Workers of Television Enterprises of Gosradiotrest [State Radio Trust] of the Ministry of Communications USSR was held recently in Moscow. It was dedicated to the organization of servicing of the rapidly rising television receiving network in the USSR.

A. L. Badalov, chief of the Main Radio Administration of the Ministry of Communications USSR, spoke on the future development of the television network at the plenary session of the conference.

Ya. I. Efrussi, chief engineer of a branch of a scientific research institute of the State Committee for Radioelectronics of the Council of Ministers USSR, spoke on ways for developing and improving television video.

G. N. Sokolov, Candidate of Technical Sciences, spoke on work toward the introduction of color television in the USSR.

A. M. Kanayev, manager of the Gosradiotrest, spoke on servicing the television network. Experience in 1958, showed that standardized subassemblies had sharply improved the operation of television sets.

M. M. Fayn, chief of the Technical Division of Gosradiotrest, stated that often plants produce television sets that are not completely finished. The plant making the Avangard-55 is especially guilty of this. About 72 percent of these sets have to be repaired during the 6-month plant guarantee period.

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M. M. Fayn also spoke on the design defects of a number of television sets, and stated that after modernization, the quality of Rekord-A and Znamya-58 television sets dropped below that of previous models. He believed that standardized power-supply blocks should have been in use long ago. Present-day nonstandardized power supply blocks are very diverse. (Moscow, Radio, Feb 59, p 15)

For several months, workers of the radio engineering industry of the Leningradskiy Sovnarkhoz have been putting the finishing touches on the design of a new television set, the Zarya. This set is compact in size, easy to operate, has a large screen, and is the lightest of all television sets produced. It weighs about 16 kg and uses only half as much electric power as the KVN-49 television set. The Zarya will cost 1,400 rubles.

Recently, mass production of the Zarya was begun. In December, several thousand of these sets will be turned over to the trade network of Leningrad alone. (Leningradskaya Pravda, 12 Dec 58)

The Leningrad Plant imeni Kozitskiy has mastered the production of the Znamya-58 television set. The first 100 sets have already come off the conveyer. (Moscow, Vechernyaya Moskva, 30 Oct 58)

During the first 9 months of 1958, the Moscow Radio Plant [Order of Lenin] produced 1,500 above-plan television sets. The plant produces Temp-3 television sets, which are adjusted in the alignment section of the assembly shop (6). (Alma-Ata, Kazakhstanskaya Pravda, 21 Oct 58)

(6) Photo available in source, p 3, bottom

The Moscow Television Equipment Plant has begun the series production of Rubin-102 and Rubin-201 television sets. (Moscow, Moskovskaya Pravda, 23 Nov 58)

The Voronezh Elektrosignal Plant has begun the series production of the new Voronezh-1 television set, which has a 35-cm screen (diagonal length) and the Voronezh-2, which has a 43-cm screen (diagonal length).

The new television sets, which have already gone on sale, are smaller and lighter than the Rekord set. (Moscow, Vechernyaya Moskva, 5 Jan 59)

The 12-channel Voronezh-1 television set with a 280-x-210-mm screen and an imitation fine-wood cabinet retails for 1,750 rubles. The same set in a genuine fine-wood finished cabinet retails for 1,850 rubles.

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The 12-channel Voronezh-2 television set with a 360-x-270-mm screen and an imitation fine-wood cabinet retails for 2,400 rubles. The same set in a genuine fine-wood cabinet retails for 2,500 rubles.

The 12-channel Rekord television set with a 280-x-210-mm screen in an imitation fine-wood cabinet retails for 1,750 rubles. The same set in a genuine fine-wood cabinet sells for 1,850 rubles. (Moscow, Byulleten' Roznichnykh Tsen, No 3, Jan 59, pp 12-13)

The Minsk Radio Plant has produced an experimental consignment of Belarus'-5 television sets. The new Belarus'-5 is of the same size and weight as the Belarus'-4, but its screen has a diagonal length of 360 instead of 270 mm and the set has an automatic gain control.

The Belarus'-5 is a combination set. In addition to a television receiver, it has a five-band radio receiver and a universal record player. (Minsk, Sovetskaya Belorussiya, 28 Dec 58)

The Minsk Radio Plant has manufactured its first ten combination television sets with 53LK picture tubes. (Minsk, Sovetskaya Belorussiya, 31 Dec 58)

The Krasnoyarsk Television Plant has produced the new Yenisey television set, which weighs one third less than its predecessor, the Avangard, and has a 30-percent greater screen area. Some of the Yenisey's tubes have been replaced by semiconductors.

The Yenisey is designed for receiving five channels; however, a design of the same set with 12 channels has already been made. (Moscow, Sovetskaya Rossiya, 18 Oct 58)

The chief of the bureau of technical control said that the Krasnoyarsk Television Plant is beginning the series production of new Yenisey television sets. (Moscow, Komsomol'skaya Pravda, 28 Nov 58)

E. Communications Equipment

The Leningrad Scientific Research Radio Engineering Institute has produced the Neva and Berezka telephotographic apparatuses for transmitting pictures over telephone lines and radio channels.

The first models of these apparatuses were demonstrated at the Brussels World's Fair, where they were awarded grand prizes. (Moscow, Moskovskaya Pravda, 22 Oct 58)

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The Leningrad Krasnaya Zarya Plant has produced its first model of a new type of city automatic telephone exchange (7). This exchange was developed by plant engineers in collaboration with the workers of the Scientific Research Institute of Urban and Rural Telephone Communications. A special remote signaling system will make it possible to operate the exchange without utilizing operating personnel on the premises. (Leningradskaya Pravda, 19 Dec 58)

(7) Photo showing equipment for the new exchange undergoing testing available in source, p 2, lower left

A laboratory model of a new type of city automatic telephone exchange has been produced at the Leningrad Krasnaya Zarya Plant. The new exchange is simple and durable and provides high-quality connections. A special remote signaling system makes it unnecessary to have operating personnel. (Riga, Sovetskaya Latviya, 20 Dec 58)

In 1957, the [Khar'kov] Transsvyaz Plant produced the first series of the type ST-57 junction repeater unit, which has a transistorized amplifier.

(Source gives additional information on the ST-57.) (Moscow, Avtomatika, Telemekhanika, i Svyaz', Feb 59, p 10)

During the first quarter of 1959, the Losinoostrovskaya Plant imeni F. E. Dzerzhinskiy is producing an experimental consignment of portable telephones that it developed itself.

(Source gives additional information on the development of portable telephone sets for railroad linemen.) (Moscow, Avtomatika Telemekhanika, i Svyaz', Feb 59, p 26)

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IV. PRECISION EQUIPMENT

A. Automation and Telemechanical Systems

The Central Scientific Research Institute of Over-All Automation, which was organized 2 years ago in Moscow, does significant work in the over-all automation and telemechanization of production processes, and coordinates the activities of groups of scientific research institutes and design bureau in this field.

Automation systems for enterprises of various branches of industry and new automation equipment, instruments, and installation are developed in the institute's laboratories. Its laboratories also analyze the dynamic properties of instruments and regulators (8) series-produced by industry.

The workers of the Laboratory of Automatic Control, under the leadership of Engr Yu. S. Val'denberg, have developed a new computing machine called a synthesizer (9). This machine is designed for performing complex computations connected with the development of production sections that are fully automated.

Institute workers are working on the over-all automation of production processes at a number of industrial enterprises, particularly at the Stalinogorsk Chemical Combine and the Khar'kovskaya GRES (State Regional Electric Power Station) -2. (Kishinev, Sovetskaya Moldaviya, 13 Nov 58)

(8) Photo showing the testing of pneumatic regulating equipment in the Laboratory of Dynamics of Industrial Installations available in source, p 1, bottom, right

(9) Photo available in source, p 1, bottom, middle

At present, there are no contactless remote control and remote signaling units based on magnetic components in the USSR. The first experimental model of such a unit is being installed in the laboratory of the Leningrad Elektropul't Plant.

According to M. I. Likhnitskiy, plant chief designer, these systems are very reliable and will find widespread use in many branches of the national economy.

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Recently, the plant's automatics shop assembled its first consignment of large power totalizers, which will find broad usage in the machinery halls of electric power stations and in large boiler rooms. The large scale, measuring 1.2 x 1.2 meters, enables operating personnel to observe the operation of the equipment from any part of the hall. The automatics shop has also produced a power totalizing unit, consisting of 22 instruments, for the Stalingradskaya GES (Hydroelectric Power Station).

The plant has shipped remote control and telemechanical equipment to China, and has sent along documents to enable the Chinese to produce their own. It filled an order for Czechoslovakia at the beginning of November 1958. (Leningradskaya Pravda, 12 Nov 58)

The Moscow Energopribor Plant and the All-Union Thermal Engineering Institute imeni F. E. Dzerzhinskiy have designed a contactless electronic automatic system. A model of this system produced by the plant received general approval at the recent conference for the automation of the Moscow Electric Power System. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 12 Nov 58)

Until recently, the VRT-53 (now VRT-57) low-channel capacity remote control units made by the [Leningrad] Elektropul't Plant were used in planning the telemechanization of electric power substations.

Since 1958, the L'vov Teplokontrol' Plant has manufactured the simpler and cheaper RST low-channel capacity remote control unit, which was developed in 1955. (Moscow, Promyshlennaya Energetika, Jan 59, p 46)

The first industrial model of a telemechanical system for the control of gas wells (10) has been developed and produced at the Institute of Automatics of Gosplan Ukrainian SSR. By using this system, about 4 million rubles can be saved per year in a gas field having up to 90 wells. (Vil'nyus, Sovetskaya Litva, 15 Oct 58)

(10) Photo showing the industrial model of the telemechanical system undergoing testing in the telemechanics laboratory of the institute available in source, p 1, bottom

B. Industrial Instrumentation

A contactless electronic level gauge has been developed in the Institute of Automatics of Gosplan Ukrainian SSR by V. I. Pechuk, Candidate of Technical Sciences, and Engr V. A. Lapiy. The operation of the new compact instrument is based on the utilization of high-frequency currents, which are produced by a miniature generator.

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This gauge makes it possible to control the levels of liquids and powdered, granulated, and other bulk solids in vessels without submerging the instrument transmitter in the substances. The transmitter is mounted outside the vessel, which can have a wall thickness of up to 20 mm.

The main advantage of the new instrument is its applicability for automatic level control or apportioning purposes with acids, explosives, or other aggressive substances in closed vessels at any pressure or temperature within these vessels. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Oct 58)

The Tbilisi Scientific Research Institute of Instrument Making and Automation Equipment is developing a machine for regulating the position of the electrodes in ferroalloy arc furnaces. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 17 Oct 58)

The Central Laboratory for Automatics of the Ministry of Construction RSFSR has developed and produced its first consignment of electronic pH meters (11), which are designed to measure the acidity of various industrial solutions. The use of these meters will make possible the automation of a number of processes in the metallurgical, chemical, food, and pharmaceutical industries. (Moscow, Vechernyaya Moskva, 20 Dec 58)

(11) Photo showing pH meters being adjusted available in source, p 2, middle, right

High-speed photoelectric pyrometers (12) have been designed and built in the Central Laboratory for Automatics of the Ministry of Construction RSFSR. These pyrometers are designed for installation at the Bhilai Steel Mill in India, for determining the temperature of metal undergoing rolling. (Moscow, Vechernyaya Moskva, 12 Dec 58)

(12) Photo showing a photoelectric pyrometer undergoing adjustment available in source, p 2, top, right

Electronic instruments made by the Leningrad Lenteplopribor Plant have drawn the attention of many visitors to the Brussels World's Fair. These instruments are used for measuring industrial thermal processes in the metallurgical, chemical, power-engineering, and other industries. Electronic automatic chart-recording and thermal control instruments made by the plant are also used by scientific research organizations. They can be encountered on the Severnyy Polyus drift stations and in the Antarctic.

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In 1958, the plant began the production of new high-frequency equipment, including electronic instruments for measuring the relative humidity of air, gas, and gaseous mixtures, and instruments for measuring the concentration of hydrogen ions in water compounds.

The plant has produced top-quality equipment for the atomic icebreaker Lenin. In October 1958, it shipped large consignments of electronic instruments to Stalingrad, Kazan', Kiev, and other cities.

The plant has just finished a large consignment of electronic instruments which will be sent to the Bhilai Steel Mill and the Bombay Textile Institute in India. These instruments were made in specially adapted tropical versions.

In 1958, the plant is to supply 433 instruments to practically all the metallurgical enterprises and electric power stations under construction in China. In October the plant shipped its last 27 instruments to China.

Many electronic instruments made by the Leningrad plant are used by the industry of Poland, especially by its chemical enterprises. For instance, the plant has produced several electronic potentiometers and bridges for the chemical plant in Oswiecim. It has already shipped 79 of the 88 instruments it is to produce for Poland during 1958.

In October, the plant will fill the 1958 orders for instruments to be sent to Czechoslovakia, Hungary, Rumania, Bulgaria, and the Democratic People's Republic of Korea. (Leningradskaya Pravda, 9 Oct 58)

An All-Union Mobile Industrial Exhibit will soon open in Moscow, where products of the leading branches of USSR industry will be on display. Among the plants preparing displays for this exhibit is the Leningrad Lenteplopribor Plant, which has already made a potentiometer and an automatic measuring bridge. These high-precision electronic instruments are for measuring and regulating various thermal power processes, and are used extensively at electric power stations and in the metallurgical, chemical, machine building, and other branches of industry.

Yesterday, the plant manufactured another instrument for measuring low currents in laboratory work. This instrument will also be put on display.

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During the past year, large consignments of electronic instruments were shipped to many foreign countries. During the next 2 months, the plant will ship hundreds of thermal power engineering instruments to enterprises and scientific research establishments throughout the country, in considerably larger quantities than during the same period, of 1958. Orders for 206 electronic potentiometers, measuring bridges, etc. have been received from foreign countries. (Leningradskaya Pravda, 3 Jan 59)

The Tallin Control and Measuring Instrument Plant is getting ready to produce a contactless weight-measuring instrument, which will use radioactive isotopes to determine the weight of a moving band; this, in turn, will make it possible to determine its thickness. Since 1957, the plant has begun the production of seven new types of instruments. By the end of the Seven-Year Plan, the plant will convert entirely to the production of instruments for the automatic control of production processes, and its capacity will be doubled. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 14 Dec 58)

A radioactivity counter has successfully undergone tests at the Khar'kov Control and Measuring Instrument Plant. In contrast to photocells, the new instrument may be used in places where the application of light is impracticable. (Moscow, Izvestiya, 23 Dec 58)

The Moscow Experimental Testing Machine and Scales Plant produces complex and highly precise equipment. In 1958, the plant produced 16 types of new mechanisms and instruments. On 16 October 1958 it finished assembling the first consignment of high-power automatic apportioning devices for the metallurgical industry. Recently, the plant mastered the production of apportioning devices which measure 12-100 tons of carbon mixtures.

The plant has produced two complex instruments for testing plastics, on order for the chemical industry. These instruments are used to determine the effect of high temperatures on plastic products. (Moscow, Vechernyaya Moskva, 16 Oct 58)

The Dnepropetrovsk Selenium Rectifier Plant has begun the production of the ARS-3 automatic X-ray separator, which was designed by Dongiprouglemash [Donets State Planning, Design, and Experimental Institute for the Over-All Mechanization of Mines] for mechanizing all labor-consuming processes involved in removing rock from high-grade coal. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 26 Nov 58)

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C. Test Apparatus

A unit for measuring the magnetic properties of steel intended for the electrical engineering industry has been installed in the Verkh-Isetsk Metallurgical Plant. This unit determines the quality of metal with greater precision than foreign models. About 600 tons of high-quality steel is saved per year because of the speed of the measuring process. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 28 Nov 58)

The Khar'kov Electrical Machinery Plant has manufactured and tested a spectrograph for determining the chemical composition of various metals and alloys by an X-ray method. Only a few milligrams of the substance are needed for making an analysis. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 28 Nov 58)

The Riga REZ Electrical Machine Building Plant has designed a new cathode-ray tube instrument for determining types of steel and checking the quality of the tempering of steel parts. It can be used extensively in machine building plants. (Moscow, Leninskoye Znamya, 24 Dec 58)

In 1958, the Leningrad Tool Plant mastered the production of more than ten new measuring instruments and automatic devices, including an "optikator" [optical indicator?], which can measure thickness of articles with a precision of tenths of a micron. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 12 Nov 58)

The Tallin Control and Measuring Instruments Plant has started production of a new type of product, stands for checking the ignition systems of motor vehicles. (Tallin, Sovetskaya Estoniya, 23 Dec 58)

The Tartu Instrument Making Plant has produced sets of improved garage equipment, which will be shipped to various People's Republics. Test stands for checking the ignition systems of internal combustion engines, and other instruments will be shipped to the Mongolian People's Republic, the Democratic Republic of Vietnam, and the People's Republic of Bulgaria. (Tallin, Sovetskaya Estoniya, 27 Dec 58)

D. Electrical Instruments

Recently a conference on expanding the USSR production of electrical measuring instruments was convened by Gosplan USSR in the Vyborg House of Culture. Representatives of plants in more than 20 cities, scientific research institutes, and planning institutes participated in this conference.

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The 260 types of electrical measuring instruments series-produced in the USSR do not meet the ever-growing requirements of the national economy. The main task of the electrical instrument making industry during the Seven-Year Plan is to expand its products-list, to develop new instruments, and to modernize existing instruments. This can be achieved with the products specialization of plants and over-all automation and mechanization of production.

Speakers at the conference included Prof N. N. Razumovskiy, Doctor of Technical Sciences; Engr G. I. Kavalerov; Prof A. D. Nesterenko, Corresponding Member of the Academy of Sciences Ukrainian SSR; and V. G. Logashev, Candidate of Technical Sciences.

Participants at the conference approved a resolution according to which it is planned to master the production of 860 types of electrical measuring instruments in the USSR. An over-all plan for products specialization at plants subordinate to various sovnarkhozes, for expansion of information exchange, and for other measures was also adopted at the conference. (Leningradskaya Pravda, 21 Dec 58)

The All-Union Electrical Engineering Institute imeni Lenin has developed new types of oscillographs: the 12-KM-6 12-beam cathode oscillograph with mechanical scanning, and the 3KO-20 three-beam oscillograph (13) with electrical scanning.

The 12 KM-6 is designed for registering processes in various switching operations in laboratories or in electrical installations.

The type 3KO-20 is designed for the simultaneous registry of three processes up to 10^{-7} seconds in duration.

(Source gives specifications of these two oscillographs.) (Moscow, Vestnik Elektropromyshlennosti, Jan 59, p 71)

(13) Photo available in source, p 71

On 19 December 1958, the Kishinev Electrical Measuring Instrument Plant produced its first oscillograph, which is designed for recording variable electrical quantities and mechanical, physical, chemical, and other processes converted into electrical quantities. The plant has a machine shop, a tool shop, an electroplating shop, and an assembly shop, which is the largest in the plant.

The plant will supply electrical measuring instruments for scientific research institutes and for other needs of the USSR national economy. I. Kh. Broder is its chief designer. (Kishinev, Sovetskaya Moldaviya, 21 Dec 58)

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During the Seven-Year Plan, the output of the Yerevan Elektrotochpribor Plant will be increased sharply. The plant now produces hundreds of thousands of instruments per year. Soon it will begin the production of type Ts90 high-voltage snap-around amprobes, type M93 extension-rod mounted instruments with internal frame magnets, and M94 core-mounted instruments. The plant also produces the type M24 instrument. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 28 Dec 58)

In 1956, the Krasnodar ZIP Electrical Engineering Plant mastered the production of improved type D-354 electrodynamic DC current meters, which were designed specifically for electric railroad rolling stock. These meters were rated for a current of about 750 amperes. Despite the unfavorable working conditions of these meters, most of them have reading errors not greater than plus or minus 3 percent.

At present, the production of meters for electric rolling stock has been assigned to the Leningrad Electrical Machinery Plant. It is hoped that Gosplan USSR and the Leningradskiy Sovnarkhoz have taken decisive measures toward improving the quality of the meters and organizing their mass production. (Moscow, Promyshlennaya Energetika, Jan 59, p 21)

The Zhitomir Elektroizmeritel' Electrical Measuring Instrument Plant (Zhitomirskiy zavod elektroizmeritel'nykh priborov "Elektroizmeritel'"), which recently went into operation, is producing the type N9 push-button switches and the type Ts20 voltammeters.

The single-button switches, which measure 28 x 22 x 26 mm and weigh 12 grams, are designed for AC circuits up to 220 volts, 2.5 amp.

The type Ts20 voltammeter is a multirange portable rectifier instrument for measuring 0-300 microamperes DC, 0-750 milliamperes DC, 0-1.5-600 volts DC, 1.5-7.5 volts AC, 120-600 volts AC, 5-500 ohms DC, and 5-500 kiloohms DC. The instrument measures 208 x 118 x 75 mm and weighs 1.6 kg. (Moscow, Promyshlennaya Energetika, Jan 59, pp 54-55)

The Uman' Megommetr Electrical Measuring Instrument Plant (Umanskiy zavod elektroizmeritel'nykh priborov "Megommetr"), which recently went into operation, is producing the types UTT-5, UTT-6, and I-54 instrument transformers. It is expected to begin the production of type M1101 megohmmeters by the end of 1958. (Moscow, Promyshlennaya Energetika, Jan 59, p 54)

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Ordinary 5-amp electric meters installed in Moskovskaya Oblast often have to carry a load of 7-10 amp. The Moscow Oblast Sovnarkhoz, the Moscow City Sovnarkhoz, and the Scientific Research Institute of the Electrical Engineering Industry are supposed to organize the production of household meters with capacities 300-400 percent of those of currently used types.

The Mytishchi Electric Meter Plant has developed three-phase direct-coupling electric meters with capacities up to 50 amp, which are badly needed by industry. However, the Leningrad [Electrical Machinery] Plant, which is supposed to series-produce these meters, is not starting their production on time. (Moscow, Leninskoye Znamya, 30 Dec 58)

The Mytishchi Electric Meter Plant, in conformity with its 1958 plan for new technology, has designed the new type SO-OM single-phase electric meter, which is an active-power instrument utilizing an induction system with a rated frequency of 50 cycles per second, and is connected directly into the circuit.

These meters are designed for permanent installation indoors where atmospheric relative humidity does not exceed 80 percent and no aggressive vapors or gases are present.

The Mytishchi plant expects to put the SO-OM into mass production in 1959, in place of the currently produced type SO-2 meter. The new meter measures 151 x 110 x 101 mm without front housing and weigh one kg with housing.

The meter mechanism should operate at least 4,500 hours at an average load, or at least 1,500 hours at a peak load.

(Source gives comparative specifications of the SO-OM and SO-2 meters). (Moscow, Promyshlennaya Energetika, Jan 59, p 59)

In 1958, the Mytishchi Electric Meter Plant developed the specifications and design of a new prototype single-phase multiscale meter, the SOMP-1.

The SOMP-1 is supposed to conform to precision class .5 and must be suitable for checking single- and three-phase active power meters of classes 2.0 and 2.5.

The specifications for this prototype meter were coordinated on 25 December 1958 with the State Inspectorate for Industrial Power and Power Supervision.

(Source gives considerable information on the new meter.) (Moscow, Promyshlennaya Energetika, Mar 59, pp 58-59)

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With the replanning of its assembly section completed, the Moscow Elektroschetchik Plant now assembles electric meters on conveyers. The plant has a semiautomatic line for adjusting meters (14).

Yakov Alekseyevich Boyarskiy is the plant director. (Moscow, Moskovskaya Pravda, 24 Oct 58)

(14) Photo available in source, p 1, top

The Moscow Elektroschetchik Plant has an automatic meter-checking machine (15), which can check 1,300 meters in 8 hours. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 26 Oct 58)

(15) Photo available in source, p 3, top

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E. Geophysical Instruments

The Experimental Production Division of the Institute of Physics, Academy of Sciences Ukrainian SSR, has begun the series production of high-precision bolometers, which are designed for detecting very slight temperature changes.

Invisible heat waves penetrating a special window in the instrument are reflected from a spherical mirror and fall on a minute highly sensitive semiconductor element, which is a little over one sq mm in area and 7 microns in thickness. The bolometer is very simple and can operate without an amplifier. (Vil'nyus, Sovetskaya Litva, 2 Nov 58)

The Leningrad Gidrometpribor Plant, which resembles a large laboratory, produces much equipment for weather stations, expeditions, various branches of industry, agriculture, airports, and fishing ports.

The plant has a glass-blowing shop, where workers are dressed in white and all precautions for cleanliness are taken. The plant produces deep-water thermometers and thermal depth gauges. These instruments will accurately measure water temperature 5,000-10,000 meters in depth.

One of the plant's latest products is the wave recorder (volnograf), which is used for measuring the height and periods of waves. Tests of this instrument in the North Atlantic have shown it to be very valuable.

Recently, the plant finished the development of a remote-controlled meteorological station, which is designed for the fourth full Antarctic expedition. It can determine atmospheric temperatures to minus 90 degrees, wind speed up to 60 meters per second, wind direction, and atmospheric humidity. (Leningradskaya Pravda, 25 Nov 58)

Thermometers and mercury barometers are assembled at the Leningrad Gidrometpribor Plant. (Moscow, Komsomol'skaya Pravda, 30 Nov 58)

The Moscow Neftepribor Plant is producing a 24-channel seismic station, the SS-24, and is installing a 60-channel SS-30/60 seismic station on a GAZ-51 truck chassis.

These stations are used on a wide scale for locating oil and other minerals.

In 1958, the plant has already produced 62 SS-24 stations and 80 SS-30/60 stations. (Moscow, Moskovskaya Pravda, 25 Nov 58)

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F. Medical Equipment

The Leningrad Electromedical Equipment Plant is the producer of the AV-1 vertical autoclave for sterilizing materials and instruments. In 1958, the plant began the series production of this equipment. On 13 October 1958, it produced 150 AV-1 autoclaves. It is getting ready to series-produce autoclaves for the drug supply network.

In the near future, curative institutions will receive from the plant so-called "bidistillers," equipment for the double distillation of water used for intravenous injections; and also sterilization and distillation units for large operating rooms. (Leningradskaya Pravda, 14 Oct 58)

[Comment: This appears to be a new plant.]

I. T. Akulinichev, a physician at the "Arkhangel'skoye" Sanitarium in the Moscow suburbs, has developed an electronic oscilloscope for simultaneously registering three separate heart functions on a single cathode-ray tube. The Moscow Electrical Medical Equipment Plant is getting ready to produce the first experimental models of this instrument. (Moscow, Leninskoye Znamya, 2 Nov 58)

The Frunze Physical Instrument Plant manufactured its first products, centrifuges for medical laboratories, in April 1958.

The plant had to make some of its own machinery and machine tools, which were in short supply. Almost all the equipment of the electroplating section was made by plant workers.

The plant was recently informed that its centrifuges would be exhibited at 20 international expositions and fairs.

This it the first plant in the USSR to produce an electronic level indicator. It has also begun the production of a complex electrophoresis apparatus, which is used for analyzing complex albumin compounds. This apparatus has been in production for only 2 months.

Preparations are being made to produce a new level gauge.

The Physical Instrument Plant is still under construction. During the Seven-Year Plan, its output will be quintupled. (Frunze, Sovetskaya Kirgiziya, 6 Nov 58)

The Moscow [EMA] Electrical Medical Equipment Plant is preparing to manufacture a consignment of new model ASM-3 apparatuses for therapeutic electrogymnastics. The apparatus can also be used for electrodiagnoses of the location and character of diseases of the motor nerves and muscles. (Moscow, Moskovskaya Pravda, 2 Dec 58)

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G. Computers

Machines installed in the Laboratory of Electromodeling of the Moscow State University include the EI-12 electrical integrator. This machine solved 200-250 complex equations in determining sea currents.

Another machine, the IPT-5, is used at present for solving differential equations of the eighth order. Much success has been attained in using the small MN-7 electronic analog computer, which despite its small size can solve rather complex equations, such as calculating installations for electronic telegraphic apparatuses based on ferrites.

Recently the laboratory computed printed circuits which will be used for making modern radio and television sets. Computations on the operating conditions of master television receiving antennas were made for the Moscow Television Branch Laboratory. -- Valentina Afanas'yevna Yevtushenko, Chief, Laboratory of Electro-modeling (Moscow, Moskovskaya Pravda, 22 Nov 58)

The laboratory of high-voltage techniques of the Leningrad Polytechnic Institute imeni M. I. Kalinin has developed an instrument to analyze the degree to which a substation is protected from lightning. This instrument is actually an electrical analog computer, which can be used for studying transient processes during overvoltages caused by lightning in the complex circuits of substations. This computer makes it easier to design and operate an electric power system and affords new vistas for research work. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 23 Nov 58)

The Moscow Scientific Research Institute of Computer Machine Building has developed and produced a model of an electronic harmonic analyzer (16). It can be used in mechanics, hydrodynamics, and aerodynamics, optics, acoustics, meteorology, astronomy, and geophysics. (Moscow, Moskovskaya Pravda, 11 Dec 58)

(16) Photo available in source, p 1, upper right

The Scientific Research Institute of Mathematical Machines was organized in Yerevan in the summer of 1956. It is to develop modern computing equipment especially high-speed electronic computers. The institute is staffed principally by graduates of Yerevan State University, the polytechnic institute, and other vuzes (higher educational institutions) and tekhnikums of the republic.

The institute has set up and will soon put into use the new Yerevan universal computer. In the next few months, the complex adjustment of the Aragats high-production high-speed computer will be completed. The Razdan electronic computer will be ready for use in 1959. These new universal computers are designed for scientific institutes, design bureaus, and large enterprises.

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Research has begun in order to develop design components and circuits which will increase the speed of computers to several hundred thousand operations per second. In addition, the institute is engaged with problems directly concerned with the economy of the republic. This would include the group of control machines for the Sevano-Razdan cascade of hydroelectric power stations and a machine for controlling the electrolysis processes at the Kanaz Plant (being done in conjunction with the Scientific Research Institute of Electrical Engineering of the Yerevan Electrical Machine Building Plant).

Last year, a computer center was established in Yerevan for developing mathematical methods and for operating computers. -- S. Mergelyan, Academician of Academy of Sciences Armenian SSR (Yerevan, Kommunist, 31 Dec 58)

The Penza Computing and Analyzing Machine Plant has successfully filled an order for the production of a large number of relay-operated machines for the high-speed processing of data from the All-Union Census. (Moscow, Izvestiya, 14 Nov 58)

The Kursk Computing Machine Plant has manufactured the VMM-2 automatic multikey calculating machine, which operates with nine-digit numbers. It does 600 operations per hour when operating with five-digit numbers. (Kishinev, Sovetskaya Moldaviya, 2 Dec 58)

The Kursk Computing Machine Plant has a new high-precision machinery shop (17). (Leningradskaya Pravda, 7 Jan 59)

(17) Photo available in source, p 1, bottom, left

H. Plant and Institute Information

The Tallin Punane RET Plant produces electrical and radio measuring instruments, which are used on a large scale in various USSR enterprises for automation and mechanization purposes.

By 1965, the plant will more than double its gross output and will more than triple its output of radio and electrical measuring instruments. (Moscow, Partiynaya Zhizn', Jan 59, p 45)

At present, the Riga Etalon Experimental Plant is finishing the assembly of the main unit (18) of a high-speed electronic machine for the Institute of Physics of the Academy of Sciences Latvian SSR. It is also finishing assembly work on an automatic machine for grinding semiconductor plates, which was ordered by the Design and Technological Bureau of the Latvian Sovnarkhoz.

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Lately, the plant has been preparing for the production of manometric vacuum meters for calibrating pressure and vacuum testing instruments. Until recently, calibration laboratories used mercury vacuum meters, which sometimes led to mercury poisoning. The new instrument is completely safe. The plant will produce the first 100 instruments of this type in 1959.

The plant is also preparing for the production of a new contact instrument for angle gauges, class-1 and class-2 load-piston manometers (gruzoporshnevyye manometry), and other instruments. (Riga, Sovetskaya Latviya, 3 Jan 59)

(18) Photo showing a main unit for a "magnetic memory" machine available in source, p 2, bottom, right.

The [Moscow] Kalibr Plant plans to install 20 automatic lines and 12 production lines.

During 1959-1965, it will series-produce more than 80 new types of tools, instruments, and automatics, including automatics based on the latest electronic principles of measuring. They will sort parts accurately to tenths of a micron. (Moscow, Vechernyaya Moskva, 24 Dec 58)

The Leningrad Soyuz Plant produces fountain pens, drawing equipment, and draftman's tools. (Leningradskaya Pravda, 28 Dec 58)

The personnel office of the Moscow Fizelektropribor Plant No 4 [zavod No 4 "Fizelektropribor"] is located at Elektrozavodskaya ulitsa 33, Moscow. (Moscow, Vechernyaya Moskva, 30 Oct 58)

VNIITIpribor (All-Union Scientific Research Technological Institute for Instrument Making) of Glavniiproyekt [Main Administration of Scientific Research and Planning Institutes] of Gosplan USSR is opening competitive examinations for new and vacant positions. Applications should be made to the director of the institute at Kholodil'nyy Pereulok 1, Moscow V-26. -- Advertisement

(Source gives details of the available positions.) (Moscow, Vechernyaya Moskva, 16 Oct 58)

I. Motion-Picture and Photographic Apparatus

For the first time in the history of world cinematography, specialists of Leningrad have developed a motion-picture projector with optical image equalization for color television broadcasting.

At present, all USSR television centers use motion-picture projectors with momentary (pulse) lighting of the projected frame. Such projectors make it difficult to transmit color films over television.

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The new projector was developed under the leadership of A. N. Tarasov, a designer. Three projectors have already been produced for the first USSR color television center, which is under construction in Moscow. (Moscow, Sovetskaya Rossiya, 15 Oct 58)

A group of Leningrad specialists headed by Engr A. N. Tarasov have developed a motion-picture projector for color television. The group had to replace the pulsating movement of ordinary film projectors with a steady movement by means of using a special compensator. As a result, there is no flicker on the television screen when this projector is used. The steady movement reduces wear and tear on costly color films.

The new projector is destined for color television centers of Moscow and Leningrad. It can also be used as a model for designing new improved black-and-white projectors. (Leningradskaya Pravda, 18 Oct 58)

The Scientific Research Motion-Picture Photography Institute and the Kiev Kinodetal' Plant developed the KPP-2 apparatus for the projection of panoramic films in 1956.

(Source gives detailed description of the KPP-2 projector.) (Moscow, Tekhnika Kino i Televideniya, Feb 59, p 16)

The Leningrad Lenkinap Plant is getting ready for the production of new high-quality loud-speakers for medium and large motion-picture theaters, microphones, magnetic sound heads, universal transistorized sound reproduction equipment, magnetic sound recording apparatus built according to the functional block system, 2-kw generating units with voltage stabilizers, and other equipment.

In addition, the plant is developing a new Soviet system of recording moving images on magnetic tape.

At present, the Lenkinap Plant is producing stereophonic sound reproduction equipment for wide-screen and panoramic theaters; stationary and mobile types KUSU-52 and KUUP-56 amplifier units for wide and narrow film projectors; mobile generating units; and all types of projection lenses and other optical equipment for motion-picture apparatus.

All this work is being conducted in collaboration with the Scientific Research Motion-Picture Photography Institute, the Leningrad Institute of Motion-Picture Engineers, the Central Design Bureau of the Ministry of Culture USSR, and the movie studios of the USSR.

The plant is to be aided by the Central Design Bureau of the Ministry of Culture, which is designing various lenses, developing machines, duplicating equipment, recording and transcription equipment, and other apparatus.

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In the near future, the plant will substitute new materials such as capron for nonferrous metals and textolite. It will use a new type of paint for finishing equipment, and will utilize "getinaks" [a laminated plastic] foil for making printed circuits.

Much of the Lenkinap's work is devoted to preparations for transistorizing its amplifier equipment. During the first half of 1959, the plant will begin the production of the type 7U-17 preliminary amplifier, which will be made in the form of an attachment to the widely used 90U-2 amplifier.

In 1959-1960, the plant will convert fully to the production of new transistorized sound reproduction equipment for mobile motion-picture units. -- S. Kuznetsov, Director, Lenkinap Plant (Moscow, Kinomekhanik, Jan 59, p 41)

O. I. Ioshin is chief designer of the Leningrad Kinap Plant. (Leningradskaya Pravda, 25 Oct 58)

R. M. Kasherininov is chief engineer of the Leningrad Lenkinap Plant.

V. K. Karpov is director of the Samarkand Kinap Plant. (Moscow, Tekhnika Kino i Televideniya, Jan 59, p 95)

The Minsk Kinodetal' Plant was organized at the end of 1951 on the basis of former motion-picture repair shops. At first, the plant produced spare parts, about 5,000-6,000 per month. In 11 months of 1958, it produced 225,000 various spare parts of more than 40 type-designations. -- S. Geller, Director, Minsk Kinodetal' Plant (Moscow, Kinomekhanik, Feb 59, pp 41-42)

The Odessa Kinap Plant has produced its first consignment of the model 35-GM-2 machines for the production of color movie films by the hydrotype method. Color copies are obtained by the sequential application of analine dyes of the three basic colors, purple, blue, and yellow, on a black-and-white film.

The first hydrotype machines are being sent to film copying factories in Moscow, Leningrad, and Kazan'. (Kiev, Pravda Ukrainy, 9 Oct 58)

Between 1946 and October 1958, the Odessa Kinap Plant produced 120,765 motion-picture installations and 45,605,000 rubles' worth of spare parts. This plant, which was founded in 1924, is now producing the narrow-film Ukraina projector, the wide-film Odessa projector, screens, gluing presses for 35- and 16-mm film, inspection sets, mobile radio and motion-picture units, and microfilm machines.

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Besides this, the plant produces movie studio equipment, film-manufacturing equipment, and equipment for television studios.

The Odessa plant's production is being hampered because the Leningrad Lenkinap Plant and the Samarkand Kinap Plant refuse to supply any more optical equipment, power equipment, and other products they once supplied through interplant cooperation. For example, the Odessa plant is unable to put the KPS-16-1 narrow film projector into production, although it was scheduled to do so in 1958. -- A Perminov, Director, Odessa Kinap Plant (Moscow, Kinomekhanik, Jan 59, p 42)

Soviet industry has developed and started production of new 8-mm motion-picture apparatus, including the Kama camera and the 8P-1 projector. The Kama is designed for magazine loading of single 8-mm film and thus differs from cameras of previous design, such as the AK-8 and "Admira" cameras, which use double 8-mm film on reels.

(Source contains further information and illustrations of the Kama camera and the 8P-1 projector.) (Moscow, Sovetskoye Foto, Feb 59, pp 49-50)

The Krasnogorsk Machinery Plant produces the Zorkiy-4 camera. (Moscow, Leninskoye Znamya, 28 Oct 58)

Grand Prizes were awarded at the Brussels World's Fair to the State Optical Institute, which designed and produced a series of high-precision interference instruments. A Certificate of Honor was awarded to the Leningrad GOMZ Machinery Plant [Leningradskiy mekhanicheskiy zovod "GOMZ"] for its optical measuring instruments. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 19 Oct 58)

The Moscow Electric Bulb Plant has begun the mass production of the LUCh-57 electronic photographic flash lamp. The new lamp has a unit for adjusting the light power and is adaptable for use with two reflectors. (Moscow, Trud, 20 Nov 58)

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V. ELECTRICAL PRODUCTS

A. Wire and Cable

The new Podol'sk Mikroprovod Plant makes wires so fine, from one fourth to one third the size of a human hair, that they cannot be seen by the naked eye. These wires are made of manganin, nichrome, iron-free copper, platinum, or silver, and are covered with a very thin layer of glass or enamel insulation. They are in very great demand for making computers, electronic devices, miniature radio components, and various coils for high-precision measuring instruments. (Vil'nyus, Sovetskaya Litva, 26 Oct 58)

The rapid growth of machine building, especially of precision instrument making and electronic automatic and telemechanical equipment manufacture, requires that USSR industry produce enameled wire of fine and extrafine gauges and wire made of resistance alloys (nichrome, maganin, and constantan) insulated with high-durability varnishes. For this reason, the specialized Podol'sk Mikroprovod Plant was founded after the 20th Congress of the CPSU. This plant produces enameled wire less than one mm in gauge, ranging mainly from 4 microns to .1 mm.

The Mikroprovod Plant has developed a number of completely new industrial processes. It worked jointly with a scientific research institute to pioneer in the utilization of polyester varnish, which protects enameled wire from the effects of high temperatures.

To effect a sharp increase in the production of new types of wire, plant workers, in collaboration with scientists, developed a number of models of modern automatic equipment, including a new horizontal eight-wire enameling machine with semiautomatic regulation of the varnish level and with an instrument for checking the quality of the wire.

In 1957, the plant produced double the amount of enameled wire produced in 1956. In 1958, it will increase the output of this wire 70 percent above that of 1957, whereby the production of the finest gauge wire will increase from fivefold to tenfold.

During the Seven-Year Plan, the plant will mechanize and automate labor-consuming processes and will improve production organization and methods. Thus it will be able to more than double its output of enameled wire in existing production space, and if the addition of new buildings is taken into account, its production will increase tenfold.

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However, the plant is uneasy about the serious disproportion existing in the planned production of wire, and of varnishes for it, especially heat-resistant and high-durability varnishes. Plant workers have to battle for each liter or two of polyester varnish they obtain from the All-Union Power Engineering Institute, where such varnishes are produced in a primitive fashion and in extremely small quantities.

The former Ministry of Chemical Industry, now the State Committee for Chemistry of the Council of Ministers USSR, and Gosplan USSR and Gosplan RSFSR have been studying the problem of developing the industrial production of these varnishes for 2 years, but the matter remains deadlocked. There is not enough regular V-L-7 varnish, which has been in production for a long time. The Kuskovo Chemical Plant, which produces resins for this varnish, meets only about one fifth of the needs of the Mikroprovod Plant.

We are of the opinion that a special paragraph about the development of the production of high-quality varnishes, which are urgently needed by the cable industry, should be included in the preliminary figures for the Seven-Year Plan. The successful fulfillment of the party's goals in instrument making and other fields depends greatly on the fulfillment of this point.

Another drawback in the development of the production of enameled wire is that the production of air-conditioning units for shops has not yet been organized. The production of microwire requires a uniform atmospheric temperature, humidity, and pressure; moreover, the atmosphere must be clean. However, the Mikroprovod Plant is unable to make such units itself. There are no engineering plans for air-conditioning units in the production shops. Many planning institutes and bureaus are working on this problem, but none of these feel they are responsible for seeing it through.

It is about time that a large planning and research organization for designing and utilizing air conditioners is organized in the USSR, and that special plants are selected to produce them. This is necessary not only for enameled wire production, but also for many branches of industry.

At present, each cable plant tries to organize its own production of diamond draw dies, which entails high expenditures of state funds. The centralized production of diamond draw dies must be organized without delay, since diamonds are plentiful in the USSR.

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Preliminary Seven-Year Plan figures should include organizing the production of equipment for extrafine wire drawing. So far, we have had to use equipment imported from abroad, which does not satisfy the growing needs of the cable industry either quantitatively or qualitatively.

The Mikroprovod Plant hopes that the requirements for the production of extrafine wire will be taken into account in the great plans formulated by the party for the next 7 years. -- A. Bykov, Director, Podol'sk Mikroprovod Plant (Moscow, Leninskoye Znamya, 27 Nov 58)

Recently, the new Bendery Moldavkabel' Plant shipped its first four freight car loads of products to new construction projects in Kiev, Poltava, Dnepropetrovsk, and Kherson. The plant is now producing a regular consignment of cable, which will be used in the construction of new high-voltage main transmission lines. (Kishinev, Sovetskaya Moldavia, 23 Oct 58)

[Comment: It is interesting that the first products of this new plant were not designated for supplying the needs of the Moldavian SSR.]

The recently organized Bendery Cable Plant has already produced hundreds of tons of products (19). (Kiev, Pravda Ukrainy, 13 Nov 58)

(19) Photo showing the interior of a plant shop available in source, p 1, bottom

The Bendery Moldavkabel' Plant is undergoing expansion; modern equipment is being installed there. During the first quarter of 1959, the plant will produce its first kilograms of bare copper wire. During 1959, it will also begin the production of rubber-covered wire. Preparations are being made for the production of enameled wire in the near future, and plastic wire will also be produced. Such wire will be used for mechanisms operating under water. A great quantity of telephone cable will also be produced.

The plant will begin operating at full capacity in 1965. (Kishinev, Sovetskaya Moldaviya, 26 Nov 58)

The aluminum shop of the Bendery Moldavkabel' Plant has pledged to produce 500 tons of aluminum cable before the opening of the 21st Congress of the CPSU. The braiding shop has pledged to produce 3,000 km of installation wire before the congress. (Riga, Sovetskaya Latviya, 20 Dec 58)

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The Mingechaur Azerkabel' Plant will go into operation at full capacity during 1965. The first stage of the plant was finished in 1958. Its products are being shipped to enterprises in the Azerbaydzhan SSR. If Mingechaur construction workers were allotted sufficient funds, they could finish constructing the plant in 2 years instead of 7. (Baku, Bakinskiy Rabochiy, 18 Dec 58)

The Khabarovsk Amurkabel' Plant produces 14 types of cable for local and long-distance telecommunications. Its output is now more than 12 times what it was in 1956.

The plant is still under construction. The plan is to finish it by 1964, but the plant workers hope to complete construction by 1962. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 19 Nov 58)

Personnel of the Staliniri Emal' provod Plant (Stalinirskiy zavod "Emal'provod") have visited the Rybinsk Cable Plant to gain experience in organizing the production of enameled wire. (Tbilisi, Zarya Vostoka, 31 Dec 58)

A [new] enamel shop was recently put into operation in the Rybinsk Cable Plant. This shop has mastered the production of wires with a new type of synthetic coating called "vinifleks." (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 17 Dec 58)

The [Ufa] Ufimkabel' Plant, in collaboration with the Scientific Research Institute of the Cable Industry, has developed a chlorovinyl film which can completely replace the expensive yarn used so extensively in the cable industry. However, the production of this film is being held up because there are no raw materials for making it. The production of special pastes necessary for making this chlorovinyl film must be accelerated, especially at the Vladimir Chemical Plant. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 12 Dec 58)

The Tashkent Scientific Research Institute of the Cable Industry is located at Chirchik Gornyy, Tashkent. It can be reached by taking bus route No 4 to stop "Ulitsa Pobeda." (Tashkent, Pravda Vostoka, 25 Oct 58)

B. Switches and Controls

The Tbilisi Elektropuskatel' Plant and the Tbilisi Elektroavtomat Plant are new enterprises in the Georgian SSR. The Elektropuskatel' Plant produces size-1 magnetic starters for electric motors up to 2 kw in power. It also makes KU-72 control knobs for magnetic starters. In 1958, the plant produced magnetic starters with housings made of plastic instead of metal for the first time. Recently, it made its first consignment of travel irons.

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The output of the Elektroavtomat Plant is also increasing rapidly. This plant makes type A-3161 single-phase automatic switches, A-3163 three-phase automatic switches, and A-3124 highpower three-phase automatic switches.

Before 1959, the plant is to master the production of lighting and power panels. (Tbilisi, Zarya Vostoka, 25 Oct 58)

The Rostov Rostenergo Electrical Repair Plant has begun the series production of miniature single-pole combination communications and telemechanical equipment suitable for operations on transmission lines from 35 to 220 kv in potential. This is the first time such equipment has been produced in the USSR. It will make it possible to control the operations of an electric power station from a distance of 300-500 km. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 23 Nov 58)

The Chistyakov Electrical Engineering Plant (Chistyakovskiy elektrotekhnicheskiy zavod) produces explosion-proof push-button control units of the RV version of type KUV-6012A.

The plant has finished the designs and blueprints for a series of explosion-proof push-button switches, namely, the KUV-11 single-button, the KUV-12 two-button, and the KUV-13 three-button snap-action switches, which have been sent to the MakNII [Makeyevka Scientific Research Institute for Safety of Operations in the Mining Industry] for approval. (Moscow, Promyshlennaya Energetika, Jan 59, p 54)

The Konotop Krasnyy Metallist Electrical Machinery Plant produces the type GERN-3 gamma-electronic relay, which is designed for use in automatic installations of mines, ore-dressing mills, and coal pits.

The plant recommends the use of gamma relays only in special cases where other control methods are either impossible or extremely difficult. (Moscow, Promyshlennaya Energetika, Jan 59, p 54)

The Cheboksary Electrical Equipment Plant is producing the series KTV contractors for AC operation, which are designed for power networks up to 380 volts at 50 cycles per second.

(Source gives fairly complete specifications of these contactors.) (Moscow, Promyshlennaya Energetika, Feb 59, p 54)

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C. Ultrasonic Generator

A powerful ultrasonic generator, the GU-1, has been designed at the Khar'kov Electrical Machinery Plant. This generator, utilizing sound frequencies of more than 12,000 cycles per second, can clean parts before they are plated with nickel, cadmium, or silver. The cleaning of parts of extremely complex shapes can be finished in a fraction of the time required by currently used washing machines. Ultrasonics will considerably accelerate the process of electroplating. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 14 Dec 58)

A powerful ultrasonic generator has been designed at the Khar'kov Electrical Machinery Plant. This new generator permits a tenfold speed-up in the cleaning of the most complex parts prior to electroplating them. (Kiev, Pravda Ukrainy, 11 Dec 58)

D. Batteries

In answer to criticism that had appeared in Promyshlenno-Ekonomicheskaya Gazeta, D. Chernichkin, a member of Gosplan USSR, states that the Leningrad Scientific Research Storage Battery Institute and the Saratov Alkaline Storage Battery Plant have developed sealed nickle-cadmium storage batteries and have devised manufacturing methods for them.

According to Chernichkin, the production of portable battery lamps and batteries for them is to be organized at the Kuzbasselement Plant of the Kemerovskiy Sovnarkhoz. The Khar'kov Svet Shakhtera Plant will produce an experimental consignment of plateless iron-nickel storage batteries with a capacity of 15 ampere-hours. The Lugansk Alkaline Storage Battery Plant will produce storage batteries for mine lamps. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 26 Oct 58)

[Comment: It appears that the Kuzbasselement Plant and the Lugansk Alkaline Storage Battery Plant are new.]

The Leningrad Leninskaya Iskra Plant has begun the series production of a new type of disk storage battery, which is only as large as a 10-kopeck coin.

In all ordinary storage batteries, there are holes for exhausting the gases produced. Electrolyte splatters out of the holes, causing a dangerous situation. In the new type of battery, the gas produced on one electrode enters into a chemical reaction with the other electrode.

The miniature storage batteries are used for making new hearing aids. By the end of 1958, about 15,000 batteries will be sent to the Moscow Hearing Aid Equipment Plant. (Leningradskaya Pravda, 14 Dec 58)

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E. Welding Equipment

The Scientific Research Institute of Electric Welding Equipment is developing machines for welding very thin parts. Recently it developed seven machines for spot, seam, and butt microwelding, which have been put to use on a mass scale in more than 40 USSR enterprises.

The institute recently produced and tested the first machine for welding extra-thin wire made of nonferrous alloys.

A group of institute workers have developed a method for welding leads to the bases of incandescent lamps. (Leningradskaya Pravda, 26 Oct 58)

The Tbilisi Elektrosvarka Machinery and Repair Plant (Tbilisskiy Remontno-Mekhanicheskiy Zavod "Elektrosvarka") is being fully reconstructed and will soon be converted into a large specialized plant for the production of electric welders. (Leningradskaya Pravda, 2 Dec 58)

F. Other Electrical Equipment

Since 1958, the Cheboksary Electrical Equipment Plant has been producing type LS53 signal lamps, rated for 24-500 volts. (Moscow, Promyshlennaya Energetika, Jan 59, p 54)

The Moscow Searchlight Plant has a machine shop (20). (Moscow, Moskovskaya Pravda, 25 Nov 58)

(20) Photo available in source, p 1, bottom, left

The Moscow Power Machinery Plant (Moskovskiy energomekhanicheskiy zavod -- MEZ) of the Ministry of Railways is producing type TK-48 current transformers for indoor low-voltage installations, which have transformation ratios of 20/5, 50/5, 100/5, 150/5, 200/5, 300/5, and 600/5 amp. (Moscow, Promyshlennaya Energetika, Jan 59, p 54)

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