Vitaliy says us a story about beginning and the First Steps of Russian radio industry

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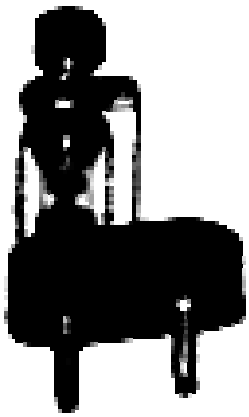
July 28, 1924 can be considered as the starting point of production of home receiving devices in the USSR. On that day The Soviet of People's Commissars (The Government) of the USSR passed a decree "On private receiving radio stations", which gave the citizens the right to own a radio set. And already in autumn of 1924 the Trust of Low Voltage Factories in Moscow put out the first industrial home radio receiver - **"LDV"** (Home Detector Broadcasting"). It had a fixed tuning to the wave of the Comintern Radiostation (3200 m). But it did not mean that tuning was no problem. The radio was based on a crystal detector with "an active point". The edge of a steel wire was touching a polycrystal of natural semiconductor. With a small knob the position of the steel pin could be changed.

After some attempts one could "feel" the detecting p-n-transition on the border of the "pin-crystal" and the broadcast was heard in the headphones. No one could move about the room not to "shake off" the active point.

The author has a similar detector at his disposal and tests showed that the ratio of direct and opposite resistance at the active point could reach 1:20. Of course, it is much lower than with a modern diode , but then it was sufficient for detection of signals of powerful local R-stations.

The modifications of radio "LDV" are known as **"LDV-2"** and **"LDV-4"**. Then followed **"LDV-3"**, **"LDV-5"** and **"LDV-7"** - complicated devices with changeable inductivity of the coil in 200-1500 m band. The detector receiver **"Proletary"** was also very popular.

The first in USSR valve radio was produced at the end of 1924 by the above-mentioned Trust of Low-Voltage Factories. It was the receiving set "Radiolina", consisting of several blocks. The first of them contained a tunable coil with a span of 450-3400 m. The blocks of detector and RF-Audio amplifiers were connected to it.

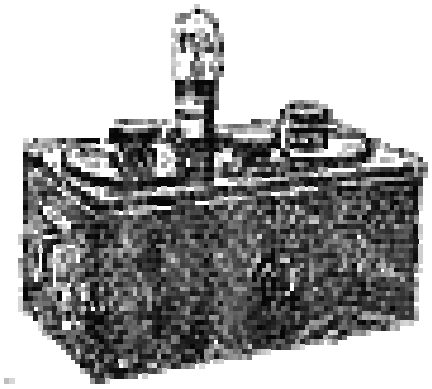


The crystal DS-4

The first Rrussian vacuum tube was created in 1915 by M.A.Bonch-Brouyevich, a talented engeneer, when he was Chief of the military telegraphic receiver in Tver. This tube later nicknamed as the "Babushka" (Grandma) honestly worked in the receiver of telegraphic signals, successfully compete with imported French valves

"Radiolina"

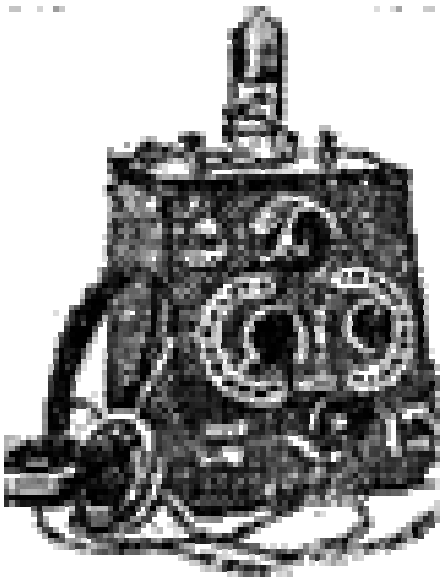
They were assembled in a separate case by 2,3 and 4 pieces. The anodes of the receiver's tubes were battery-sourced. In the first lots of the "Radiolina" the tubes R-5 with tungsten cathode were installed using the current of about 0,6 A. That is why accumulating battery was needed to feed the heater. The necessity of frequent recharging the battery strongly restricted the use of the radio set even in towns and cities. When new tubes of the "micro"-type appeared which used 10 times less energy there was a possibility to change the accumulators for galvanic elements. The "Radiolina" set had only one resonance coil and a very low sensitivity and selectivity. An electromagnetic horn speaker "DP" or (later) a diffusion-type "Rekord-2" was included into the set.



R-1

Almost simultaneously with the "Radiolina" a cheaper single-tube regenerative receiver **"R-1"** was produced in which headphones were used.

The next series of Soviet radio receivers became really "mass media". It was a line of type "B" sets designed by E.Borusewich (an engineer of the Trust of Low-Voltage Factories). The production of those sets opened in 1926 with models **"BV"** (one-tube), **"BT"** (three-tube) and **"B4"** (four-tube). The "BT" and "B4" had equivalent schemes - two tunable coils and the structure 1-V-1 and 1-V-2 respectively. The "BV"-receiver could work with a usual crystal detector without any batteries. In all the stages of these radios 3-electrode tubes of the single type were used. The R-sets worked within 250-2000 m bands and enabled to receive broadcasts on the electromagnetic speaker "Rekord". In 1928 an improved version of the "B4"-set appeared, which was named **"B4N"**. It was also tuned out by the "Moselectric Works" (in Moscow). A more powerful tube of UO-3 type was used in audio output. The model **"B4Z"** ("B4"-closed) became a further modification of the "B4N" set. The scheme being unchanged all the tubes were put inside a case.



BV

Together with the "B4N"-set a universal 2-tube receiver 0-V-2 of "**PL-2**"- type was produced. It could operate as both one- or two-tubed. Besides, in its construction usual "micro"-tubes and two-grid tubes of MDS-2 type could be used, the latter working on low anode voltage.

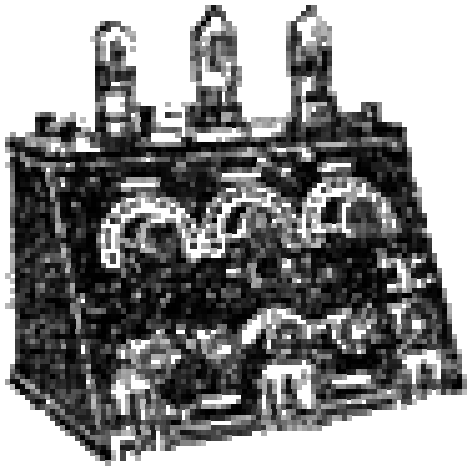
In all the above-mentioned receivers tubes of direct heating were installed. The output of radio model **"DLS-2"** was the first attempt to make net-supplied receivers. It is a device with a crystal detector combined with a 2-tube audio amp and a vacuum rectifier. It works using UO-3 tubes of direct heating. The output of tubes with indirect heating was the beginning of a new era in development of radiotechnics because then the problem of complete sourcing of radios from AC net was solved.

Among the first receivers of this type one can mention radio **"E4S-2"** of Orjonikidze Works ("Screened 4-tube AC-sourced") constructed by E.N.Genishta and radio **"EKL-4"** of Kozitsky Works (Leningrad). In both new tetrode tubes were applied. The further improvement of the former became radios "E4S-3" and "E4S-4" and of the latter - radio of **"EKL-34"** type. All those AC receivers were assembled according to the structure of direct amplification 1-V-2 using 4-volt glass tubes of indirect heating types SO-124 and SO-118. A triode UO-104 of direct heating was used in audio output. Those receivers enjoyed a wide spread among urban listeners. Just to mention also radios **"5NR-3"** and **"RP-8"** with the schematics similar to the above. The "U4S-1" set of Ukrainian make was also known.

In 1934 the Orjonikidze Works produced a battery-supply receiver **"BI-234"** ("Battery Individual") which gained a wide popularity among the rural listeners. A similar radio named **"RPK-9"** was later produced by Leningrad "Radist" Works. The difference was in their outlook.. The peculiarity of the set was that it could work using not a full set of tubes. Depending on their quantity the set could be switched on in the configurations 1-V-1, 1-V-0, 0-V-1 or 0-V-0. The mode of reception was set by replacement of the bridges. Its modifications are known to be the **"RPK-10"** and **"RPK-11"** .

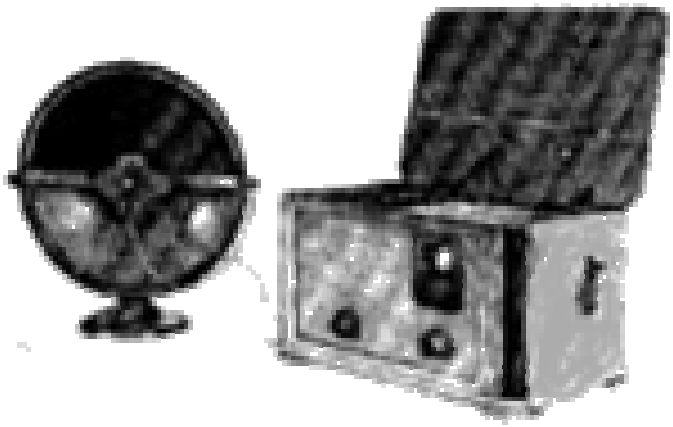
In 1935 the same Orjonikidze Works produced a new AC-radio **"SI-235"** ("AC-supply Individual" - constructed by P.A.Lokhvitsky), wich soon became the most numerous receiver among the urban listeners of the USSR. With this radio the era or direct amplification receivers ends. They were followed by multi-band superheterodynes - the ancestors of modern radio receiving systems.

In 1930's the output of cheap crystal radios continued. Among them there were the **"DV"** , **"P-8"** and some others.



BT

B4N



E4S-2 with "Rekord" speaker