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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS (9)

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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS (9)

This is a series publication containing translations of items concerning communications in the USSR. The items contained herein, covering the subjects listed in the table of contents below, were taken from various newspapers, periodicals, etc., published in the USSR in January, March, April and May 1961.

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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS

ABOUT THE PLANS FOR CONSTRUCTION OF AUTOMATIC TELEPHONE STATIONS IN 1961 IN MOSCOW CITY -- (Decision of the Executive Committee of Moscow City Soviet of Workers Deputies of 27 Jan 1961, No 6/9), Moscow Byulleten' Ispolnitel'nogo Komiteta Moscovskogo Gorodskogo Sovieta, No 8, 1961, pp 24-25.

The Executive Committee of the Moscow Soviet points out that for the past years the development of telephone communications in the City of Moscow has been lagging as compared with the general development of the city's economy. The targets set by the Council of Ministers USSR in respect to the development of telephone communications in Moscow during 1951-61 was fulfilled by only 56%.

Many enterprises, organizations and agencies, including children's establishments, have no telephone service. After the expansion of the limits of the city of Moscow, the telephone communications situation worsened considerably, because the telephone stations' capacity allocated to serve the annexed territory cannot possibly satisfy even minimal telephone requirements of the population, state establishments, enterprises and organizations.

The Executive Committee of Moscow Soviet resolved:

1. To request Comrade Peyrtsev, Minister of Communications USSR and Comrade Cherenkov, Minister of Communications RSFSR to study once again the problem of increasing the construction of automatic telephone stations so as to satisfy the telephone service requirements for the Moscow population.

2. To instruct the Administration of the Moscow City Telephone Network (Comrade Pominov) to install in accordance with the instructions from organizations concerned the telephones in all hospitals, polyclinics, children nurseries, kindergartens, schools and boarding schools which still have no telephone service.

3. To instruct the executive committees of the rayon soviets of the protective park belts and of the Moscow City Telephone Network Administration to ascertain the availability of buildings suitable for installing telephone stations within the territories of the rayons, and to submit to the Executive Committee of the Moscow Soviet their recommendations on the installation of automatic telephone stations.

4. To accept recommendations by the Moscow City Telephone Network Administration for the introduction in 1961 of 23,000 telephone numbers at the following stations:

ATS (Automatic Telephone Station) G-8 -- at Kutuzovskiy Prospect --	6,000 numbers
ATS G-2 -- at Komsomol'skiy Prospect --	4,000 numbers
ATS ZH-2 -- at Shosse Entuziastov --	4,000 numbers
ATS D-6 -- at Zoya & Aleksandr Kosmodemiyanskikh Street --	4,000 numbers
ATS B-6 -- in Novyye Cheremushki, Block No 9-12 (extension) --	2,000 numbers
ATS D-58 -- at 1st Khoroshevskaya Street (extension) --	1,000 numbers
ATS B-7 -- at Pokrovskiy Boulevard (extension) --	2,000 numbers
and for beginning of operations on the extension of ATS E-5 (Izmaylovskiy Boulevard) by	3,000 numbers

5. To instruct the Architectural & Planning Administration (Comrade Posokhin) to allocate land for the construction of independent two-story buildings for the ATS in the regions of Vidnyy, Krasnogorsk, Lenino, Lyuberets, Kuntsevo-Davydovo and Mytishch and a storage warehouse which is necessary in the operation and maintenance of the telephone installations on the territory annexed by Moscow. The above is to be done after consulting the Moscow City Telephone Network Administration (Comrade Pominov) and the Capital Construction Administration (Comrade Barashev) prior to 1 October, 1961.

6. To instruct Gosplan /State Planning Agency/ (Comrade Selivanov) and the Capital Construction Administration (Comrade Balashev) to include the design specifications on construction of ATS buildings in the regions as per paragraph 5 of this decision, in their plans for the 1961 designs and survey work for future years, and to make arrangements for their construction in 1962.

7. To request Comrade Cherenkov, Minister of Communications RSFSR, to be sure to compile in 1961 the design specifications for ATS installations and for the expansion of telephone networks in the regions of Vidnyy, Krasnogorsk, Lenino, Lyuberets, Kuntsevo-Davydkovo and Mytishch.

8. To instruct Glavmospromstroymaterialy (Comrade Etmekdzhiyan) to manufacture in 1961 for the Moscow City Telephone Network Administration 1,000 reinforced concrete booths for automatic telephones, 500 poles and 1,500 pieces reinforced concrete attachments.

9. To instruct the Commission for Allocation of Living Quarters to prepare recommendations, within one month, for housing in 1961, 75-100 telephone call stations on the first floors of residential buildings in different areas of the city.

TALK WITH SAMARKAND -- Stalinabad, Kommunist Tadzhikistana, 25 Mar 61.

A new multi-cable telephone communication system with Samarkand was inaugurated on 22 March. This system considerably improved audibility and expedited the connection. In the past the telephone subscriber had

to wait for a connection for an hour or more. Now he waits only for 15-20 minutes.

SECOND PROGRAM OF BAKU TELEVISION -- Baku, Bakinskiy Rabochiy, 8 Apr 61.

Yesterday, 7 April a new antenna mast was installed at the Baku TV Center to transmit the second television program. The height of the mast, including antenna, is 36 m. This makes it possible to transmit the program within a 25-30 km radius thus covering practically all of Baku. In the future the antenna will be transferred to the main mast of the TV Center, thus further considerably increasing its radius of operation.

The correspondent of AzTAG was informed at the Baku TV Center that transmission of the second program will commence shortly. The equipment is all installed and ready.

Transmissions of the second program will be received on TV Channel 7. Residents of Baku will be able to see concerts, movies, listen to the latest news, etc. This transmission will be on the air at least two hours daily.

It is interesting to note that the mast and antenna for transmission of the second program were built by the workers of the TV Center during after-working hours. Engineers Ch. Efendiyev, P. Topil'skiy and technicians N. Domlin, A. Kuliyev, Yu. Akondzhanov and others contributed their time and work to the construction.

ABOUT THE CONSTRUCTION OF THE YEREVAN TV CENTER -- By Engineer Ye. Bagratuin, Yerevan, Kommunist, 8 Apr 61.

The experience from the construction of TV centers in the Soviet Union and abroad, shows that the studio and camera complexes must be located in the central part of the cities.

In those cities (such as Tbilisi, Pyatigorsk and Yerevan) which are built on hills, it is advisable to separate the relay station and the tower from the studio and camera complexes, and to erect them on high areas for the purpose of increasing the radius of telecasting. Such was the reason behind the construction of the Yerevan Television Station and the tower on the Norkskaya Heights. It was decided, on the other hand, to construct the studio-camera complex on the plot called "Kozer" in the center of the city.

However, that land was given for the construction of the Palace of Youth instead, and it was decided to construct the studio-camera complex next to the TV transmission station. Such decision had only one advantage: laying of relay line cable between the studio and transmission station was cancelled and there were no area development expenses.

On the other hand, the transfer of the studio to the Norkskaya Heights involved considerable inconveniences, such as the constant

transportation, there and back, of the studio personnel, actors and participants in the programs during the entire periods of operation of the studio, delivery of the sets, props and various models from city theatres, bringing the samples of production of Yerevan enterprises which are supposed to be shown on television, etc. All this entails considerable expenses.

Apart from the above-mentioned negative considerations endangering its operation, isolation of the studio from the city may in future retard development of television in the entire Republic.

Transfer of the TV Center to the middle of the city will eliminate the expenses, inconveniences and disadvantages mentioned and will promote the development of television within the Republic and facilitate the management of the Yerevan TV Center. Property next to the House of Radio at Aygestan will be a suitable place for the TV center and its development will not be too costly.

WITHOUT PAPER AND DISTANCES -- Moscow, Agitator, No 8, Apr 1961, pp 16-18.

On 7 May 1895, the gifted Russian engineer A. S. Popov demonstated the first simple radio apparatus. That day is annually celebrated by the Soviet people as "Radio Day."

Even at the beginning of Soviet regime, the great Lenin often emphasized the important role that radio would play as a valuable means of communist education for the workers, and called the radio "a newspaper without paper and without distances." During the first days of the Soviet regime on the personal instructions of V. I. Lenin, the radio was used to broadcast the decree of /Brest-Litovsk/ peace, the land decree and the resolution of the 2nd Congress of the Soviets regarding the creation of the Soviet Government.

Lenin realized the immense possibilities of the radio and wished to place it in the service of the people, which was confirmed by the fact that Vladimir Il'ich signed over 10 decrees ordered by him and dealing with the development of radio. One of the most important decrees was the one issued on 21 June 1918 and ordering the centralization of all radio-technical matters within the People's Comissariat of Post & Telegraph, the creation of the Radio-Technical Soviet, and the transfer of all factories manufacturing radio-telegraphic equipment to the supervision of the Supreme Soviet of the National Economy.

During the years of the Soviet regime, radio broadcasting in our country has made gigantic strides. Instructions received from the 21st Party Congress dealing with the development of the radio network are being fulfilled successfully. The number of radio receiving sets should be increased by 30 million during the current Seven-Year Plan. During the years 1959-60 the number of such sets increased by almost 10 million and by the first of this year there were approximately 50 million radio receiving sets. Considerable attention is devoted to the automation of radio transmitting stations. In the cities, this work is nearing completion.

The resolution of the 21st Party Congress pointed out the necessity of expediting the rate of development for ultra short-wave broadcasting (USW). Accordingly, the past two years saw the introduction of the FM (frequency modulation) ultra short-wave radio stations in 35 cities, and at present the ultra short-wave broadcasting is used in approximately 60 cities of the Soviet Union. Special programs are now being introduced for the USW transmitters which will give the listeners an additional selection of programs. The experiments in organizing such programs in Leningrad, Yaroslavl', Kuybyshev, Sverdlovsk, Gor'kiy and certain other cities produced favorable results.

Parallel with the development of the ultra short-wave broadcasts, further increases in the capacity of the radio-broadcasting network is being carried out by constructing radio stations operating on medium, short and long waves in a number of rayons of the country including the North and the Far East.

Television broadcasting is rapidly developing in our country. At the beginning of the Seven-Year Plan the Soviet Union had an estimated 60 television stations and a little over $2\frac{1}{2}$ million television sets. At present, there are over 100 TV stations and over 200 television relay stations serving a territory populated by over 75 million people. The number of TV sets doubled during the first two years of the Seven-Year Plan, and now exceeds 5 million.

New TV centers came into service during the past two years at the following cities: Ashkhabad, Stalinabad, Khabarovsk, Groznyy, Dzhezkazgan, Zaporozh'e, Yoshkar-Ole, Kazan', Komsomol'sk-na-Amure, Kurgan, Noril'sk, Magadan, Petrozavodsk, Makhachkal, Ukhta, Yuzhno-Sakhalinsk, and a number of other cities. Powerful relay stations were constructed in Audizhan, Bryansk, Kokhtla-Yarve, Salavat, Tambov, Krivoy Rog, etc.

Over 40 TV centers and relay stations are being designed or constructed for Astrakhan', Arkhangel'sk, Berezniki, Magnitogorsk, Orenburg, Ordzhonikidze, Petropavlovsk-Kamchatskiy, Pskov, Ulan-Ude, Balkhash, Vologda, Vinnitsa, Klaypeda, Kandalaksha and other cities. Over 20 TV centers and relay stations will be constructed during the current year.

The number of TV sets will exceed 6 million by the end of 1961. Mass production of the new type TV sets, including those with the picture tube having 110° electron beam deflection ("Rubin-104," "Temp-6," "Volna," "Druzhba," "Trembita" and others), which affords a considerable reduction of the size of the sets. Development of a new model of an economic TV set with the 35 cm diagonal size of the screen, for mass production, should be completed shortly. This TV set will replace the obsolete "KVN-49" production of which is being discontinued by the radio manufacturing enterprizes.

The table-model TV set "Trembita" is made for receiving any of the 12 television channels. This set can be equipped with a phonograph pickup for listening to records. Optionally, sound accompaniment of telecasting may be heard by means of the earphones, without interferring with other viewers. The earphone socket may be utilized for recording

the television accompaniment on a tape recorder. The set can be easily repaired: almost all condensers, resistors and other parts, including the picture tube, can be replaced without removing the set from the cabinet. The structure of this set permits utilization of an MG (metal-glass) picture tube as well as a glass picture tube. The set may be connected to an AC (alternate current) network of 110, 127, or 220 volts. Power required -- not exceeding 200 watts.

In 1960, the experimental station for color television commenced its regular operation in Moscow. Its telecasts are transmitted through a special low-power television radio station on Channel 8 frequency and, also, through radio stations of the second program on Channel 3 frequency. Operations of the color television station are controlled at more than 40 different points in the city on special color TV sets (which are designed and constructed by enterprises of the Moscow and Leningrad sovnarkhozes). Since our system of color television is compatible, the telecasts of the color TV experimental station can be readily seen in black and white on the ordinary sets on frequencies of Channels 3 & 8. After a thorough study of the selection system and upon eliminating the shortcomings, color television will be introduced in a number of TV centers of the country, and first of all in the capitals of Union Republics.

During the first stage in the development of television when we had but a few radio relay and cable lines, we were compelled to build such TV stations that could telecast their own programs. This was costly and resulted in serious operational difficulties: it is not always possible to create interesting programs everywhere. With the development of the main radio relay and cable lines, it became possible to concentrate on constructing relay TV stations, i.e., such stations which transmit the program received from another TV center. The ratio between the number of the programs and the relay TV stations will continue to change in favor of the latter each year.

The present development of radio relay and cable lines for communications makes it possible for 22 oblasts to receive telecasts of the Moscow TV Center, together with the TV viewers of the capital. These include: Orlovskaya, Smolenskaya, Voronezhskaya, Kurskaya, Khar'kovskaya, Kiev, Rostovskaya and other oblast's. On the other hand it became possible for the Moscovites to watch telecasts from Kiev. Regular exchange of programs is being carried out between Leningrad and Tallin and it is expected that Riga, Vil'nus and Minsk will join them shortly. A regular exchange of TV programs between Moscow and Leningrad will be accomplished soon.

TV centers of a number of union republics will soon be connected by the radio relay lines under construction: Tashkent, Alma-Ata and Frunze in Central Asia; Yerevan, Tbilis' and Baku in the Transcaucases. The next two years should see the possibility of organizating international exchanges of TV programs with a number of European countries, first of all with Prague, Warsaw and Berlin.

Local radio relay lines are being constructed simultaneously with the development of the main networks. This will enable almost all populated places in certain oblast's, territories and republics to have

television reception. This work is successfully being conducted in the Uzbeks and Azerbaydzhan SSR's, Altayskiy Krai and Sverdlovskaya, Murmanskaya, Kemerovskaya and certain other oblasts.

A great construction is underway in Ostankino, near the Exposition of Achievements of National Economy in Moscow. In a short while a reinforced concrete tower of the Grand Moscow TV Center will shoot up to the sky. The height of the tower will be 520 meters -- a unique construction from the point of view of structural engineering. However, its significance is not only in its architectural quality or in the daringness of the engineering thought. Construction of a new capital TV Center is a sign of the further development in Soviet television.

What prompted this construction, the likes of which is not known anywhere in the world? The main reason is that the relay station of the Moscow TV Center at Shebolovka does not satisfy, quality-wise, the demands of the Soviet televiewers any more. At present its first program can be received within a 60-70 km radius, while the second program can be received within the radius of less than 60 km. Also, the number of programs for which the present TV Center was designed is insufficient.

The new relay station of the Grand Moscow TV Center will conduct simultaneous transmission of six radio broadcasts and five television transmissions -- four in black and white and one in color. The station equipment will allow for future increases in the color TV transmissions without much modification.

The televiewer will have a choice of the programs that interests him: latest news on the first program, a concert on the second, or color TV. Special telecasts will be reserved for relaying more interesting transmissions from other TV centers. A Moscovite will be able to visit Kiev, Minsk, Leningrad and other cities of the Soviet Union, as well as the cities of the sister socialist countries. One of the channels will be set aside for an educational program for correspondence-course students.

All of these possibilities will not be for the Greater Moscow alone. The radius of clear reception of all programs will be 120-130 km minimum, i.e., the actual area of clear reception will be 4-5 times as large as the present area.

Sixty-five years ago, on 24 March 1896, A. S. Popov and his co-worker P. N. Rybkin of the Russian Physico-Chemical Society, conducted -- for the first time in world history -- the transmission of a radio signal over a distance of 250 meters. The first radio program consisted of only two words: "Genrikh Gerts" /Henry Hertz/. On 2 January 1959, a cosmic rocket was shot in the direction of the Moon from the territory of Soviet Union. It had on board three radio transmitters and a number of complex measuring apparatuses for conducting a series of scientific observations. For the first time in the history of mankind a clear radio communication was conducted for 62 hours between the rocket and the earth at distances of 100,000, 200,000, 300,000 and half a million kilometers.

On 12 April 1961, radio announced to the entire world the news of a great event -- the first flight in the history of mankind, into cosmos by a USSR citizen, Air Force Major Yuriy Alekseyevich Gagarin in a satellite-spaceship "Vostok." Having completed his flight around the

earth, the Soviet cosmonaut-pilot safely returned to the sacred land of our country. This brilliant victory of our native science and technology would have been impossible without radio and electronics. With the help of the means of radio-electronics and automation, it became possible to place the satellite-spaceship into an accurately calculated orbit. Numerous scientific data was transmitted from the cosmic ship to earth by means of radio. The radio-television system of the spaceship afforded observation on earth of the condition of the pilot under cosmic flight conditions. Two-way radio communication with Comrade Gagarin was maintained. Radio-transmitters on board sent to earth radio-signals which were received and deciphered by radio-technical laboratories which made it possible to measure accurately the orbit traversed by the spaceship. Finally, the command for landing was transmitted to the spaceship from the earth by radio.

The role played by the radio-electronics, coupled with the automation, will further increase flights into space in the future. It is quite possible that it will be the radio that will help to establish contact with the living creatures of other worlds and to solve a number of most important problems which now seem to be out of fairy tale. Possibilities of the radio are really becoming limitless.

Communication Workers! Develop and perfect the means of communications! Do your utmost to achieve faultless service of the post office, telegraph, telephone, radio, television! Improve the services to population!

(From an Appeal of Central Committee, CPSU 1 May 1961)

DISTANCES ARE BEING REDUCED -- By N. Lazarev, Moscow, Ekonomicheskaya Gazeta, 22 April 61.

A picture taken at Prague was received within an hour by the new photo-telegraphic department of the Moscow Central Telegraph Office. From here it was relayed by transit to Peking. It was received by facsimile receivers installed in the offices of Peking newspapers.

The department of photo-electric communications was designed by the experts from the Moscow Central Telegraph. It is equipped with the newest equipment of the "Neva," "Rekord," "FChP-2M," and "FTA-A" types. Here we have the apparatuses equipped with devices writing on photographic paper or film and apparatuses which are equipped to write with ink on ordinary paper.

Equipment for magnetic recording has also been installed. This transmits photographs directly to the telegraph department.

The modern multi-channel communication system considerably expanded the geography of photo-electric ommunications. Thirty-seven new lines have been activated recently. Photographs of manuscripts,

drawings, pictures and documents are transmitted from Moscow to Alma-Ata, Chelyabinsk, Stalinobad, Tselinograd, Gor'kiy and other cities of the country. Moscow receives and transmits photo-telegrams to Pienyan, Tirana, Kabul, Rome and Berne.

Recently a flash telegram came from far-away Jakarta to Gosstroy. Constructors on the Jakarta stadium (designed by the Soviets) were asking the Gosstroy to make urgent corrections in the working drawings. Because of bad weather it was impossible to deliver these papers by airplane. Personnel of Central Telegraph decided to send the material to Jakarta by means of a photo-telegram via Japan. It took several hours before all the corrections and new specifications were delivered to the constructors of the stadium.

The photo-telegraphic equipment of the new department of the Moscow Central Telegraph Office was the first to receive the photograph of cosmonaut-hero Yuriy Gagarin which was taken after his successful landing. The historic photograph was immediately transmitted to all countries of the world, capitals of the Union Republics, large cities and newspapers.

About one hundred cities in the Soviet Union will now have the facilities to transmit and receive facsimile telegrams from the public, enterprises and various organizations. Their cost will be 50 to 67% lower than that of the ordinary photo-telegram.

TV CENTER OF THE CITY OF LENIN -- By N. Mikhaylov and A. Solovey, Moscow, Radio, No 5, 1961, pp 3-5.

The Seven-Year Plan constructions do not only include new plants and factories, power stations and mines, or electrified railroads and gas pipe lines. They also include new powerful TV centers, radio relay lines and television relay stations, all of which are being built by many thousands of constructors and radio specialists.

Now when the entire country is preparing for the 22nd Congress of the CPSU, the Seven-Year Plan work collectives are doing their utmost to mark with deserving deeds this significant event in the life of the dear Party and our whole country.

The builders of a number of radio relay lines, and TV centers in Aktyubinsk, Krasnovodsk, Pskov, Yakutsk, Ulan-Ude, Ordzhonikidze and other cities are fulfilling successfully the socialist obligations they undertook.

The collective of the builders of the new Leningrad TV Center is now working on the pre-congress shift. We publish below an article describing the work now being performed at the jobsites and giving the details of the future TV center of the City of Lenin.

A large TV center is being constructed at present in the City of Lenin. It is designed for transmission of two black and white and one color television program, as well as three radio-broadcasting programs on

ultra short FM [frequency modulation] waves (including stereophonic broadcasts). The new Leningrad TV Center is being equipped to facilitate a broad exchange of programs with other TV centers in the country by means of radio relays and cable lines of communications.

New techniques, a large number of various studios and other units and out-buildings will facilitate the theatrical possibilities of the center and permit the creation of varicus theatrical, concert, scientific, educational and other programs, newsreels, etc. The TV center will be equipped with the most modern means for recording television programs.

The major part of the construction for the center was recently concluded and the installation of the studio and camera equipment is now underway, as well as the construction of inter-city lines for the exchange of television programs between Leningrad and Moscow and Leningrad and Tallin, Riga and Minsk.

Erection of the structures of the new TV Center is being carried out at two jobsites located within a 600 m distance of each other. An ultra short-wave radio station of the TV Center will be situated on one of these sites and will consist of a 20,000 cubic meter station building and a detached metal tower.

It is intended that the USW (ultra short wave) radio station building will accommodate two complete assemblies of powerful transmitters for video signals and sound accompaniment, each assembly consisting of two units with individual drives, rectifiers, system of amplification of power and contacts. Normally, two such units will be working parallel on one transmitting antenna. However, it will be possible for any one unit to work on the transmitting antenna.

One assembly of transmitters will operate in the first frequency channel (carrying picture frequencies of 49.75 megacycles and sound frequencies of 56.26 mc), the other assembly will operate in the third frequency channel (carrying frequencies of 77.25 mc and 83.75 mc, respectively).

One of the halls of the station will house three USW assemblies with frequency modulation for transmitting three programs of high-quality radio broadcasts. Each assembly of radio and television transmitters consists of two units of 7.5 kw capacity each. All three programs will be transmitted through one general antenna.

One of the chambers will accomodate a color television transmitter rated at the frequency of 200 megacycles.

In order to broaden the zone of transmission of the Leningrad TV Center, and in addition to increasing the capacity of the transmitters, the transmitting antennae will be installed higher on a detached tower 321.3 m high.

The 200 m high metal part of the tower will form a hexahedral pyramid with approximately a 12 m in diameter top section and 60 m diameter base at the bottom. Three prism-type sections of metal lattice construction will be installed at the top of that section of the tower to the height of 301.5 m. The transmitting antennae will be assembled on these sections.

The first section will accomodate the antennae of the radio-

broadcasting ultra short-wave FM transmitters; the second section will have the antennae of television transmitter of the first channel, while the third section will have the antennae of television transmitter for the third channel. Finally, a single tubular turnstile antennae of the transmitter of color television will crown the top of the tower.

A 4.5 m diameter elevator shaft will be installed in the center of the hexahedral part of the tower. Two passenger-freight elevators will operate inside the shaft.

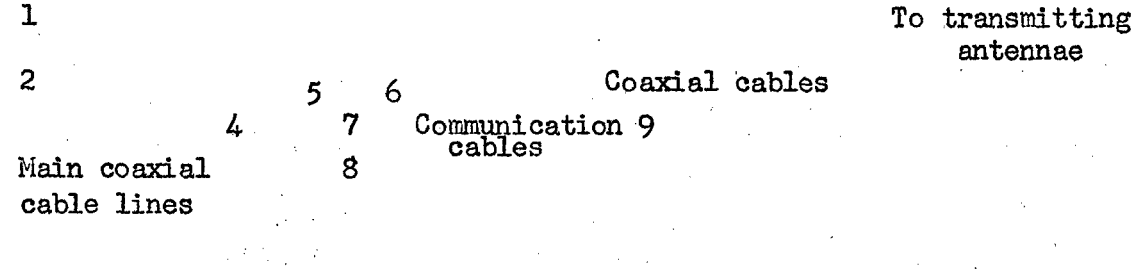
A three-story building with glass walls will be constructed in the upper part of the hexahedral section of the tower. The height of each floor will be 4-4.5 m while the total area of the three floors will be 300 sq meters. The engine room for the elevators will be situated in the building. It is also proposed to construct observation platforms for the tourists.

The second site of the TV center, 3.5 hectares in area, will have 14 structures. The main building will house the studio and the camera complex (ASK) measuring 104,000 cubic m with the 16,000 sq m floor space; an auxiliary wing will house the set and prop shop, rooms for copying movie films, photographic documents, etc. Terminal equipment for radio-relay and the cable inter-city TV lines, as well as the receivers for the local mobile and stationary TV transmission points, will be installed in the building of the external transmissions unit. Antennae of the terminal stations of the radio-relay lines and mobile television stations will be located in the 165 m high metal tower.

In addition, a number of buildings for various auxiliary departments will be located in the same area.

The camera and studio complex is a large building with over 300 rooms; of these, about 90 (including studios) are occupied by the basic technological departments. Approximately 120 rooms will be used for rehersals, make-up, costumes and other theatrical and production departments, including rooms for artists, directors, producers and editorial staff of the studio.

Scheme of the Unit of the new Leningrad TV Center: 1) Stationary TV relay points; 2) PTS: 3) Antenna of radio-relay line; 4) Installation of external transmissions; 5) Studio complex; 6) TV-movie projection rooms; 7) Camera and studio complex (ASK); 8) Automatic recording of picture and sound; 9) USW (ultra short-wave) radio station.



Preparations have been completed for activating about 30 rooms of

the technological complex -- including the theatrical, studio and camera unit which, in turn, includes the studios with 600 sq m of floor area and 13 m high, a two-tier balcony of 150 sq m floor area and 6 m high; model and prop room, announcer's room, camera rooms, directors', engineers' and, also, movie-projection rooms and some other technological compartments.

The design and construction of studio building presented a complicated engineering problem. This was due to the specific requirements for sound-insulation and the high acoustic parameters of the studios and other compartments. For this purpose, for example, to insure effective sound insulation of the studios from the rest of the building, insulated foundations, double walls and special ceilings were constructed to sound-proof each studio. Special multi-plate doors and observation windows were installed to obtain effective sound insulation.

The floors in the premises located above the studios were made of special shock-absorbing cardine material with metal springs installed between two layers. Apart from the sound insulation of each studio, measures were taken to eliminate or reduce the noise in the entire studio building. For this purpose all offices and other rooms and passages with a high level of noises were equipped with sound absorbing perforated panelling on the walls and ceilings, while cardine is used for sound insulation on the floors. All ventilation systems in the studio building are installed on special vibration bases, while all air-conditioning systems are connected to sectional mufflers.

Good acoustics in the studios are achieved through covering of the ceilings and walls with special framed plywood boards with chinky or round perforations. The ceilings and walls are similarly equipped in the compartments housing the control booths. In the compartments housing flamable equipment or materials, the perforated plywood is replaced with perforated metal plates.

A complete air-conditioning system will be in operation in the studio building, which will automatically maintain the required temperature and humidity level in all studios as well as in the directors' and technical and apparatus rooms.

The theatrical studio and apparatus units are equipped with a modern telecasting installation complex. It is designed to transmit television signals to three viewers simultaneously, for example: to USW (ultra short-wave) radio station and to two inter-city television mains.

The height of the tower of the new Leningrad TV Center is 321.3 m. For comparison, the drawing shows (from left to right) the comparative heights of the tower of the existing center, Cathedral of Petropavlovkaya Krepost' /Peter-Paul Fortress/ and the tower of the Admiralty.

Television equipment will permit transmission of movies (from positive as well as negative wide screen and standard films) and slides and, also, relaying programs from the unit of external programs from any outside source.

The equipment of the theatrical unit includes 18 camera channels which are designed to work from television cameras with a pickup tube of the image iconoscope, image orticon and vidicon (photo conductive camera tube).

It will be possible to either switch instantly from one image to the other, or to merge smoothly the signals of the studio cameras, TV movie-projection cameras or other sources of the programs and, also, to introduce the signals from two different external program sources.

Equipping the theatrical unit with a large number of cameras with improved pickup tubes makes it possible to create various backgrounds and to dissolve images and movie-inserts and broadens production possibilities of a TV center.

The equipment insures the reception of a high-quality image. It has very low noise level and insignificant nonlinearity and geometric distortion of the raster (scanning pattern). High quality indices have been also attained in the accompanying sound channels.

Installation of a new TV center is extensively equipped with devices for television control and the remote control of work in individual links of the channel, as well as with the devices insuring automatic switch-over to auxiliary units in the event of a breakdown or damage to the main equipment.

The use of telephones, or radio communications (certain departments have public address systems) permits the directors to supervise the operations of the entire personnel conducting transmission.

Video and sound control sets are installed in many locations in the installations housing technological complexes and stages. These enable supervisors to watch the transmissions originating in the studios.

The studios are equipped with diverse lighting installations which permit illumination of the stages with the required intensity, such as spotlights with filament lamps, lights with mirror and luminescent (fluorescent) lamps. Control of the electric circuits of the majority of illuminants will be accomplished by means of reversible theatre regulators which are a part of arrangement of a program. The majority of lights are installed on arms suspended from movable hoists. Similar hoists are used for changing the set.

The new Leningrad Television Center is a large assembly of complex structures, rigged with modern equipment designed and constructed by the domestic scientific research institutes and industrial enterprises of Leningrad and a number of other cities of the Soviet Union.

The designing of the TV Center was done by the planning organizations of the Ministry of Communications USSR, Leningrad Ispolkom (Executive Committee) and certain other organizations of Moscow, Leningrad and Kiev. A large collective of construction workers of Glavleningradstroy and other city agencies are working with enthusiasm at the jobsite of the TV Center. There is a lot of work ahead. However, due to the fact that a number of structures are already in operation, the chances for broadening the possibilities of facilitating the television transmission service improve considerably in the City of Lenin and in the adjacent areas.

RADIO-RELAY COMMUNICATIONS IN THE CONSTRUCTION OF NEW RAILROADS --
By Engineer A. F. Petrov, Moscow, Transportnoye Stroitel'stvo, No 5, 1961, pp 13-15.

For the purpose of communicating the Abakanstroyput' Administration with the more distant building projects on the construction of the Abakan-Tayshet line, the Abakanstroyput' installed RRS-1m type radio relay equipment. It was later used for the construction of the Kamen'-Altayskaya line. Utilization of radio-relay equipment is an important achievement in the matter of organizating communications in the construction of new railroads.

Until now the question of organizating the construction of communications depended on the installation of overhead lines along the entire route; this required a considerable amount of time. In order to expedite construction, it was often allowed to hang the lines on alternate poles and to install light temporary lines. However, in such cases, especially on the rugged terrain, the construction of communications was usually delayed very considerably.

For example, the construction of the Abakan-Krol section commenced in 1958, but by 1 July 1960, overhead communication lines were constructed only along a 127 km stretch, while there was no telephone connection between the administration and various projects along the route.

Due to a difficult and rugged terrain in that area and the necessity for extensive blasting operations, it was impractical to force the completion of the construction of suspended line.

One pair of wires was installed from Koshurnikovo Station on the line poles of the rayon communication system of the Ministry of Communications (MC). However, this did not solve the problem since, due to the dilapidated condition of the MC lines combined with the blasting operations, the communications were constantly interrupted. Restoration of the communication system in the mountainous regions required too much time.

The Kamen'-Altayskaya route had to cross a dense, marsh-ridden forest for 70-80 km, which also resulted in very considerable delays in construction of the communication lines. There was no highway along the route of construction. There was no communication with the engineer in charge and foremen or with the technical sections. Communication with the Tract Maintenance & Repair Section No 5, located at Suzun Station, was maintained by means of the Ministry of Communications lines from Barnaul via Novosibirsk.

The proposal to utilize type RRS-1m radio-relay equipment for the purpose of supervising railroad constructions originated with Giprotranssignalsvyaz' and the Leningrad Laboratory-Station TsNIISa in 1958. In 1959, it was proposed to utilize the RRS-1m in the organization of communications on the Abakan-Krol section.

The RRS-1m type equipment for a terminal sub-station has a base weighing about 90 kg and consist of four separate units. Mounted on the base are: a distributing frame which feeds the station from the AC network, a line switchboard for hooking up the telephone and telegraph

lines and, also, antenna with a portable tubular tower 14.5 m high, which is installed outside the building and equipped with a lifting device, and two feeder cables of the RK-1 type. The power system consists of four 5NKN-45 batteries, charge- discharge switch board and battery charger of the PES-0.75 type.

The RRS-1m equipment operates in the frequency range of 66-70 megacycles (4.55+4.29m). The capacity of the transmitter is 2 watts. The antenna is of the "wave-duct" directed action type. Distance of communication between two mutually visible antennae is up to 100 km; the distance of operation is reduced when obstacles enroute obstruct direct visibility. Overlapping of direct visibility for the height of up to 75 m is permissible for technical reasons. In such cases distance of communication is reduced to 50 km.

Additional power booster units (BUM) may be installed at the stations. These would increase the transmitter power up to 50 W which would permit (all other conditions being equal) to increase the distance of communication and improve its quality.

With the installation of 5-6 intermediate stations, the radio-relay communication system can be organized in a section 200-300 km long. An intermediate station includes two terminal substations.

The advantage of the radio relay communication over the radio communication is the availability of several communication channels. For example, the PPS-1m equipment insures two-fold communication along twin telephone and twin telegraph channels. It can be connected with any local or long distance system of communications. Any channel may be tapped at an intermediate station.

The design order was given to Sibgiprotrans in March 1959 but it was completed only in April 1960. The plans provided for utilizing the radio relay communication on the Koshurnikovo-Sisim Stations section with the installation of radio relay stations at the tops of the mountains. Block houses were to be built to house the equipment. It was proposed to lead to the stations some 2-2.2 km long telephone and electric lines from the construction workers' settlements. On the other hand, the plans did not provide for communications between the city of Abakan and Koshurnikovo Station where it was needed the most.

Taking into consideration the shortcomings of the project, it was decided to situate the stations in such a way that it would provide a means of communications in the sections Kuragino-Koshurnikovo-Komsomol'sk, and to determine in the field points of installation for the stations. The Koshurnikovo-Komsomol'sk communication was tested first. Since Komsomol'sk is located in the valley of the Dzhebi River and is surrounded by mountains, there are obstacles of 200-300 m in height along the route which obscure direct visibility. In spite of this, the experiments proved that the antennae installed even at the lowest point of the settlement and only partly erected, insured high quality radio communications. Luckily also it was possible to accommodate the radio relay stations in the existing buildings.

Organization of communications in the Kuragino-Koshurnikovo section proved more complicated. Long distances and the lack of direct

visibility proved prohibitive and no radio relay stations could be installed in Kuragino. Although communication with Koshurnikovo was actually obtained, the prevailing noises rendered it quite useless. Nevertheless, there is reason to belive that installation of power boosting units (BUM) in that case, would have improved the communications to a point where it would be of sufficiently high quality.

As a result of the tests, it was decided to transfer the radio relay station to Kurskaya village which brought it closer to Koshurnikovo. The radio relay station was set up in the settlement of the workers of technical section No 12, at the foot of the mountain which prevented the passage of the radio waves. Therefore, the station was set up on the hill some 30-40 m above the settlement (and about 100-150 m away from it) in railway motor car. Later on a two-room frame house was built for the station. Radio relay communications became a part of the unified system of construction communications on the entire Abakan-Komsomol'sk stretch with the wire connection between Abakan and Kurskaya village and with a radio relay system from Kurskaya to Komsomol'sk. One of the telephone channels of the radio relay communication system was tapped for dispatching connection with a selector call switch. Transmission of selector call through radio channels is accomplished by utilization of the telegraph channels of the RRS-1m equipment.

On the construction route of the Kamen'-Altaiskaya line the terrain profile is much more suitable for the diffusion of radio waves. However, when organizing the radio relay communication system the shielding characteristics of the forest were encountered. Since the radio relay stations in this area were set up in houses built in the woods with the trees 30-35 m high (while the height of the mast of the antenna was only 14.5 m) it became necessary to cut the openings 25-30 m long and 8-10 m wide in the direction of the passage of radio waves.

The experience obtained from using a radio relay communication system on the construction of Abakan-Tayshet and Kamen'-Altayskaya Railroads, proved the practicability and advisability of its wide utilization under analogous conditions and especially in the mountainous regions.

The RRS-1m radio relay equipment permits the organization of communications along two channels during preliminary work and the organizational period of construction operations. During this period the equipment can be set up in railroad motor cars, temporary cabins or tents. The cost of purchasing the equipment will be justified by the reduction of transportation expenses incurred during the construction of the overhead lines which in this case can be installed after completion of the laying of tracks.

THIS IS MOSCOW SPEAKING! THIS IS TBILISI SPEAKING! -- Tbilisi, Zarya Vostoka, 11 May 61.

We are used to hearing these well-known phrases which begin the Moscow and Georgian radio broadcasts.

Radio and television have become an integral part of the worker's life in Georgia. At present there are 52,000 TV sets, over 200,000 radio receiving sets and 321,000 public loudspeaker points in the cities and villages of the Republic. Over 100 sovkhozes and about 2,000 kolkhozes have been equipped with radio loudspeakers.

Voice of Moscow and Voice of Tbilisi are picked up by 126 radio centers of the Ministry of Communications, and 223 radio centers belonging to industrial enterprises, kolkhozes and sovkhozes.

During the Seven-Year Plan, Georgia will become a completely radiofied (covered with radio network) Republic. In the not-too-distant future, the emblems of Moscow, Baku, Yerevan and other television broadcast stations of sister Republics will flash across our television screens.

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