

# VESNA



Produced: 1962-1964

Continuing the philosophy of 40mm lens, now in a new body introduced the 24x32 "ideal" format.

Name: „Весна“

Producer: MMZ

Frame size: 24x32

Lens: Triplet-22 4.5/40

Shutter: 1/8s, 1/15s, 1/30s, 1/60s, 1/125s, 1/250s + B.



LOMO variation with T43 lens later used on Smena 6 sports metal top and different logo.



## VESNA 2

Produced: 1964-1966

Name: „Весна“

Producer: MMZ

Frame size: 24x32

Shutter: 1/15s, 1/30s, 1/60s, 1/125s,  
1/250s + B.



Bakelite camera identical to the predecessor Vesna, without shoe and still T-22 lens or accessory shoe with a new lens T-43 4/40 mm and speed range reduced to 1/15s – 1/250s using exactly the same Smena shutter

Produced by MMZ



## SMENA 5

Produced: 1961-1962



Name: „Смена 5“  
Producer: GOMZ/LOOMP  
Frame size: 24x36  
Lens: Triplet-42 5.6/40  
Shutter: 1/30, 1/60, 1/125, 1/250 + B.



A new body design was developed at GOMZ/LOMO. The new camera, although retained the versatility of the previous with even more ergonomics and style.



# SMENA 5

Produced: 1961-1962



The first model of this new series was transitional model was the only one to have a reversible sunshade, no eveready case, a smaller range of shutter speeds and 5.6 lens. Inspired in the new German Werra



The Werra sunshade concept.

## SMENA 6

Produced: 1961-1969



Prototype

Name: „Смена 6“  
Producer: GOMZ/LOOMP/LOMO  
Frame size: 24x36  
Lens: Triplet-43 4.5/40  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.



Reconceived Smena 5 with greater lens aperture and conventional presentation with eveready case.



## **SMENA 7 (PROTOTYPE)**

Produced: 1968  
Prototype with exposure meter and metal top.



Name: „Смена“  
Producer: GOMZ/MMZ  
Frame size: 24x36  
Lens: Triplet-22 4.5/40  
Shutter: 1/10, 1/25, 1/50, 1/100, 1/200  
+ B.



## **SMENA 7 (COMMERCIAL TYPE)**

Produced: 1969-1971  
Production: LOOMP/LOMO  
Identical to type 6 but without self timer



## SMENA 8

Produced: 1963-1971



Name: „Смена“  
Production: LOOMP/LOMO  
The most prolific camera. Sold under various names. Exactly equal to Smena 6 but including rewind.



**SMENA 8M**



Planet's Most Popular  
Camera



Name: „Смена 8М“  
Producer: LOMO  
Frame size: 24x36  
Lens: Triplet-43 4.5/40  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.  
World's most popular camera in several  
name and color variations in a single  
model. Compact version of the previous  
"Smena 8"



Variation with self timer



## SMENA 8M

Still maintaining the same mechanical lay-out



Colored versions



Yunior Foto Konstruktor

## SMENA 9

Produced: 1969-1971

Name: „Смена 9“

Producer: LOMO

Frame size: 24x36

Lens: Triplet-43 4.5/40

Shutter: 1/15, 1/30, 1/60, 1/125, 1/250 + B.

Last of the second generation.

Identical to Smena 8 but lacks self-timer



# SMENA 35

Produced: 1990-1993

Name: „Смена35

Producer: LOMO

Frame size: 24x36

Modernized Smena 8M with fixed spool and Smena Symbol finder. Shoe and rewind crank from LOMO LCA.

Various colour combinations.



## SMENA 20

Produced: 1988-1990



Announced in text-only document at the 1990 Photokina, this camera seems to have been produced in very small numbers. It has the same technical characteristics as the Smena Symbol, but rebodied in Smena 35 size and shape



Name: „Смена“  
Producer: GOMZ/MMZ  
Frame size: 24x36  
Lens: Triplet-43 4/40  
Shutter: five speeds in weather symbols



## VZGLIAD

Produced: 1993-

Name: „Vzgljad“

Producer: PZTP

Frame size: 24x36

Lens: Triplet-22

4.5/40

Shutter: 1/15, 1/30,

1/60, 1/125, 1/250

+ B.



Only 100 prototypes made by the "PZTP" ("Penzensky Zavod Totchnych Priborov"). Watch factory after transferring manufacturing tools from LOMO. Technical characteristics identical to Smena-35 (LOMO), but more near mechanics to Smena 20 due its shutter coupled to film advance.

Conceived by LOMO Chief designers M.G.Holomiansky and A.P.Avdonin. The 4/40 mm "T-43" lens has a new appearance. Logo with Russian Federation Flag on the frontplate. Shutter speeds: 1/15s, 1/30s, 1/60s, 1/125s, 1/250s + B. Was the last attempt in making a low priced camera



All names of LOMO AND ASSOCIATED UNITS:

1914 = RAOOMP; 1919 = GOZ; 1925 = TOMP; 1930 = VOOMP;  
1930 = GOMZ; 1962 = LOOMP; 1964 = LOMO; 1993 LOMO PLC.

# THIS IS OUR HISTORY

✦ 1962 - LOMMP ✦ 1964 - LOMO ✦ 1993 - "LOMO" PLC ✦

<p>1936</p>  <p>СПОРТ</p>	<p>1937</p>  <p>ФЕДОРОВ</p>	<p>1937</p>  <p>ЛЕНИНГРАД</p>	<p>1939</p>  <p>ОМЕГА</p>
<p>1955</p>  <p>ОМЕГА 2</p>	<p>1955</p>  <p>ЛУЧТЕЛЬ 2</p>	<p>1955</p>  <p>СПУТНИК</p>	<p>1956</p>  <p>ЛЕНИНГРАД</p>
<p>1984</p>  <p>ЛОМО-КОМПАКТ-АВТОМАТ</p>		<p>1968</p>  <p>ОМЕГА-ПАРАТИД</p>	<p>1970</p>  <p>ОМЕГА 96</p>
	<p>1976</p>  <p>ЛУЧТЕЛЬ 565</p>	<p>1977</p>  <p>ЭЛЕКТРА 112</p>	
<p>1985</p>  <p>ОМЕГА 19</p>	<p>1987</p>  <p>БЕИГИТ 35 F</p>	<p>1990</p>  <p>ОМЕГА 95</p>	<p>1991</p>  <p>БЕИГИТ 35 F-1</p>

## SMENA RAPID/SL

Produced: 1968-1977



Name: „Смена“  
Producer: LOMO  
Frame size: 24x36  
Lens: Triplet-43 4/40  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.



USE FILM RAPID "SL" Needing no rewind  
SL stands for "Schnell Laden" or Quick Load





# SMENA SYMVOL

Produced: 1971-1991



Name: „Смена Символ“  
Producer: LOMO  
Lens: Triplet-43 4/40  
Frame size: 24x36  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.



# SMENA SYMBOL

Produced: 1971-1991



Other variants:  
This camera gained a wide spread acceptance world over and was renamed according to the various importers.



# SMENA E

Produced: 1971-1972



Name: „Смена-Е“  
Producer: LOMO  
Frame size: 24x36  
Lens: Triplet-43 4/40  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B. Programmed with diaphragm

Very few produced



# SMENA SYMVOL 136

Produced: 1977-1979



Name: „Символ 136“  
Producer: LOMO  
Lens: Industar-73 2.8/40  
Frame size: 24x36  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.



# LADOGA/ COSMIC-10

Produced: 1971



Name: „LADOGA“  
Producer: LOMO  
Frame size: 24x36  
Lens: Triplet-43 4/40  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250 +  
B.



## SMENA 19

Produced: 1985-1989



Name: „Смена 19“  
Producer: LOMO  
Lens: Triplet-43 4/40  
Frame size: 24x36  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.

An attempt to modernize the model  
„Смена Символ“



## SMENA MOLNIJA

Produced: 1985-1986



Name: „Смена Молния“

Producer: empg/Novacon

Frame size: 24x36

Lens: Triplet-43 4/40

Frame size: 24x36

Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.

With built in electronic flash from Frata

Two model variations right or left handle



An attempt to produce a Brazilian variation on the model Symvol  
Only prototypes made. See history  
Foreign country experiences.

## SMENA 18

Produced: 1984 first version like LC-A  
1985 second version with Smena 19  
shutter and lens



Name: „Смена 18“  
Producer: LOMO  
Lens: Minitar-1 2.8/32 first version  
Lens: Triplet-43 4/40 second version  
Frame size: 24x36  
Shutter: 1/15, 1/30, 1/60, 1/125, 1/250  
+ B.



## SMENA 11

Produced: 1967 Prototypes only

Name: „Смена 11“



The most desirable cameras from the huge Smena group. This small series consist of 4 cameras: mechanical Smena-11, single speed (1/60s) automat Smena-12, more advanced 4 speeds (1/30s, 1/60s, 1/125s, 1/250s) automat Smena-14 and never seen alive Smena-15 with spring motor (!!!). Unfortunately only few prototypes Smena-11, -12 and 14 are known to exist ...



This LOMO prototype was announced in 1967. Metal-plastic body with more angular edges. Bi-format 18x24mm or 24x36mm, selected via a simple sliding mask in the viewfinder. Bright-line finder centered on lens axis, with fixed half-frame indicators. Advance lever under the body. 36 or 72 view frame counter. Accessory shoe on the top plate centered on lens axis. Industar-60 2.8/40 mm or Industar-73 2.8/40 mm lens. Shutter with speeds: 1/30s, 1/60s, 1/125s, 1/250s + B.



## SMENA 12

Produced: 1967



Name: „Смена 12“  
Producer: LOMO  
Frame size: 24x36  
Lens: Industar-73 2.8/40  
Shutter: 1/50,B. single speed



This LOMO prototype was announced in 1967. Identical to Smena-11, but with lightmeter surrounding lens. Shutter speed priority automation with single speed 1/60s and B. Diaphragm scale visible in finder. Fitted with Industar 2.8/40 mm or Industar-73 2.8/40 mm lens

## SMENA 14

Produced: 1967



Name: „Смена 14“  
Producer: LOMO  
Frame size: 24x36  
Lens: Triplet-22 4.5/40  
Shutter: 1/30s, 1/60s, 1/125s, 1/250s



This LOMO prototype was announced in 1967. Identical to Smena-12, but with 4 shutter speeds automat: 1/30s, 1/60s, 1/125s, 1/250s

# SMENA 15

Announced: 1967

Computer Art - Not Real image!



MMZ developed together Fuji of Japan the Siluet camera based upon Fujica models. The cooperation MMZ-LOMO brought up the Smena 15. Produced: 1967  
Name: „Силует Рапид Авто“  
Producer: Belomo  
Frame size: 18x24  
Lens: Industar-75-3 2.8/30  
Shutter: 1/30s, 1/60s, 1/125s, 1/250s +B.



Fuji Film Co. also ventured on the development of MMZ Orion KM and LOMO Sokol Family.

The employed Seiko Shuttters were later used on BelOMO Vilia family of cameras.

## LOMO 135 VS

Produced: 1975-1980  
Motor driven camera



Name: „Ломо-135BC“  
Producer: Lomo  
Frame size: 24x36 mm.  
Lens: Industar-73 2.8/40.  
Shutter: 1/15s, 1/30s, 1/60s, 1/125s,  
1/250s + B.



# LOMO 135 M

Produced: 1980-1985  
Motor driven camera Second version.



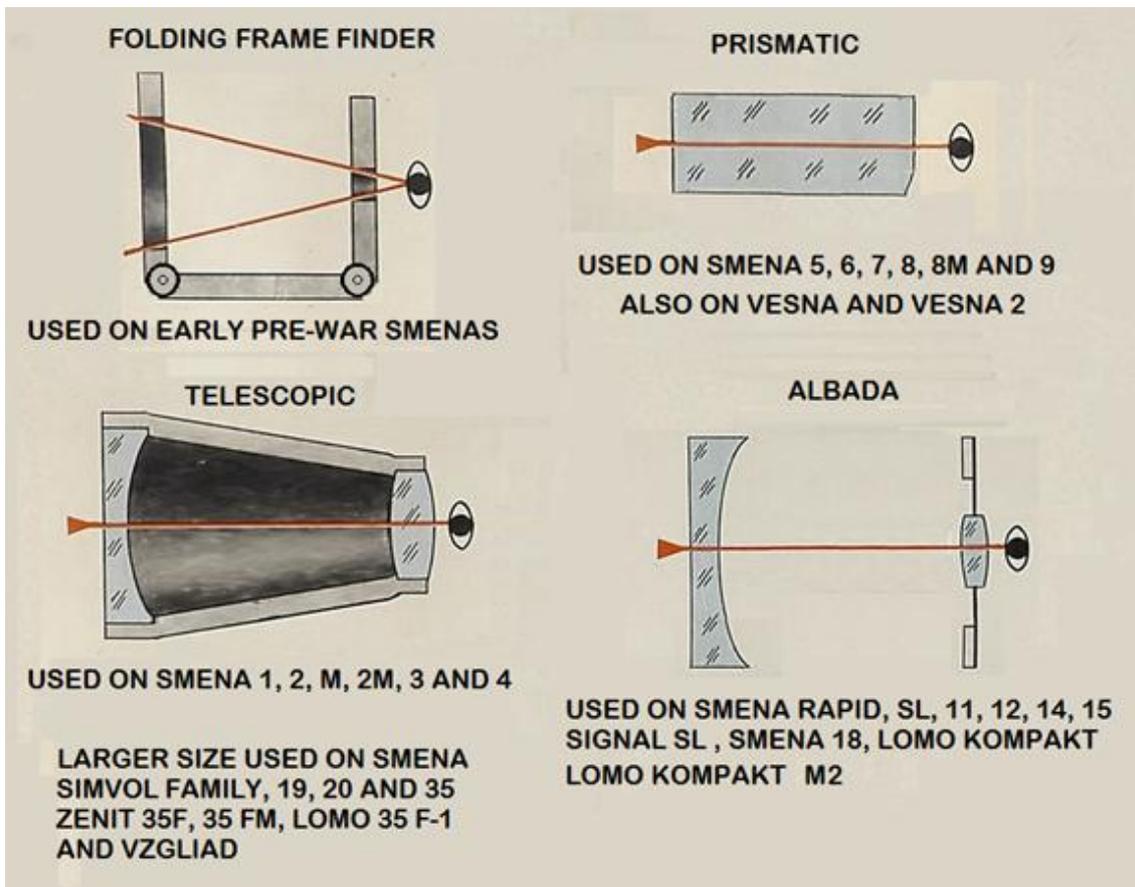
Name: „Ломо-135М“  
Producer: Lomo  
Frame size: 24x36 mm.  
Lens: Industar-73 2.8/40.  
Shutter: 1/15s, 1/30s, 1/60s, 1/125s,  
1/250s + B.



This second version has an exposure calculator around the front lens ring



## Curiosities and prototypes

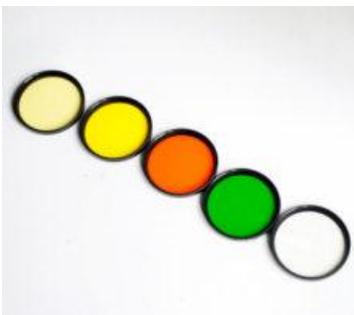


Smena viewfinder concepts

**Smena rangefinders**



# Blik Smena rangefinder variant



# Приз номера!

Самому активному и любознательному читателю



Фотоконструктор ЮФК-2

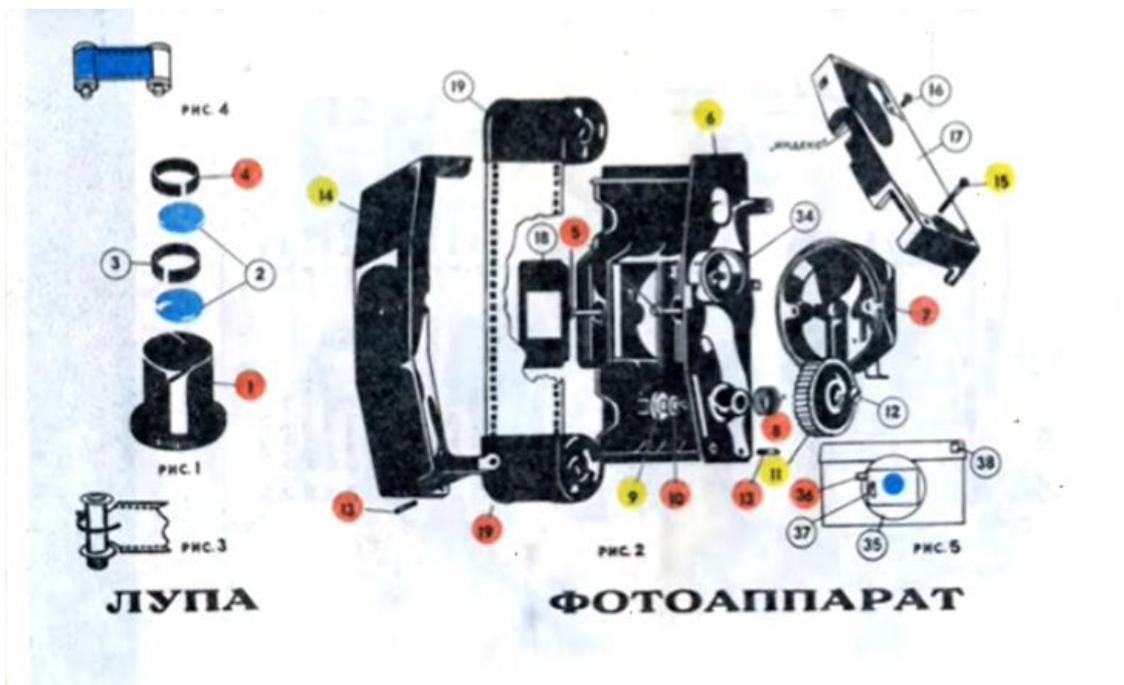
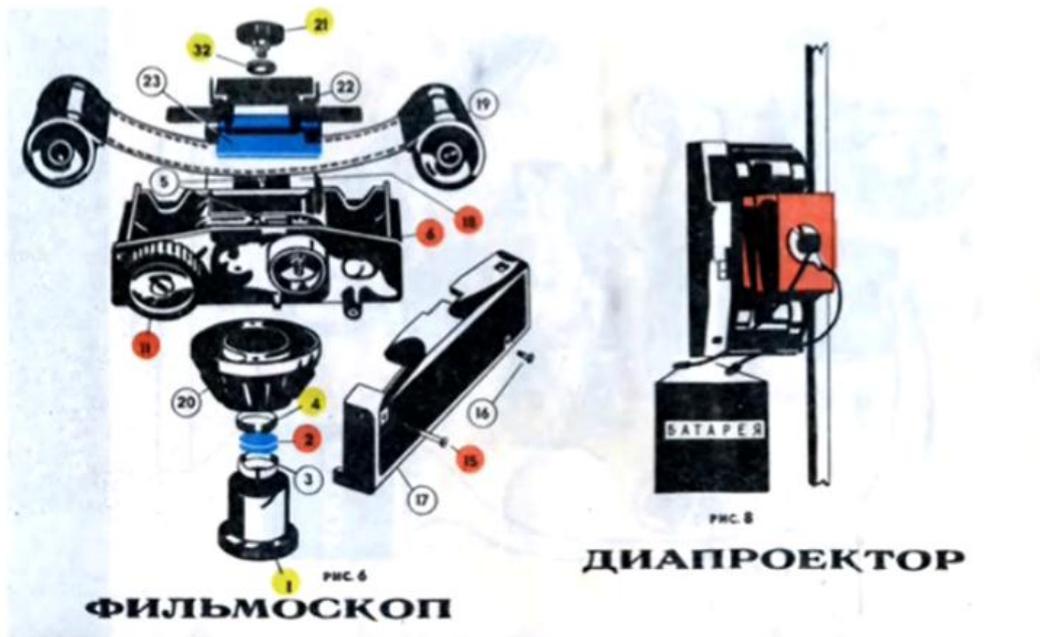
Наши традиционные три вопроса:

1. Почему облако кавитационных пузырьков задерживает ультразвуковые волны?
2. Какой признак в огранке драгоценного камня позволяет утверждать, что это алмаз?
3. Может ли измениться частота колебаний задатчика ритма «стреляющей мишени», если заменить в ней электролитический конденсатор на другой экземпляр того же номинала и типа?

Индекс 71122

На конверте укажите: «Приз номера». Право на участие в конкурсе дает анкета. Вырежьте полоску с вашими оценками материалов с первой страницы и вложите в тот же конверт.

Внимание! Ответы на наш блицконкурс должны быть посланы в течение полутора месяцев после выхода журнала в свет. Дату отправки редакция узнает по штемпелю почтового отделения отправителя.



## A Smena for Kids

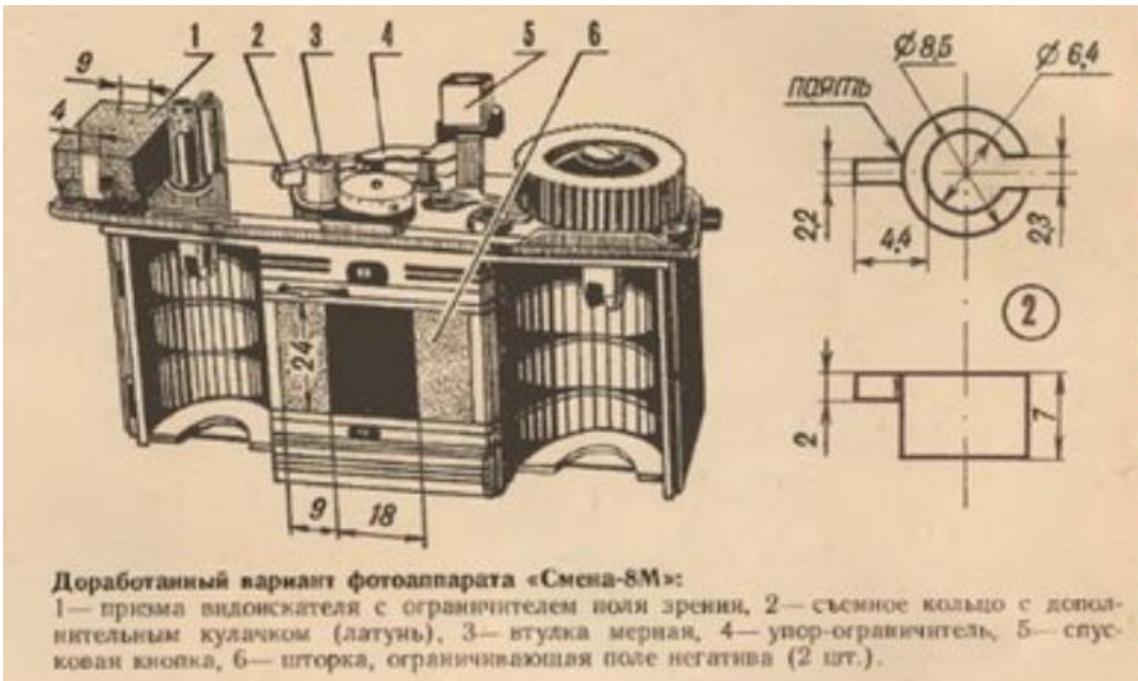
### YuFK-2

Tells the basics of photographic instruments with a do-it-yourself assembly.





With original mask



Suggesting of a half frame Smena on conventional model using YuFK-2 masks and a second stop bar in the sprocket axis.



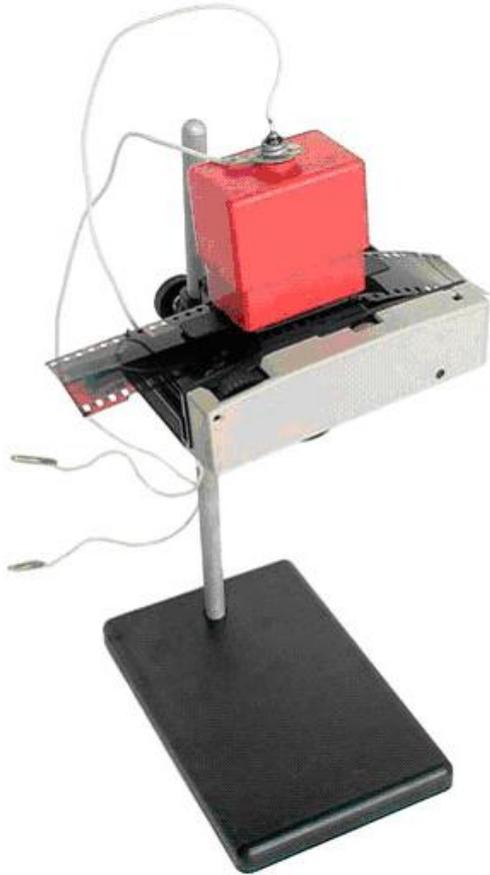
The camera, 18x 24mm



Film viewer



Two element Loupe formula Huygens or Ramsden



Enlarger



Projector

Includes stand and illuminator box with 12V lamp

Achromatic lens and simple shutter.



Two pictures of a single Picture camera



**Odd constructions**





**And endless stereo adaptations....**



Camera Stereo Ladoga

Small production series Smena stereo



Smena Stereo factory prototype with reflex finder



Home built Stereo Smena

Smena Stereo LOMO pre-run series



Smena Stereo pre-run series variants (from A. Berry collection)





Small production series Smena stereo

And home built stereos



Home built Stereo Smena



Home built Stereo



Two more home built Stereos



Front view



Rear view

The doppel Werra inspired the doppel Smena



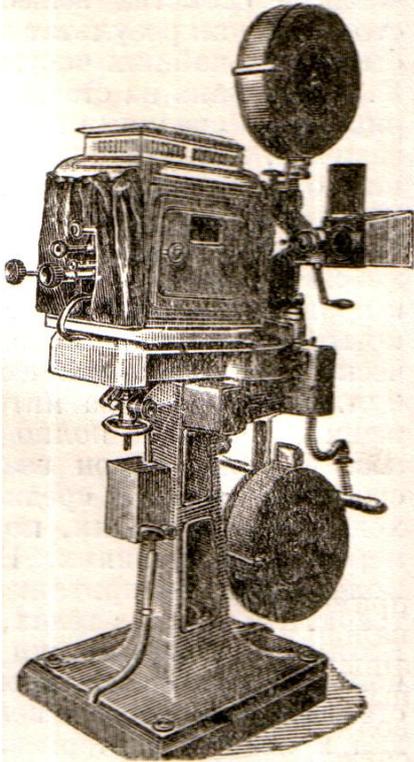


After B. Parkinson

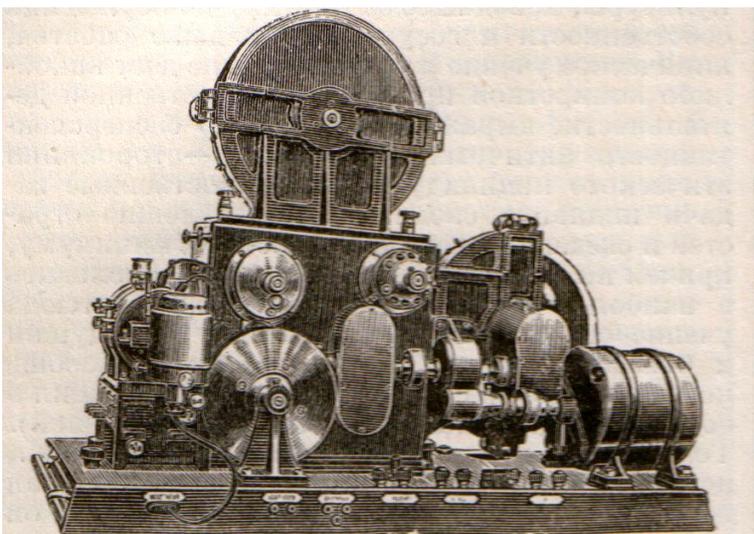
## LOMO on Movies

Since the beginning through its branch LenKINAP, LOMO showed its main vocation to construct equipment for movies.

They constructed equipment for all kind of professional picture taking as well as for researches in new techniques.



TOMP 4 projector and sound equipment

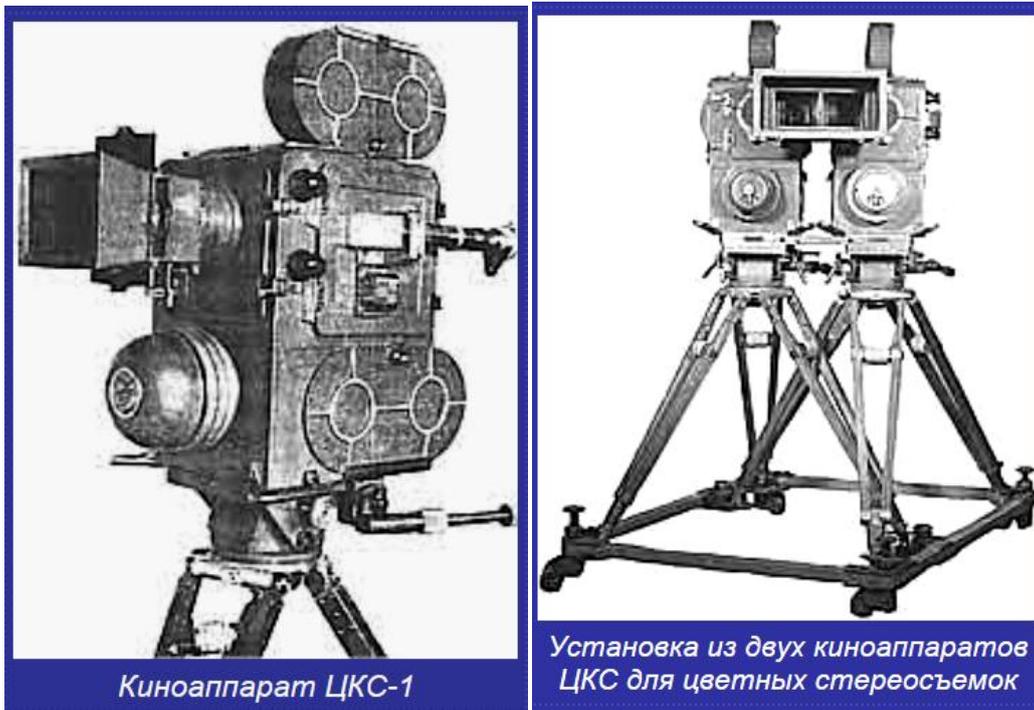


That way they built all necessary system for Stereokino and Kinopanorama pioneering both techniques.

## Stereokino

The Stereokino was developed in Russia around the 1930 years. Beginning with an anaglyph process developed by E. M. Goldovsky through an interesting method of reversal when the two different emulsions which registered left and right eye views, (each side of film) were reverted for the blue (or green) and red colors. It was called the "Dipo-film". Further it was seen through colored glasses and give the Stereo sensation. The most interesting was that you need only the conventional projector to show it, no optical attachments nor two synchronized projectors. This happened in 1939.

During the 1940 the Soviet art movies came with "Weekend in Moscow". Made by the conventional twin film technique with a double camera specially developed for taking pictures and special projecting equipment. Each taking camera, worked with three films for the color enregistrement. The equipment was the TZKS-1 called "the monster"



TZKS-1 three color camera in simple and stereo configuration

But the most interesting was that in 1937, Semyon Pavlovich Ivanov developed the practice of a stereoscopic projection system that need no glasses. This process was known as the raster or lenticular system which today are used in some 3D post cards. Ivanov was known as "The Best friend of Soviet movie makers"

In February 1941 begun in Moscow the operation of the first stereoscopic movie theatre in world, using no glasses!



Masked screen for stereoscopy without glasses.

<http://www.stereokino.ru/rastr.htm>

The first stereoscopic film with no glasses was "World of Youthness" (more known abroad as "Concert"), seen by half million of spectators during the first war days.

In the early days of war, during 1942 Semyon Pavlovich Ivanov, Boris T. Ivanov and Alexander Andrievskii who filmed "Concert", continued their work and created a large aperture raster. A new picture taking method was developed where a two mirror attachment made the stereo pair with different sizes of images in the ratio 0,67:1 in each (11x18 mm) images.

The frame was uncommon for the cinema Standards. After some experiences S.P.Ivanov proposed to remove one of the three holes in each frame obtaining a greater image in the size 15.5 x 15 mm. The new system was called "Stereo 35-19."

That way the ratio became nearer the visual Standards 3:4.

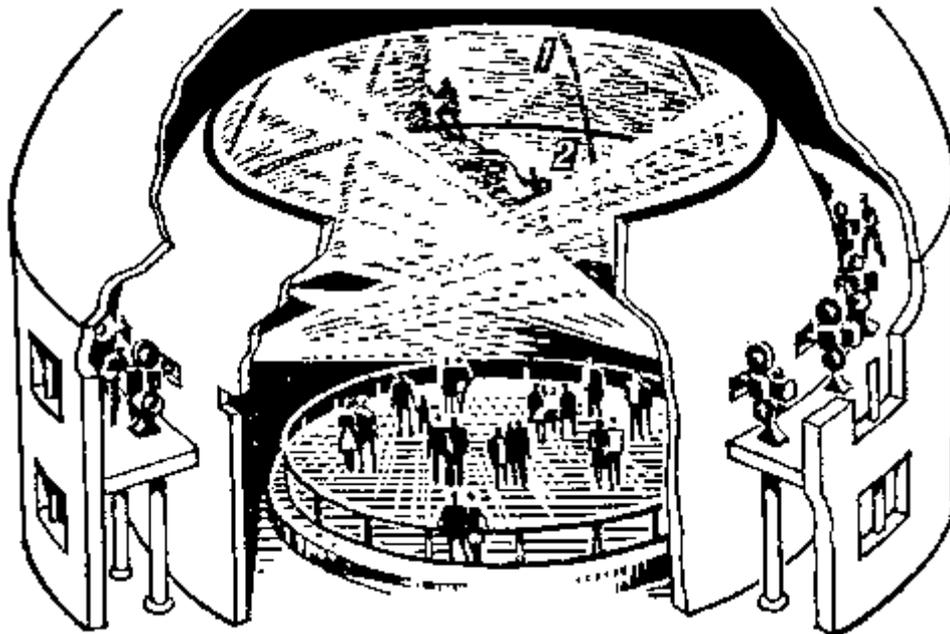
After the war, from 1946 were filmed "Parade of Youthness" "In the Trail of the Enemy" filme "Robinson Crusoe", and several others, in 1964 the raster system gave place to the polarizing filters.

## Circular Kinopanorama

Films are exhibited in the so called circus giving a 360° view of the scene. The Idea was first shown by Walt Disney in 1955 which He called Circorama. There was only the cylindrical part and there were used eleven projects to show the theme in 16 mm. Due difficult mixing between camera images, there were made small spaces covered with Black strips.

The Soviet version first shown at Moscow VNDH URSS, in 1959, and later – in Praga and Tokio. Had 25 m diameter and 15 m high, with a capacity of 500 viewres. People see the scenes standing up. Pictures are recorded and shown on 35mm equipment. The projection is made through the black strips between the screens. Each projector fills the angle of 32.7° ( $360^\circ : 11 = 32.7^\circ$ ). The sound is recorded separetaly in 11 audio channels and reproduced around the screens, the floor and the ceiling of the theatre, in order to simulate the Best natural sound.

*Lit:.* Goldovski EM, From silent movies to the Kinopanorama, M., 1961.



Placing and disposition of the screens at krugovoy kinopamorama at VNDH USSR

- 1- Section of the conical screens (lower diameter 17.26m upper diameter 15m) screens in trapezoidal form with 3.5m at the upper part and 4.9m at lower; 4.2m high.
- 2- Section of cylindrical screens width 4.9m height 3.5m.

There are eleven screens in the conical section and eleven screens in the cylindrical section totalizing 22 projectors in simultaneous operation.

### Kinopanorama technology



Krugovaya kinopanorama exhibition hall at VNDH



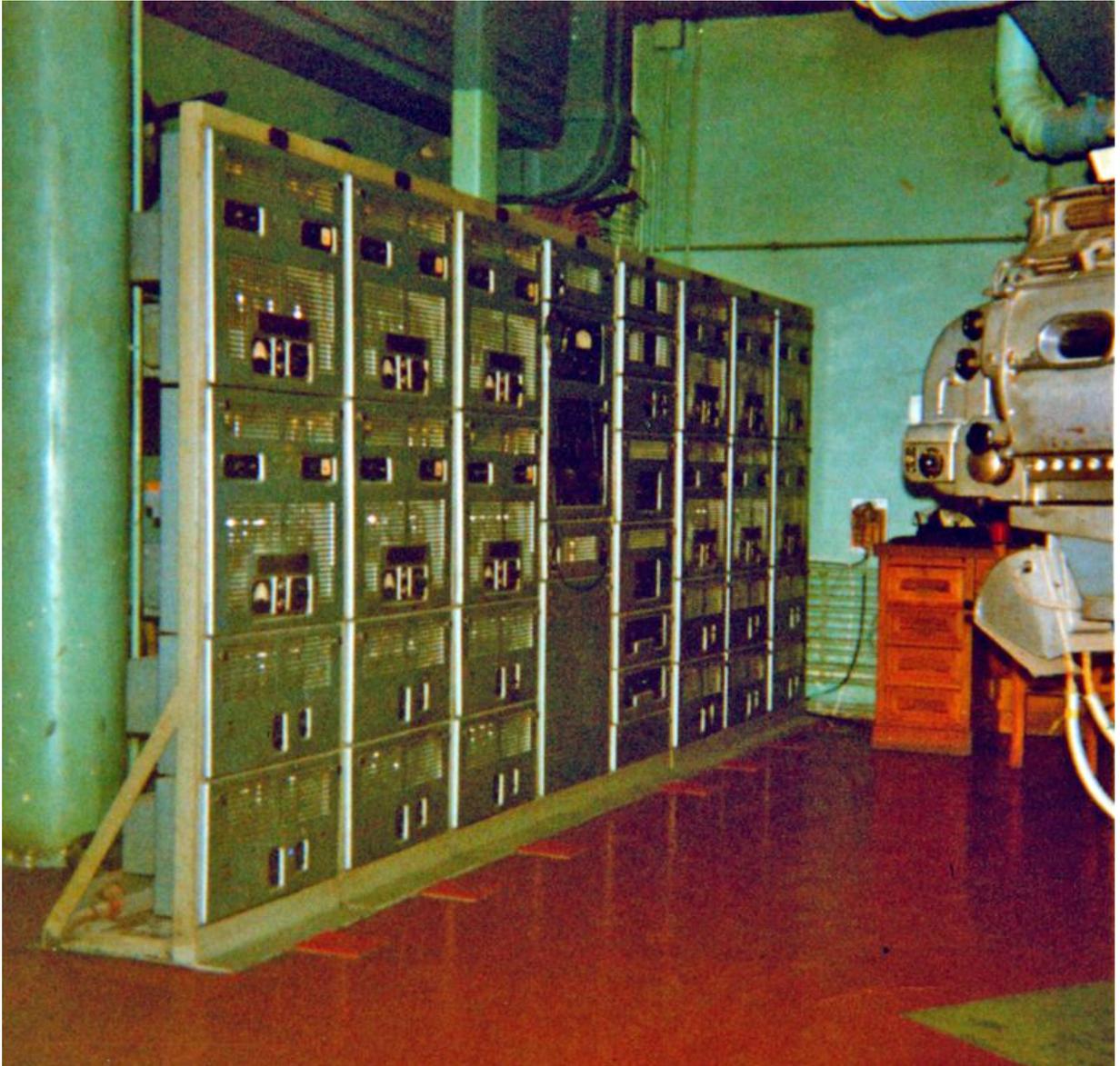
**Internal of the panorama kino theatre Picture by Yan Vladimirovich.**



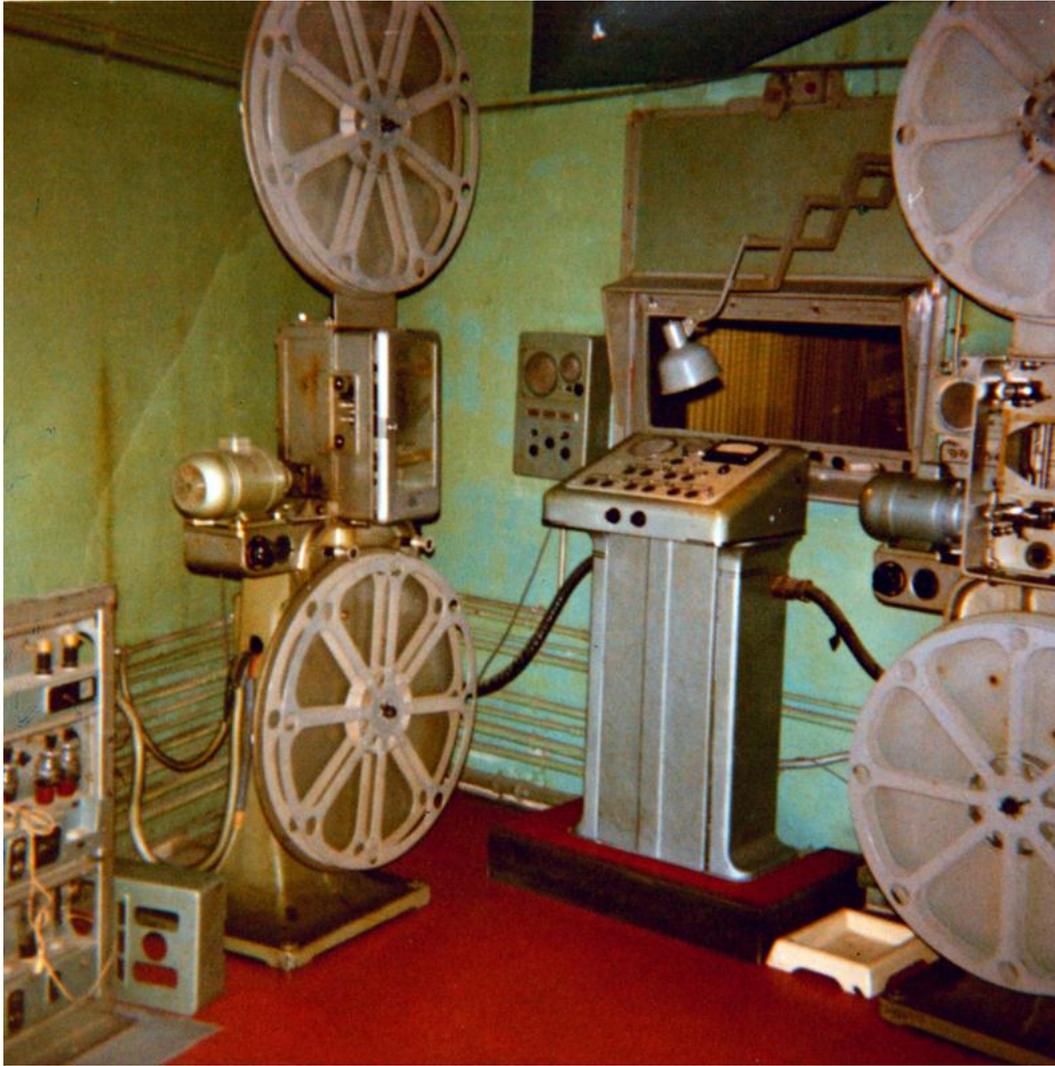
Another picture



Shown in complete magnificent working form



Amplifiers wall (Perm)

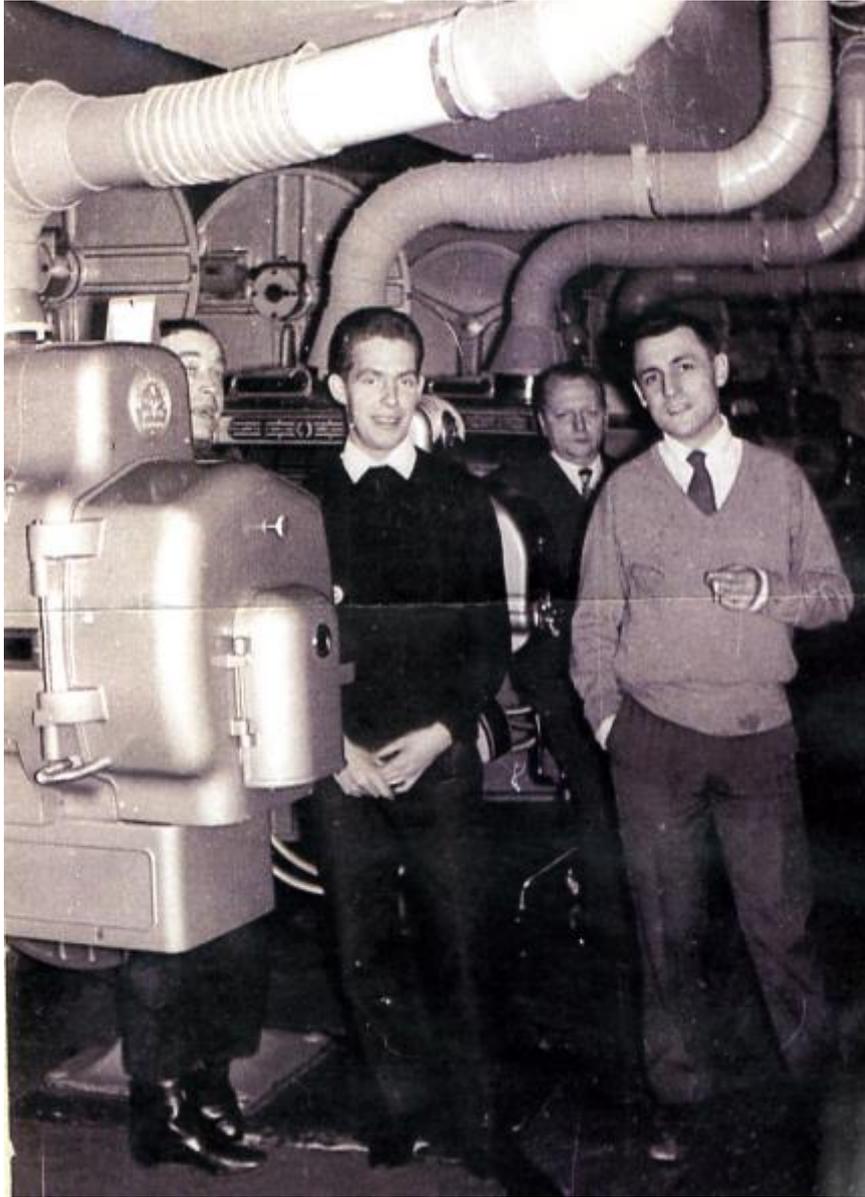


Sound reproducers (Perm)

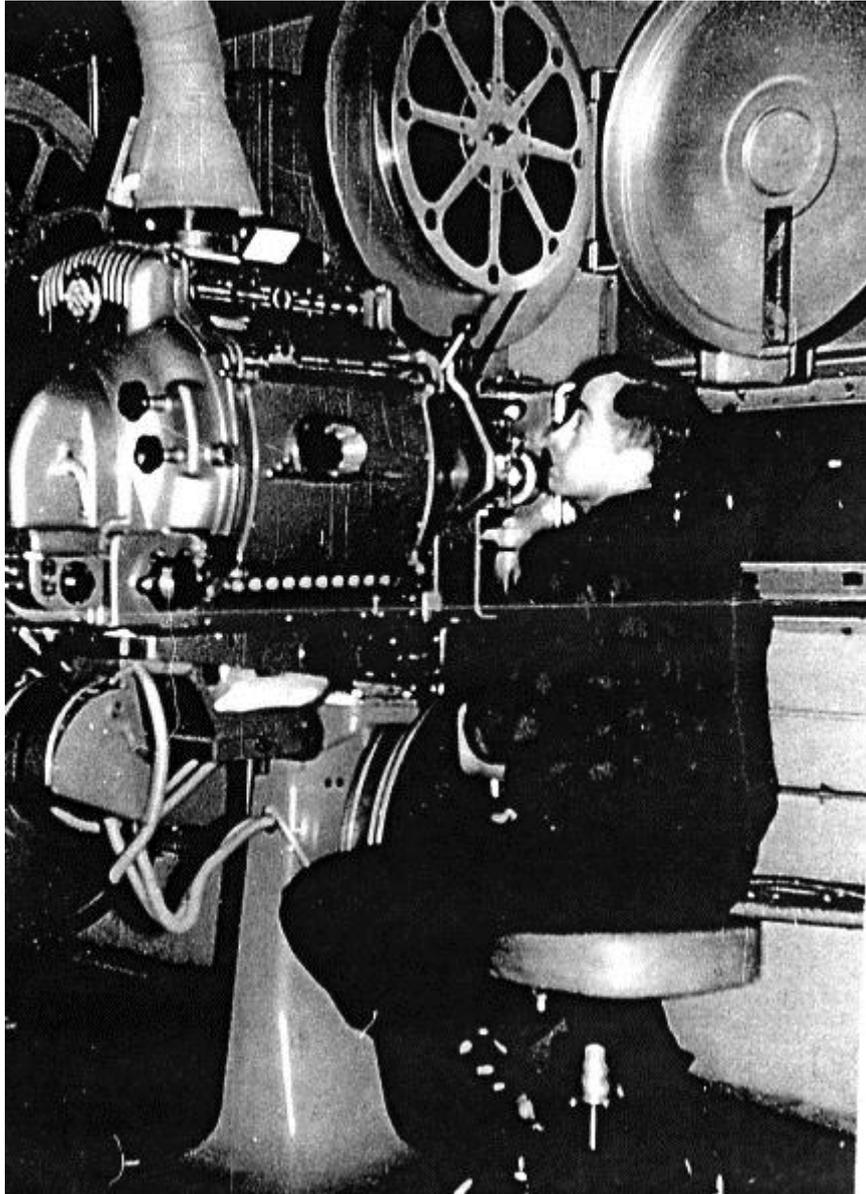


The control of Kinopanorama picture and sound

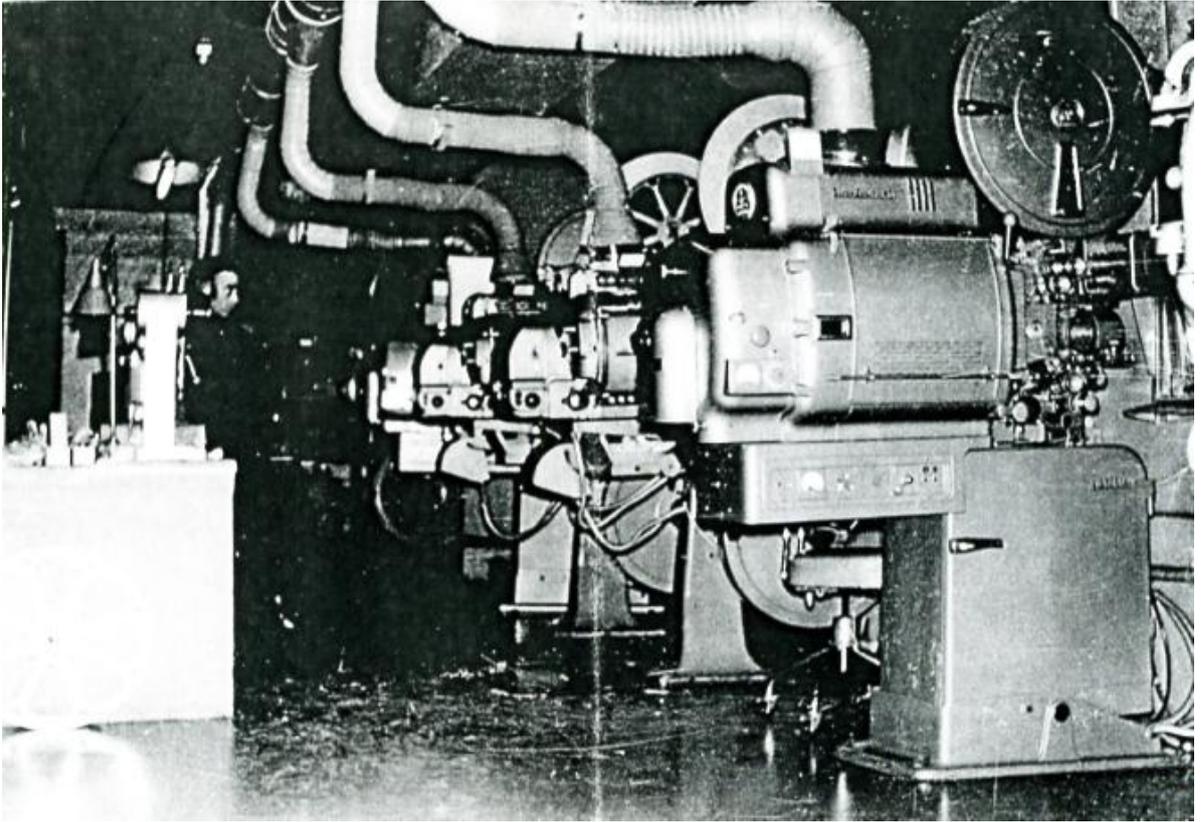
**Some photographs about Paris, Perm and Kiev Kinopanorama**



The central booth with 1 Vic X and one KPP1 6-perfs



KPP-1 projector during a show launching - 1200 m reels



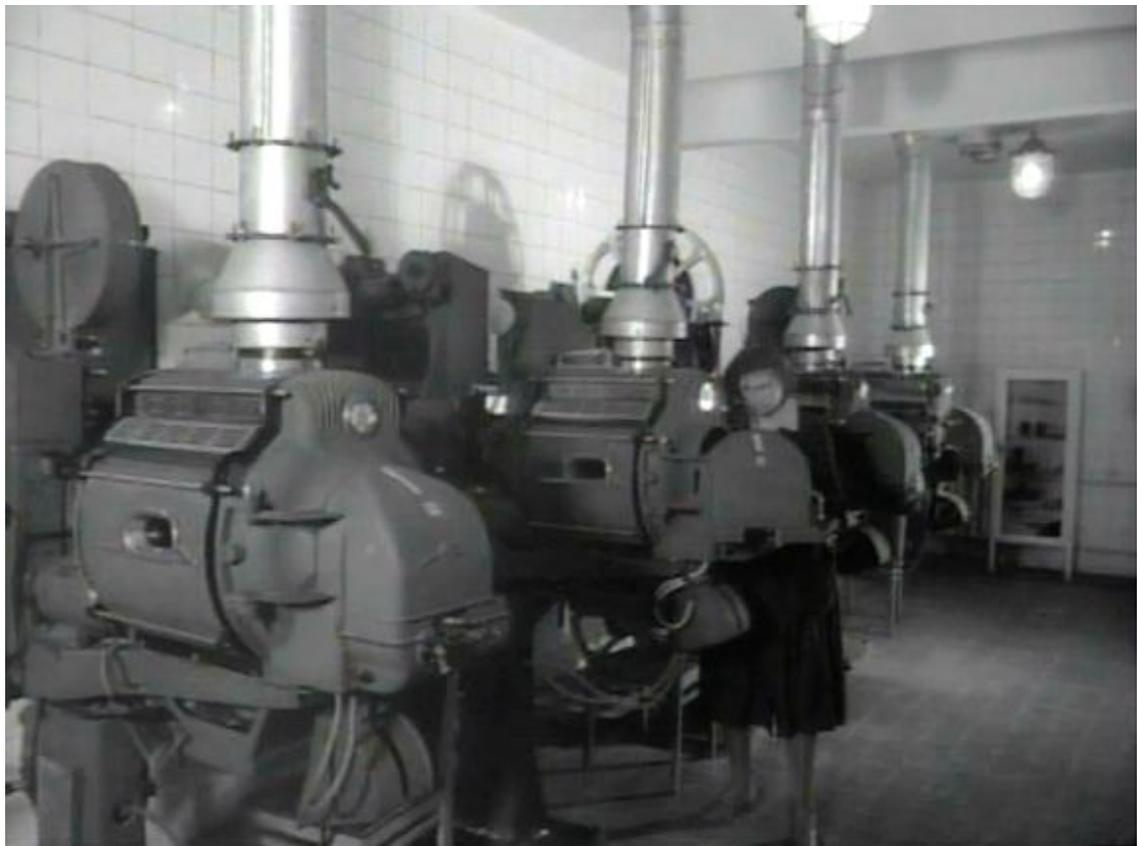
The central booth with 2 Vic X and Two "Baker " KPP-1 Kinopanorama projectors



When the screen is not there. Soviet Kinap speakers and STS sound system (1986-1987)



(Kiev 2008)



Moscow Mir Panorama 1958

The Kinopanorama is still alive!



II International Cultural Forum os St Petersburg 2-4 December 2013

**Some Professional devices:**



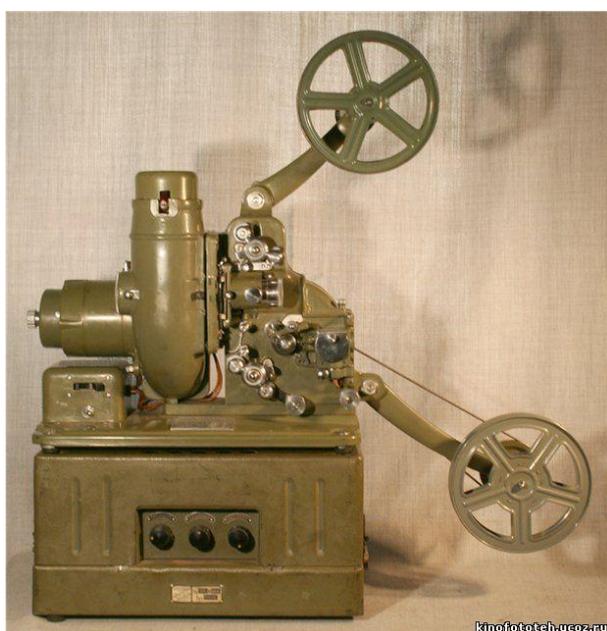
Three different models of series KS and AKS movie cameras

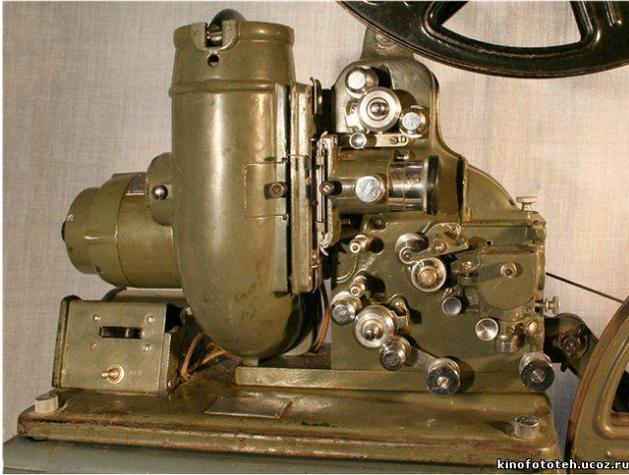


Based in Bell & Howell Eyemo produced from 1938. In 1947 the production was transferred to Krasnogorsk. KS hand held AKS adapted for the Air Force

16ZP

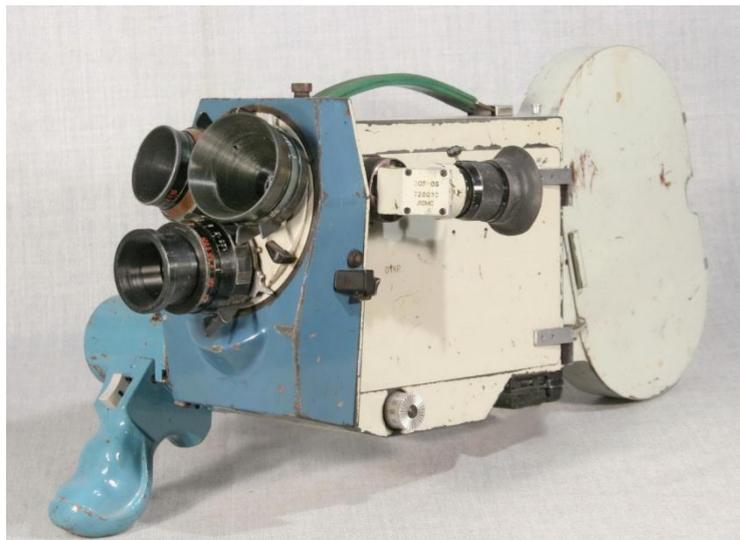
Movie projector





16mm Sound portable projector 1936 up to 1960

2SR



Sound movie camera in two models with divergent turret or for zoom lenses. 1970 years.

Made by LOMO in cooperation with Krasnogorsk



Movie viewfinder preview 7S41





35mm / T2.4

50mm / T2.5

75mm / T2.6

100mm / T3.1

150mm / T4.5

35mm / T2.5 / cf 3'6" / 138mm Front

50mm / T2.5 / cf 5' / 120mm Front 80mm / T2.5 / cf 5'3" / 120mm Front



Other LOMO anamorphic lenses



Zoom lens 20/120mm 2.5



UO-15 cinema audio amplifier

## Amateur Movie Cameras

Under these conditions It was not possible not to supply amateur with the excellent quality of LOMO movie cameras.

**This section is an offer of Erkan Umut famous Turkish movie director and collector.**



**Sport** cameras offered in four series were the first, beginning in 1960.

T-40 or T-41 2.8 10mm.



In an upper class came the **Neva** and **Neva 2** offered from the same date. Was atree lens turret with two converters for wide angle and telephoto. SH1 1.9/13mm and two converters 0.5x and 2x.



Then came the incredible **Lada**. These superlative cameras with a modest appearance, really overshadowed all products in the market.

Its excellent craftsmanship preview roller bearings in all moving shafts of the camera! 1963. Totally automatic electric eye.



Lada and Lada 2 prototypes. Lada were offered in various colors: khaki, black and blue. PF-2 1.7 9/37mm

emarket.ua





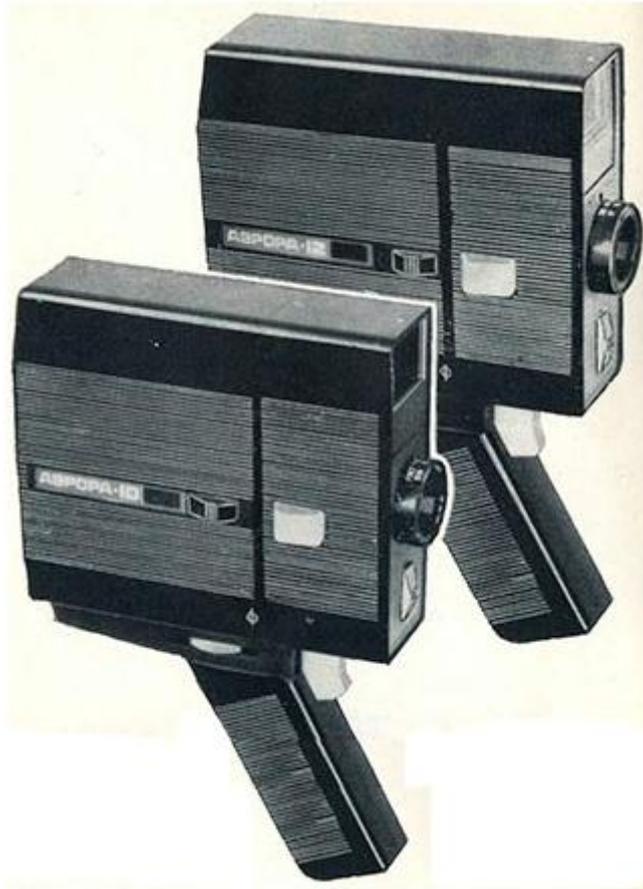
The **Avrora** grey or black was the electric eye version of the **Sport 4**. -1966. T-51 2.8 10mm.



**Lantan** was the successor of the Lada Incorporates TTL auto electric eye. -1969. Granit-3 1.4 7.3/32mm



**Aurora 10** and **12** introduced the Super8 in Russia. The model 10 is a totally manual camera while the model 12 has permanent electric eye. - 1971. T-54 2.8/16mm

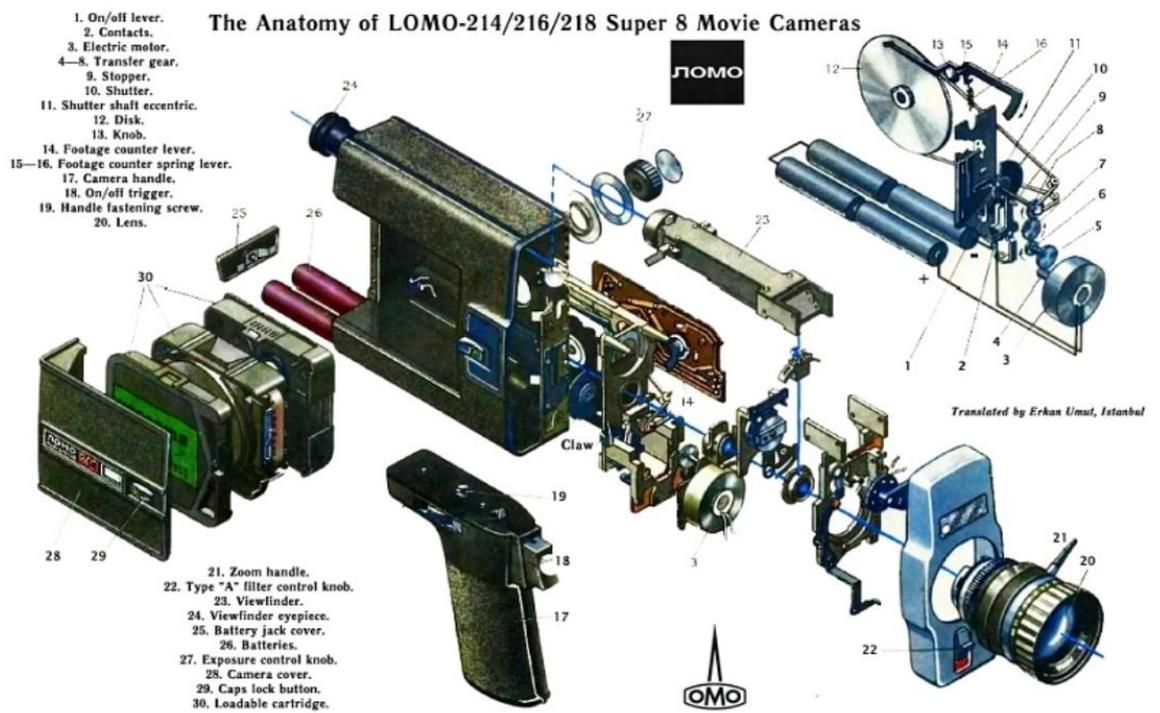




These low priced cameras were succeeded by the new series **214, 216, 218**, being respectively Normal lens manual adjustment; same camera with electric eye; and same as previous with zoom lens. – 1976. First limited production with LOMO name from 1972.



Number alterations were done for export. The 217 is the same as 214; and 216 the same as 218. T-54 2.8/16mm or Agat 14 2.8 9/27mm - 1972



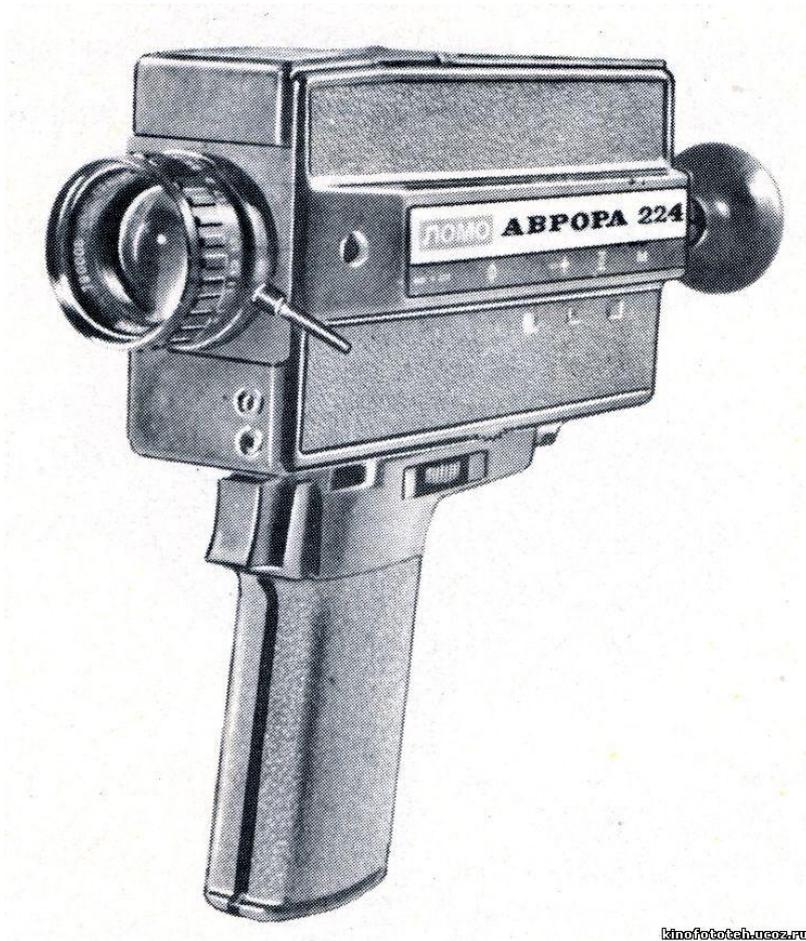
Exploded view of the 218 model and camera in its bag.





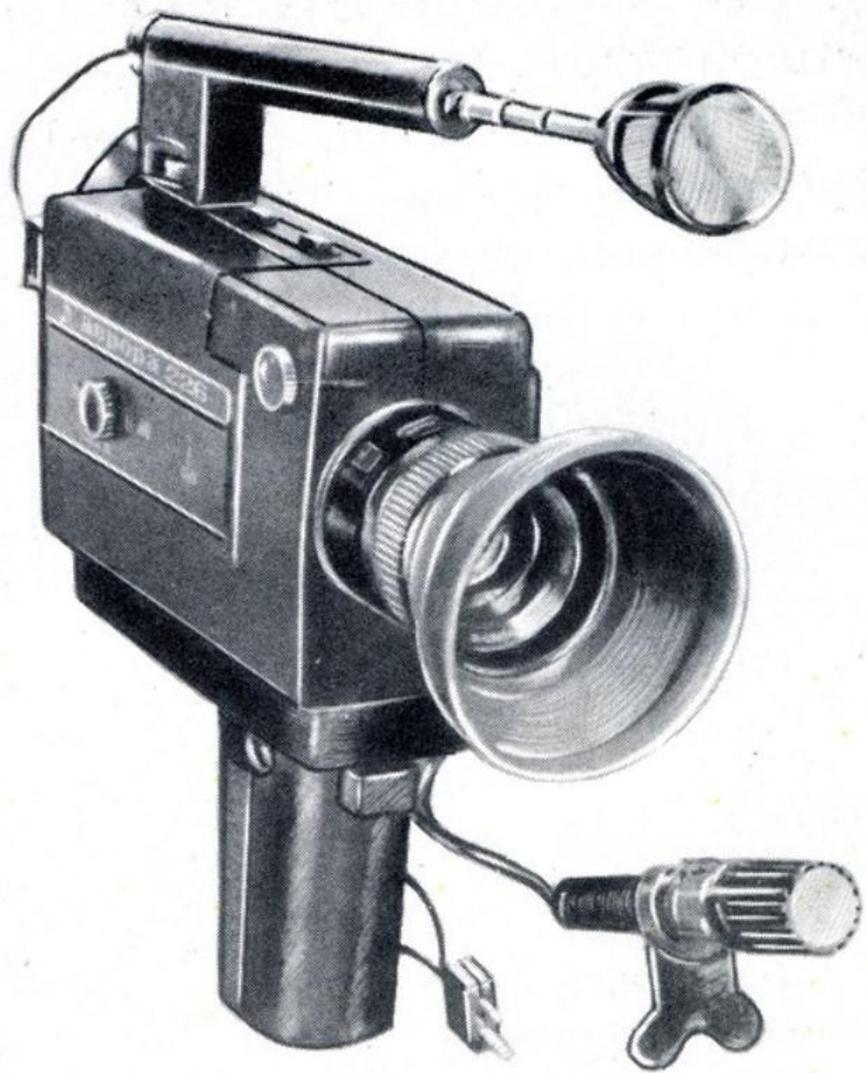
**LOMO/Avrora 200 and 220** -1979. High grade cameras. The 22° incorporate slow motion lap dissolver, fade-in/fade-out and remote control. Variogoir 2B 1.8 6.5/65mm

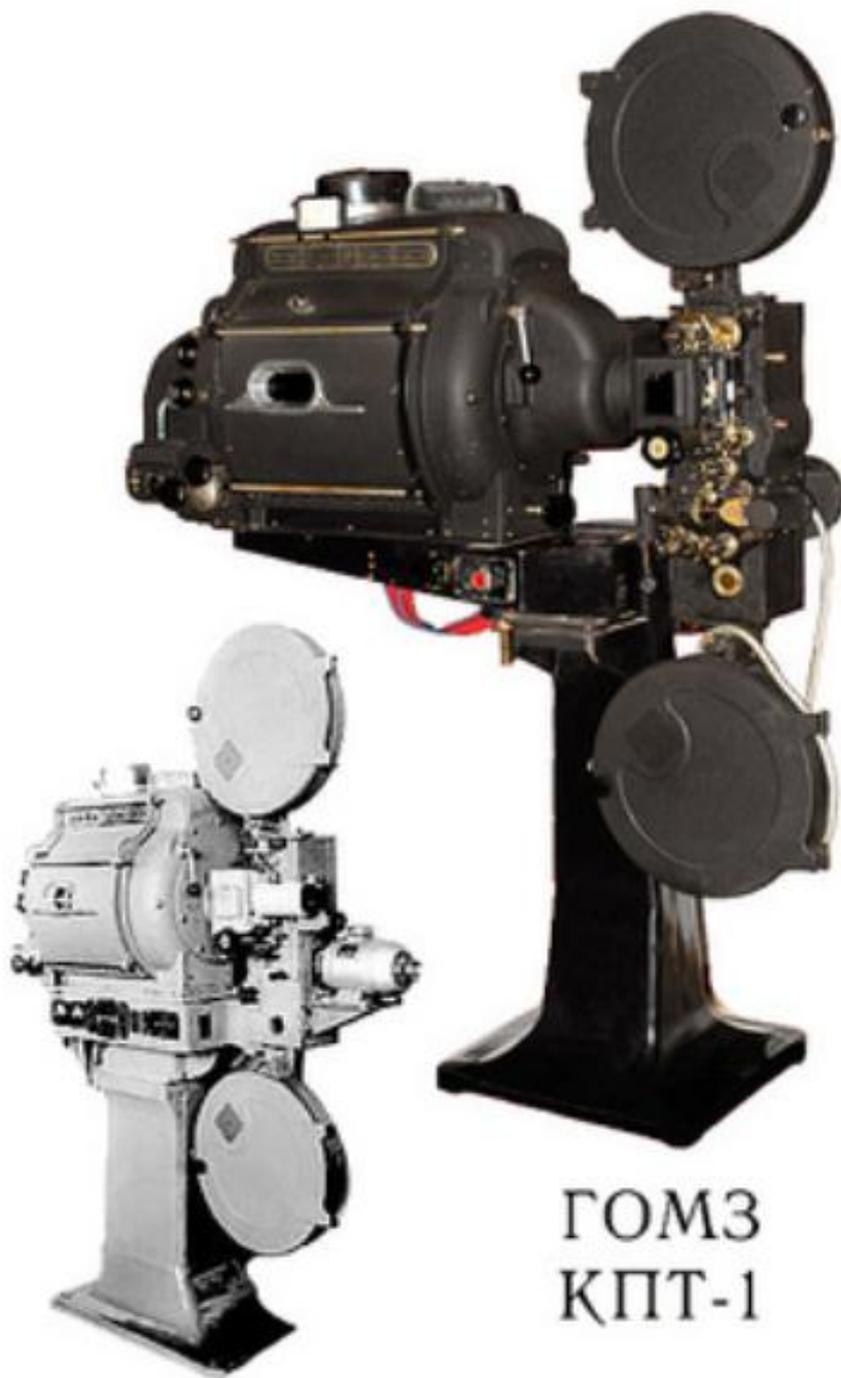




[kinofototeh.ucoz.ru](http://kinofototeh.ucoz.ru)

The **Avrora 224** repeated the model 200 with a lower cost zoom. And the 226 was the same camera adapted with a recorder for sound-on film during picture taking. Granit 12 2.8/9-27mm. 1885





ГОМЗ  
КРТ-1

ЛОМО СССР  
ПКП-1

Professional projectors **PKP-1** and **KPT-1**



**Kupava** Amateur movie editor in three identical versions for 8mm, Super 8, and 16mm.



The most successful 8mm projector the **Luch 2** identical to **Luch 1** (no sound synchronized); shown closed and open.



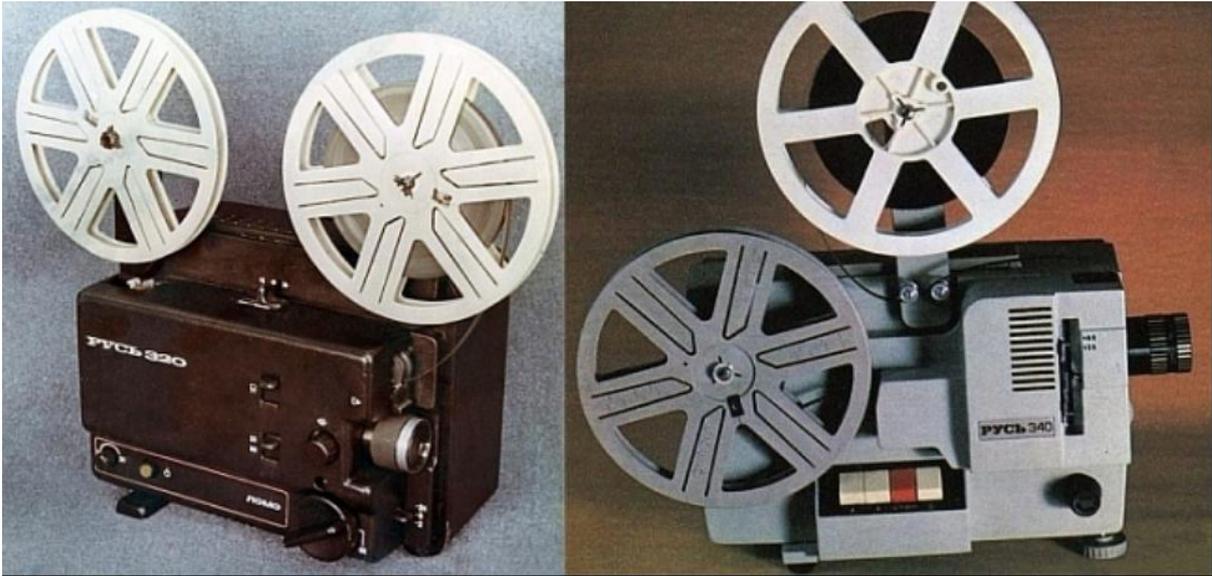
And the **Sel-1** synchronizer for model Luch 2, all Russ types, and Volna variations.





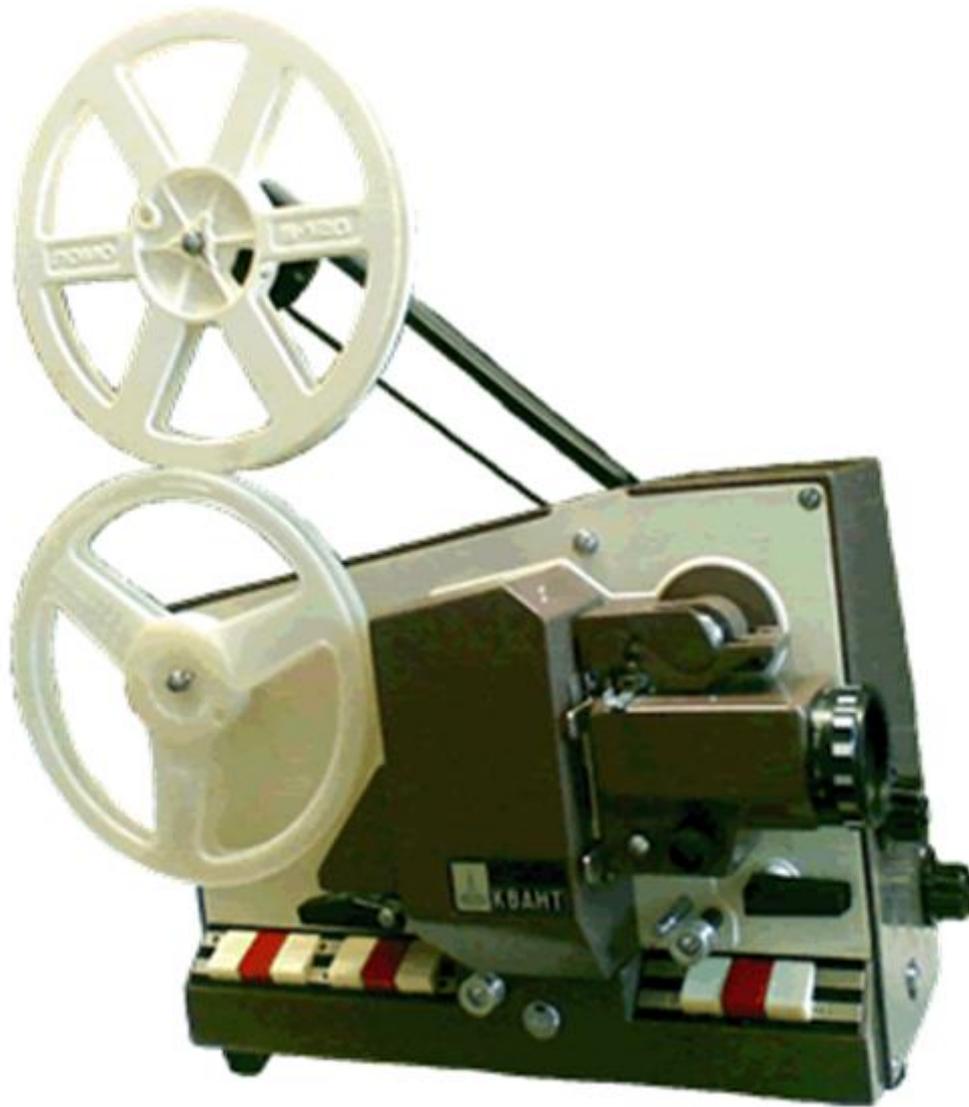
Previously two **Volna** projectors

**Russ 320** and **Russ 340** both with zoom lenses.





The traditional **Russ** first model for 8mm and super 8 the second most sold projector



**Kvant** Super 8 top class sound projector.



8mm film splitter



**Svetliachok** a projector for the kids Uses 6 1.5V batteries size D



**KPR** 1937 made also in Ukraine



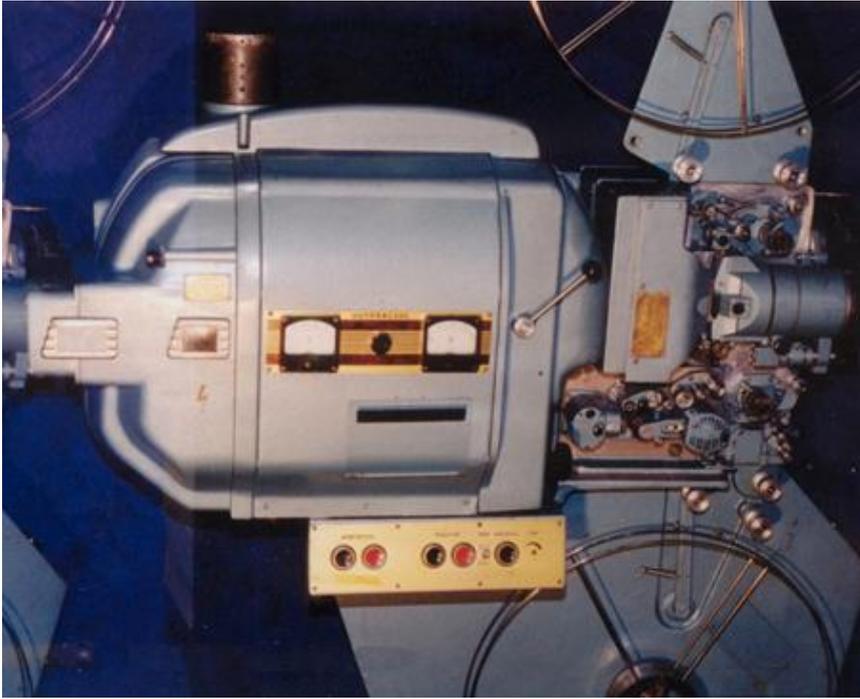
**KN-20**

The "Projector of Learning" several projectors like that were used in cars during the 1930 years to offer movies and teaching classes to all regions of the country



**KPT-1**

The standard of movie theatres.



**35K1A**

The standard of movie theatres.

LOMO also built miniature toys

Miniature toy cars.

OPTICAL MECHANICAL  
ASSOCIATION

**LOMO**<sup>®</sup>



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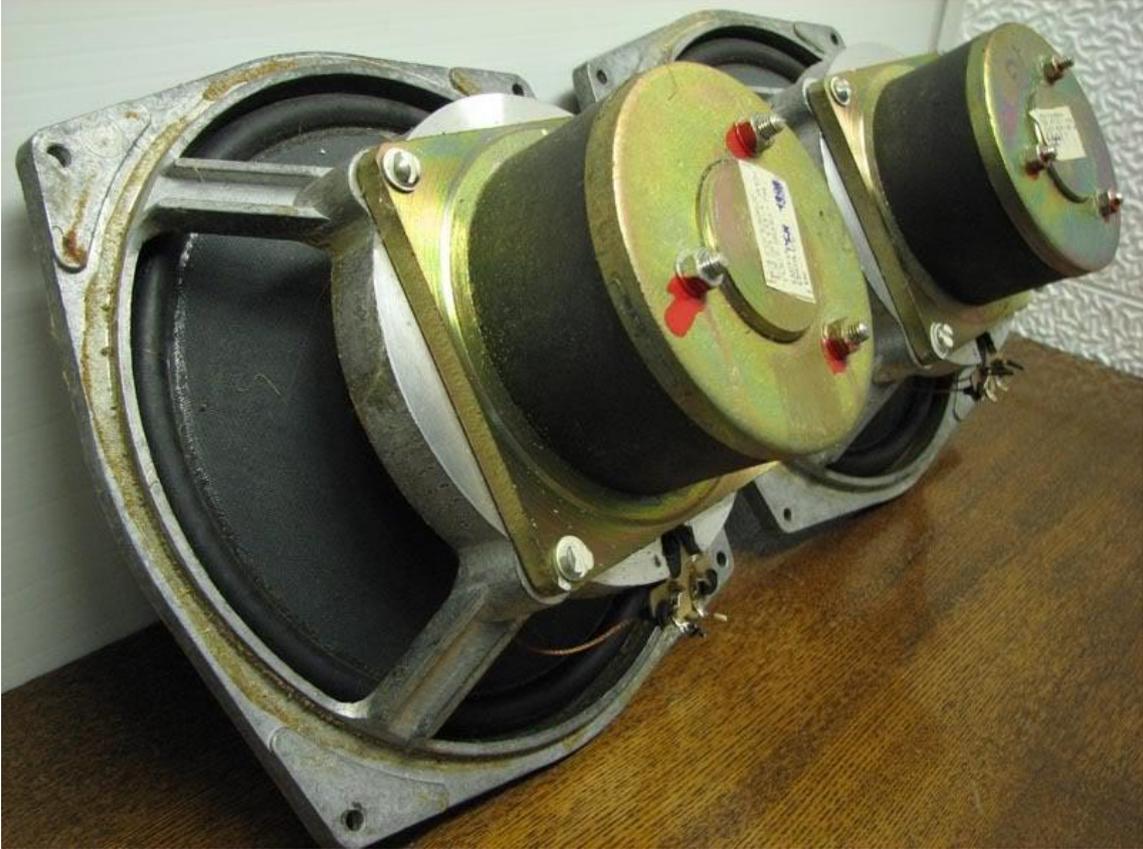


**FIRE-FIGHTING VEHICLE**  
**ПМ3-1 (Model)**  
**Scale 1:43 Metal**

LOMO  
Chugunnaya 20  
St Petersburg 194044  
USSR  
Fax: (812) 5421065  
Tel: (812) 2485009  
Teletype: 321421



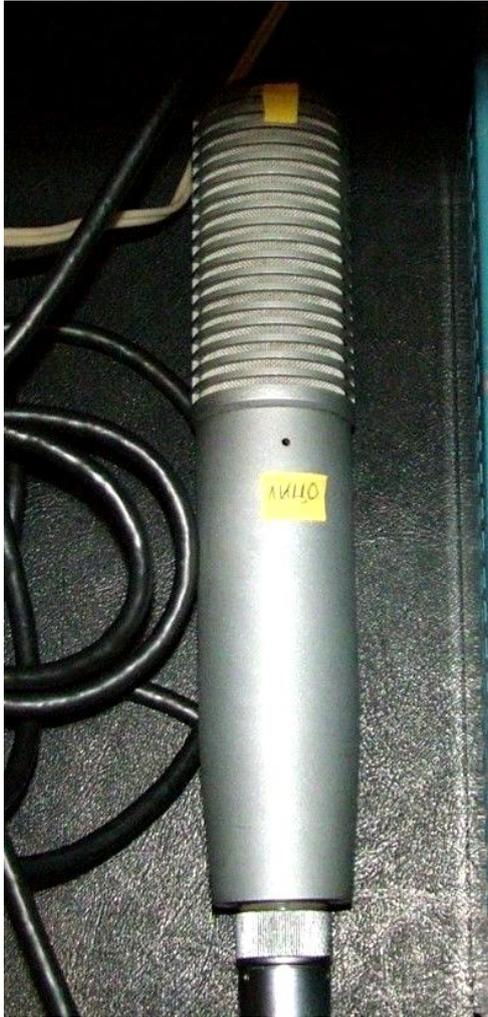
High quality audio horns



Heavy bass speakers



Microphone for recording studios



Distribution audio equipment

**Lomo/Kinap UP27** mic preamps. The UP-27 is one of the most well-known Soviet microphone preamps, with a strong reputation for its fat and warm sound.

LOMO Built the first commercial type Maksutov lens MTOM Leningrad



And used them on their **ASTELE™ 150 OTA** Amateur LOMO Telescope - **A1800.**

As an interesting fact I saw when visited LOMO, the only Mak binocular existing in world. It is a pity do not have a picture!



They were exact pairs of such ultra compact commercial monoculars also built by LOMO



Н.Г. Пономарев и Б.К. Иоаннисиани у одного из первых телескопов ЛОМО. Конец 30-х гг.

During the beginning of 1930 the first amateur astronomer telescope



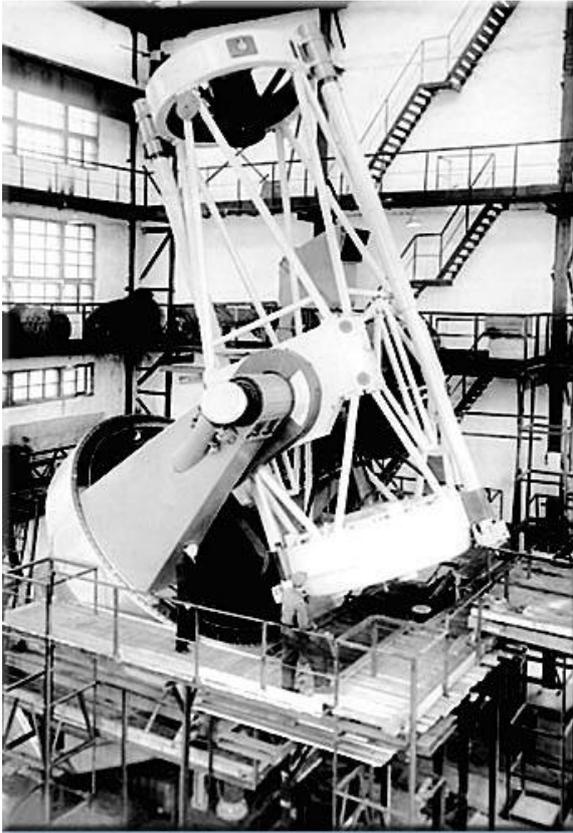
The first after war production: measuring microscope **UIM-21** 1945.



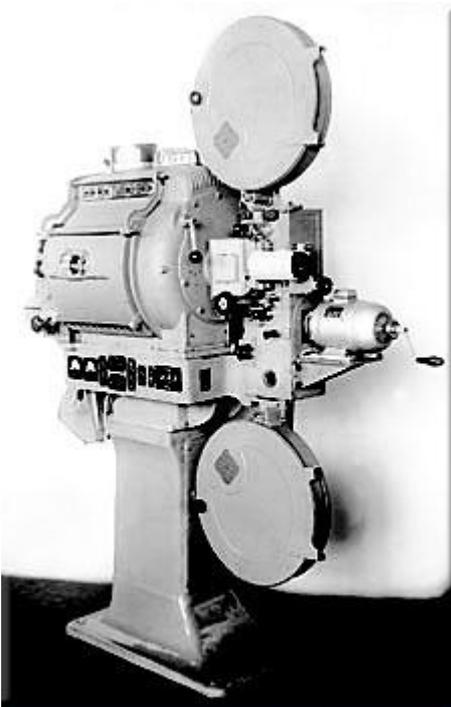
Astrograph made for the Pulkovo observatory 1945



**ZTSh reflector telescope** 2.6m diameter main mirror mounted in Crimea Ukraine and built in 1961 at the time the greatest in europe and the third in world.



Телескоп 3ТШ



Кинопроектор ПКП-1

**The PKP-1** set the Standards for all movie theatres in the East. Was the main projector applied not only in Russia but also India Turkey, Afghanistan, Azherbazhan, Siria, Egypt and other countries and cities.



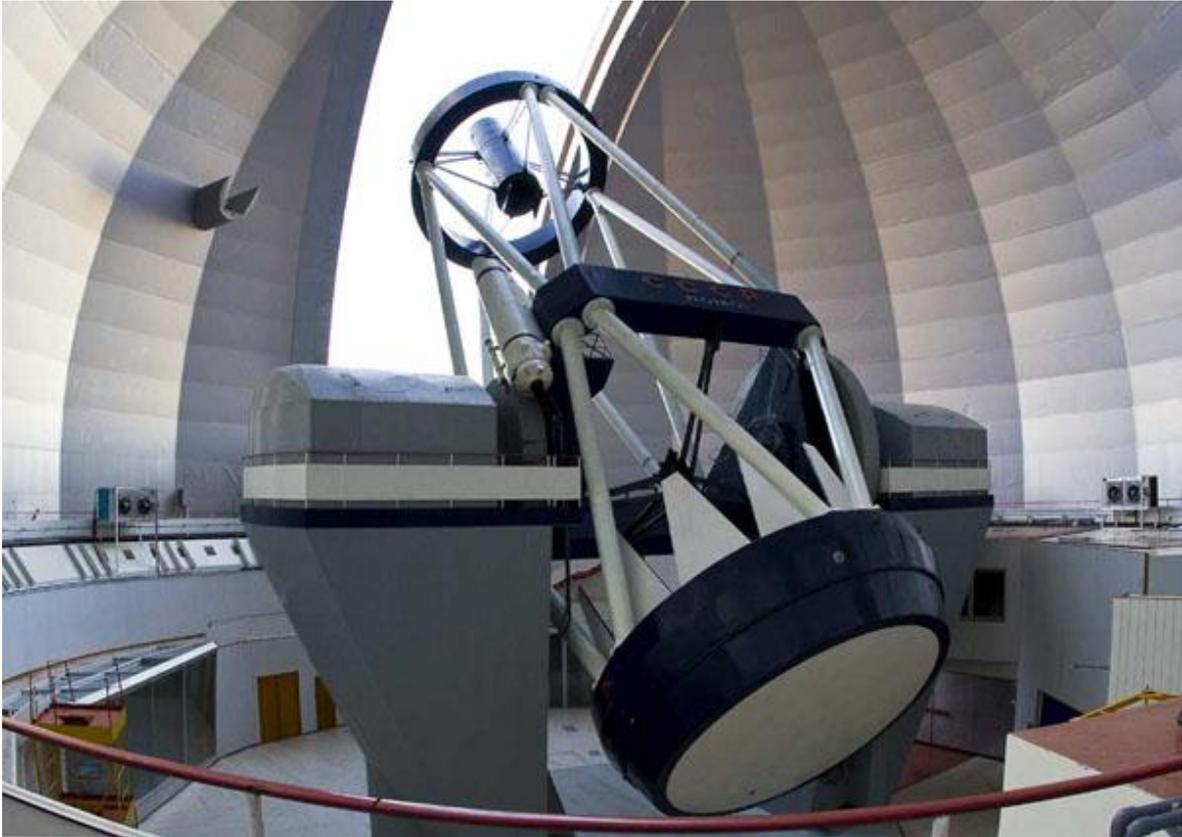
LOMO also built the first Soviet Professional video-tape recorder intended for use in television broadcast.

## **BTA** Telescope

**BTA** ( **B** olshoy **T** eleskop **A** lt-azimuth) – the greatest in Eurasia having the main mirror 6m of diameter. Placed at the Special Astrophysics Observatory turned out the greatest in the world in 1975, being 5 meters greater than the Hale telescope at Palomar Observatory. This record was maintained up to 1993, when was built the Keck Observatory telescope; but maintained as the greatest monolithic mirror of the world up to 1998.



Телескоп БТА



### **Assembled BTA telescope**

Mirror main diameter 6m

Main mirror focus focal length 24m

Focus length in composed system 349.4m

Principal tube 42m

Mass of mirror 42 ton

Mass of the full system 850 ton



## **Astel 60** telescope

Picture shows a presentation of the Astel-60 telescope at Petropavlovsk square. Telescope for schools or advanced amateur observations.