

Soviet Prometei (Прометей) slide rules 1931–1937



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1. Introduction

- Prometei (Прометей) was by far the most popular soviet slide rule brand during 1930ies.
- Prometei rules were produced from ca. 1930 to 1937 by Latvian cultural-educational society Prometejs (Просветительное общество Прометей).
- Besides names Prometei and Prometejs also Prometheus could be used, because of the English text of the case.



Prometejs society

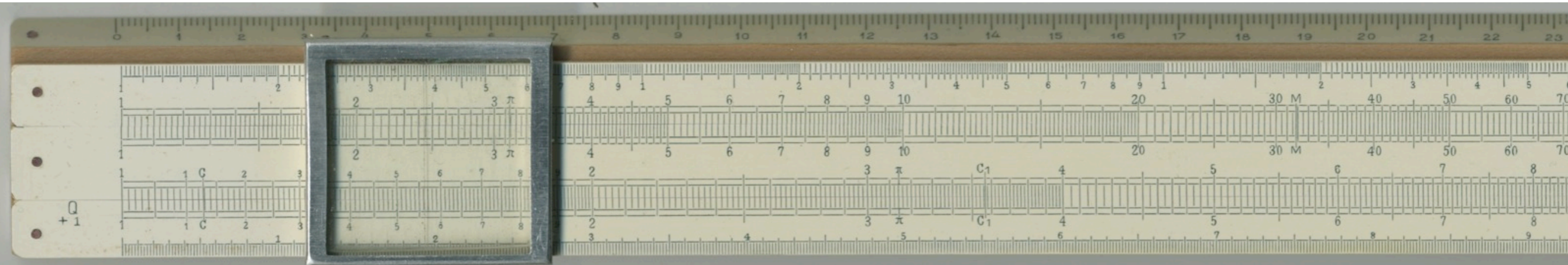
- Prometejs society existed 1924–1937 and the most important part of it was its publishing department in Moscow. Prometei slide rules were produced in Leningrad. See <http://gariga.boom.ru/links.html>
- The society was shut down 14.7.1937 by a decree of the USSR Council of People's Commissars. All functionaries and many of the members (for example well-known artist Gustavs Klucis) were killed as nationalists or enemies of the people. The property of the society was confiscated, but the production of slide rules continued with a different name.

2. Prometei slide rules and slide charts

I have not a catalogue of Prometei products, and the following list is certainly incomplete. The address of the factory was Ul. Marata 82, Leningrad and 221 people were employed there in 1935.

2.1. Normal slide rules

Rietz rule without the inverse scale CI and with only one hairline in the cursor in normal 25 cm scale length (model 1) is most common, but also 12.5 cm (model 4), 15 cm (model 3) and 50 cm (model 6) Rietz rules were made. The last three models also have the CI scale.

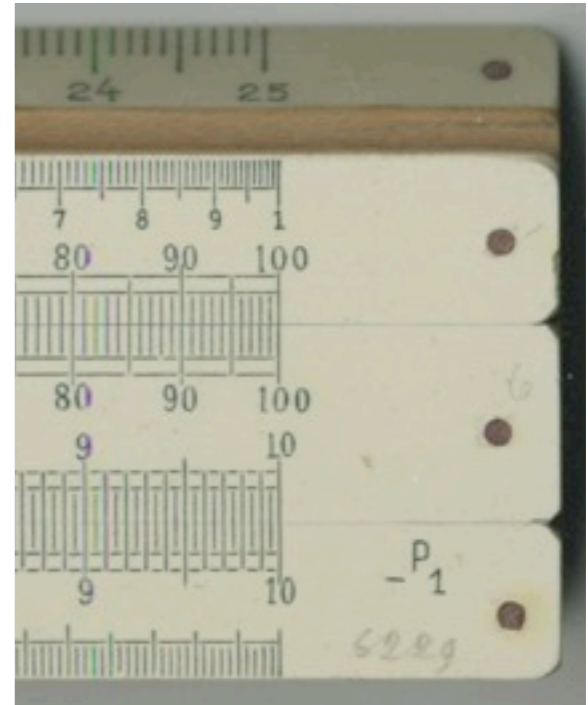


In the beginning the rules looked like this with no text in the well. Notice the hand written serial number on the lower right corner.

Вес 1 м.³ в тоннах: (удельн. вес)

Алюминий . . .	2,5 — 2,7	Гранит . . .	2,4 — 3,0
Чугун . . .	7,2	Известь . . .	2,4 — 2,8
Сталь . . .	7,8 — 7,85	Песчаник . . .	1,9 — 2,6
Железо . . .		Кирп. кладка	1,45 — 1,70
Латунь . . .	8,4 — 8,7	Камен. "	2,4 — 2,6
Медь . . .	8,9	Бетон. "	1,8 — 2,45
Свинец . . .	11,36	Гравий . . .	1,7 — 1,8
Ртуть . . .	13,6	Песок сухой .	1,4 — 1,6
Олово . . .	7,28	" влажн.	1,9 — 2,1
Стекло . . .	2,5 — 2,6	Земля, глина.	1,4 — 2,8

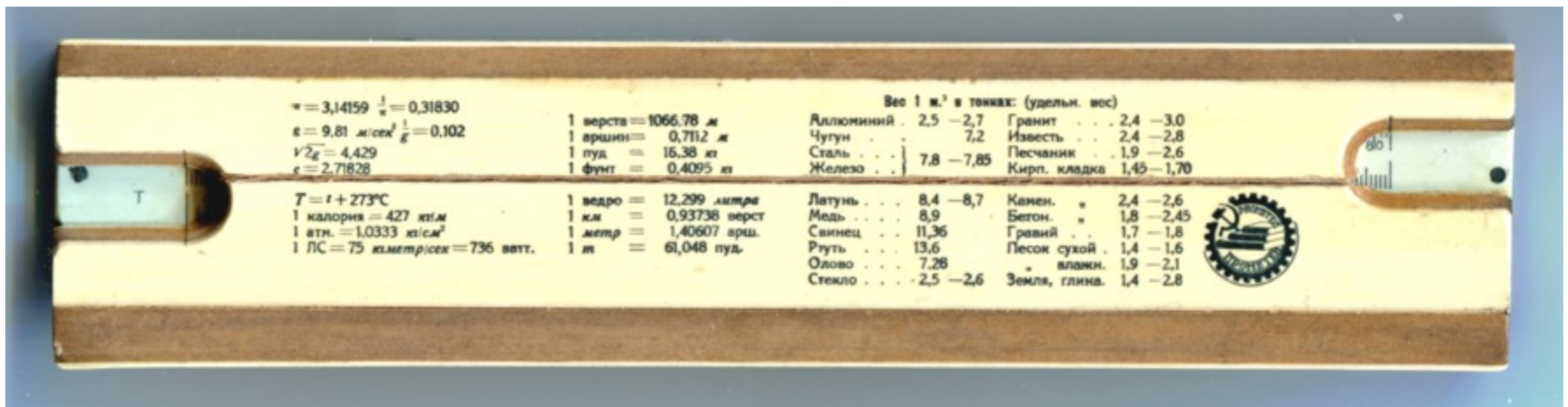
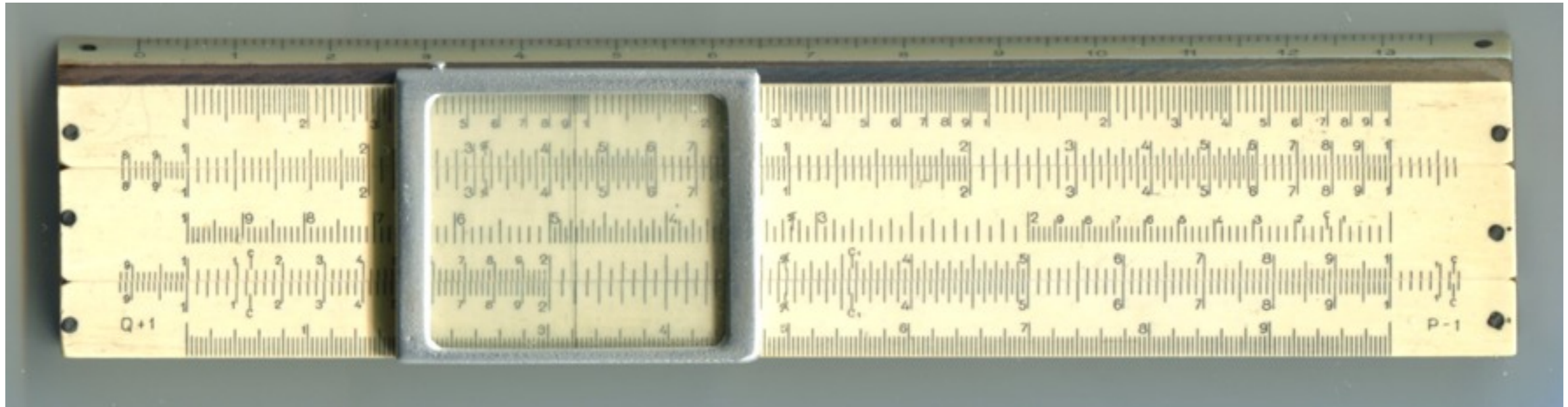
ПРОМЕТЗ
ПРОМЕТЗ



At some stage the well contained the slide rule name LPN-1 (Lineika Prometei Normalnaia), production year and the name of Prometei factory "Фабрика Счетных Приборов просв. общества "Прометей".

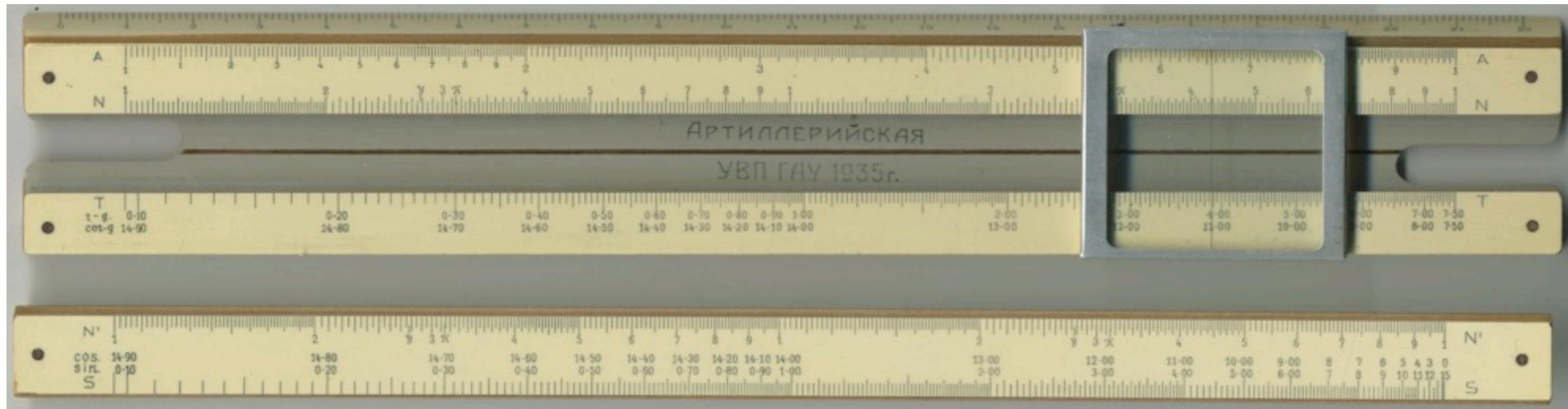


12.5 cm Prometei slide rule with CI scale



2.2. Artillery rules

2.2.1. Simple artillery rule made before 1935



Scale length 20 cm, only 5 scales shown above.
A part of the back side shows Prometei logo.



2.2.2. Advanced 1936 system Iorish artillery rule

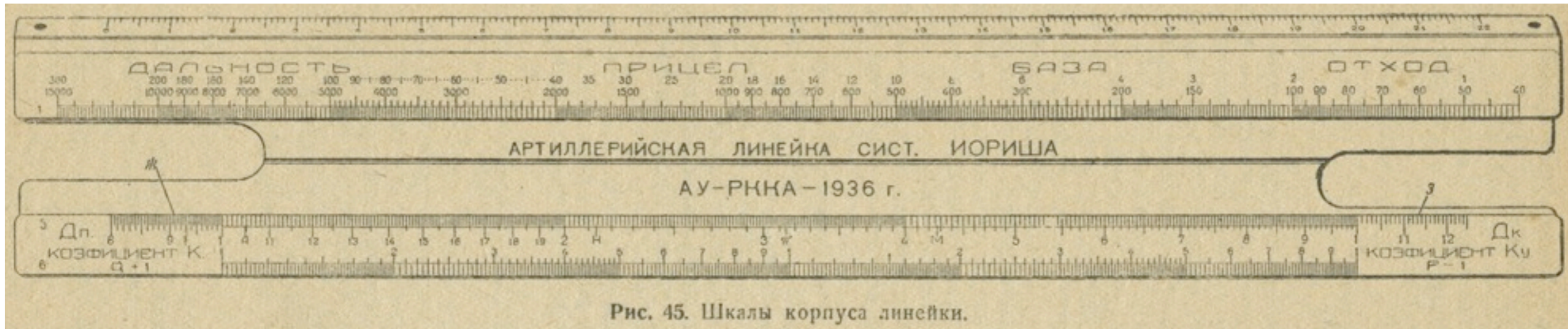


Рис. 45. Шкалы корпуса линейки.



Рис. 46. Шкалы движка — лицевая сторона.

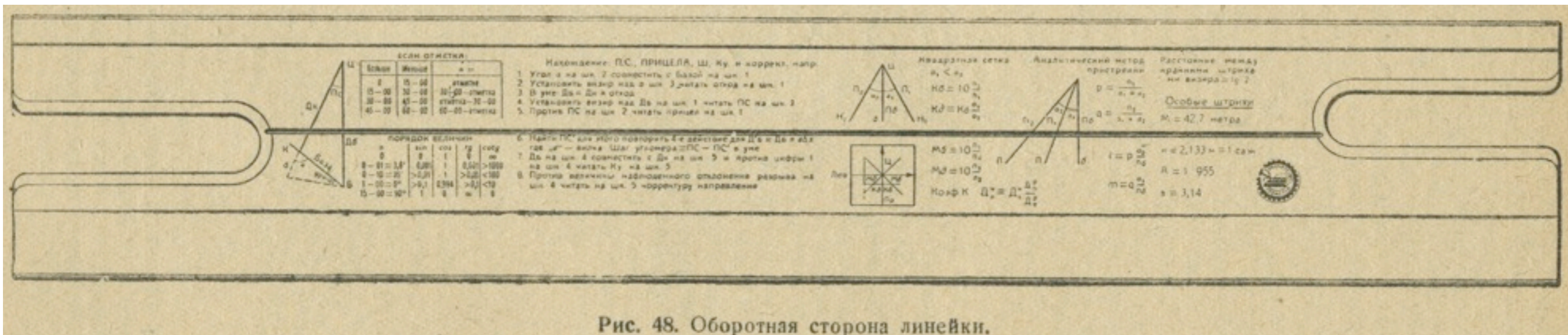


Рис. 48. Обратная сторона линейки.

Length of the rule 24.5 cm, 9 scales, for instructions see Приборы стрельбы наземной артиллерии, 1939, 191 p.

2.3. Pilot rules

Pilot rules NL-6 and NL-7 (Navigatsionnaia Lineika) for soviet air force were also made by Prometei. It is probable that the earlier version NL-3 of 1932 also was a Prometei product.

With the rules one can perform following operations

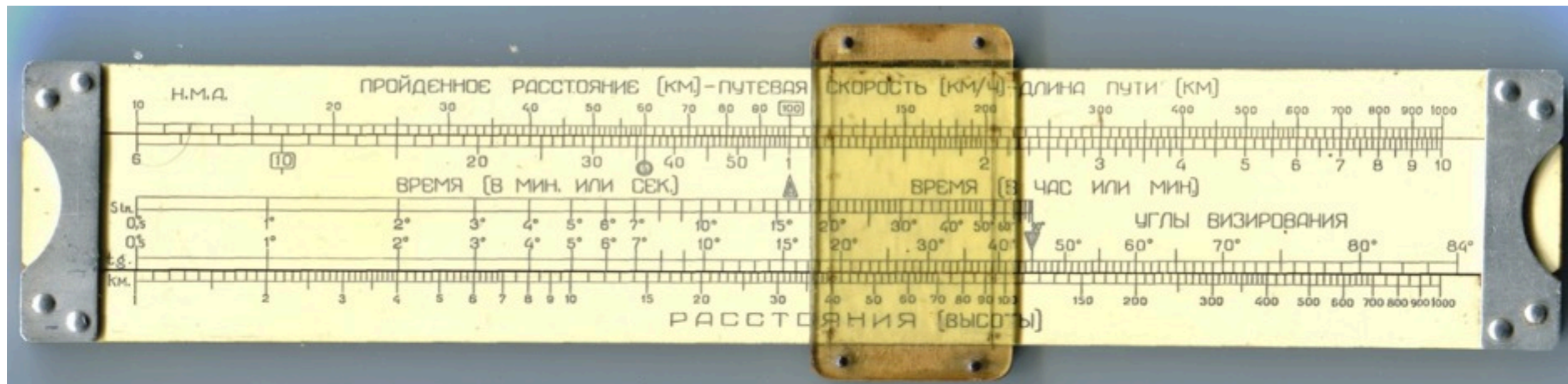
- a) normal arithmetic and trigonometric calculations including arbitrary powers,
- b) pilot calculations,
- c) bombing calculations,
- d) photogrammetric calculations.

Look at <http://www.amyat.narod.ru/theory/nl/nl.djvu> for the complete instructions printed in

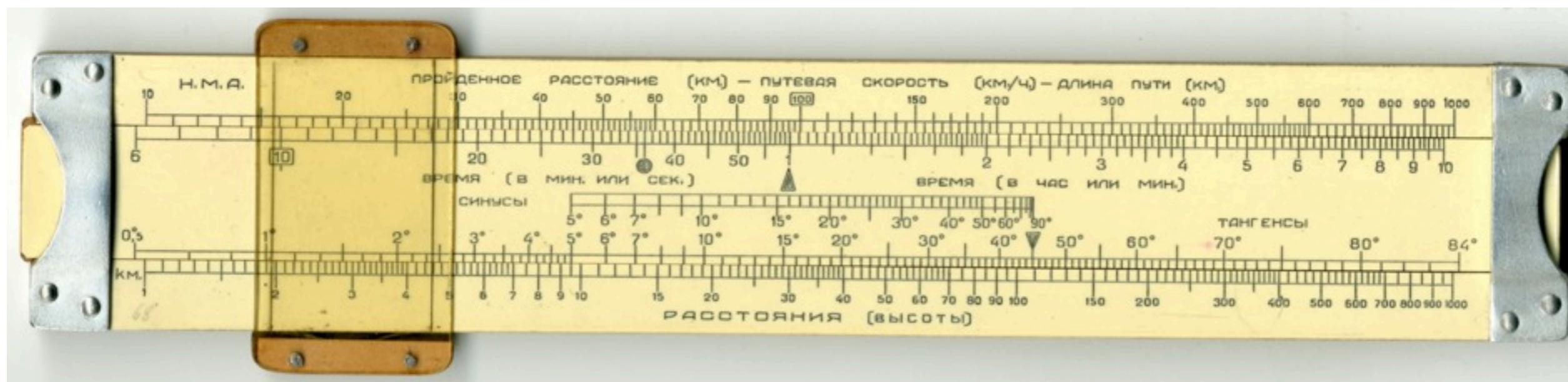
Pilot slide rules NL-6 and NL-7:



The other sides of NL-6 and NL-7:



NL-6



NL-7

2.4. Electro-technical slide chart

This chart (for the calculation of direct current $\cos \varphi$ to obtain unit value) has been designed by M. A. Belin for organisation Soiuzorg (kontora schetnykh priborov), and made 1934 in 5000 copies by Prometei. Material is celluloid and its size is 20 cm x 7 cm.



ЦЕНТРУ ГОСУДАРСТВЕННОГО СТАТИСТИЧЕСКОГО УПРАВЛЕНИЯ СССР

ОБЪЕДИНЕННЫЕ СТАТИСТИЧЕСКИЕ РАССЧЕТЫ

МОСКВА, ПЕТЕРБУРГ И ДРУГИЕ ГОРОДА

АМПЕР

ВОЛЬТ

АМПЕР

ВОЛЬТ

АМПЕР

ВОЛЬТ

АМПЕР

ВОЛЬТ

ОДНОФАЗНЫЙ ТОК

$$kW - \text{МОЩНОСТЬ} = \frac{\text{ВОЛЬТ} \times \text{АМПЕР} \times \cos \varphi}{1000}$$

ТРЕХФАЗНЫЙ ТОК

$$kW - \text{МОЩНОСТЬ} = \frac{1.73 \times \text{ВОЛЬТ} \times \text{АМПЕР} \times \cos \varphi}{1000}$$

ПЕРЕДВИЖНАЯ РАСЧЕТНАЯ ТАБЛИЦА **2737**
3-2

СЧЕТНАЯ ЭЛЕКТРО-ТЕХНИЧЕСКАЯ ЛИНЕЙКА

Линейку составил М. А. БЕЛИН
Под редакцией И. М. ИОФЬЕВА

Изд. «СОЮЗОРГУЧЕТ», Москва, 1934 г. Тираж 5 000

2737

Сопротивление на 100 м Ω

Диаметр провода мм

Количество проволок

Сечение провода мм²

ГЛАВЛИТ № В-100435.

ЦЕНА 6 РУБ

ВОЛЬТЫ 0.5 0.6 0.7 0.8 0.9 1 1.5 2 2.5 3 4 5 6 7 8 9 10 15 20 25 30 40

Линейное падение напряжения на 100 м длины провода для трехфазного тока

АМПЕРЫ 1 1.5 2 2.5 3 4 5 6 7 8 9 10 15 20 25 30 40 50 60 70 80 90 100

Сила тока

ВОЛЬТЫ 0.5 0.6 0.7 0.8 0.9 1 1.5 2 3 4 5 6 7 8 9 10 15 20 25 30 40 50

Падение напряжения на 100 м длины провода для однофазного и постоянного тока

Наибольшая сила тока, допустимая на провод А

Номинальная сила тока плавкого предохранителя А

ЛИНЕЙНОЕ ПАДЕНИЕ НАПРЯЖЕНИЯ ТРЕХФАЗНОГО ТОКА = $\frac{1.73 \times \text{АМПЕР} \times \text{МЕТРЫ}}{\sqrt{3} \times \text{СЕЧЕНИЕ (в мм}^2\text{)}}$

ПАДЕНИЕ НАПРЯЖЕНИЯ ОДНОФАЗНОГО И ПОСТОЯННОГО ТОКА = $\frac{2 \times \text{АМПЕР} \times \text{МЕТРЫ}}{57 \times \text{СЕЧЕНИЕ (в мм}^2\text{)}}$

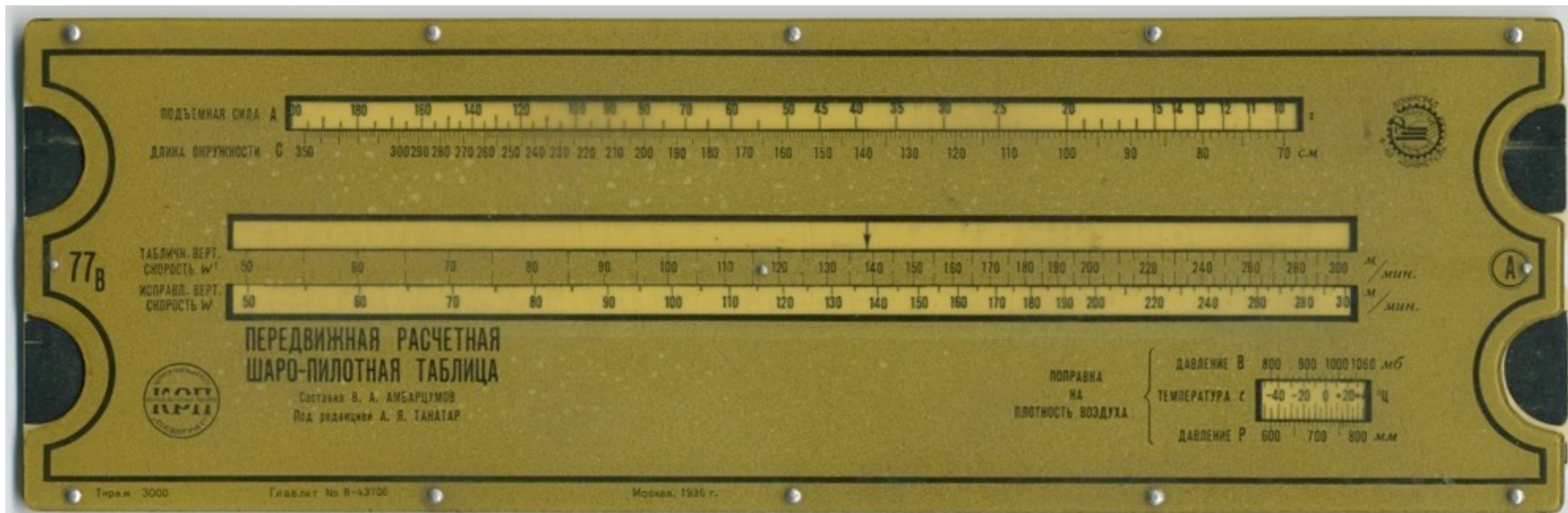
Диаметр проволок для плавких предохранителей: Олово (3), Свинец (5), Медь (6) мм

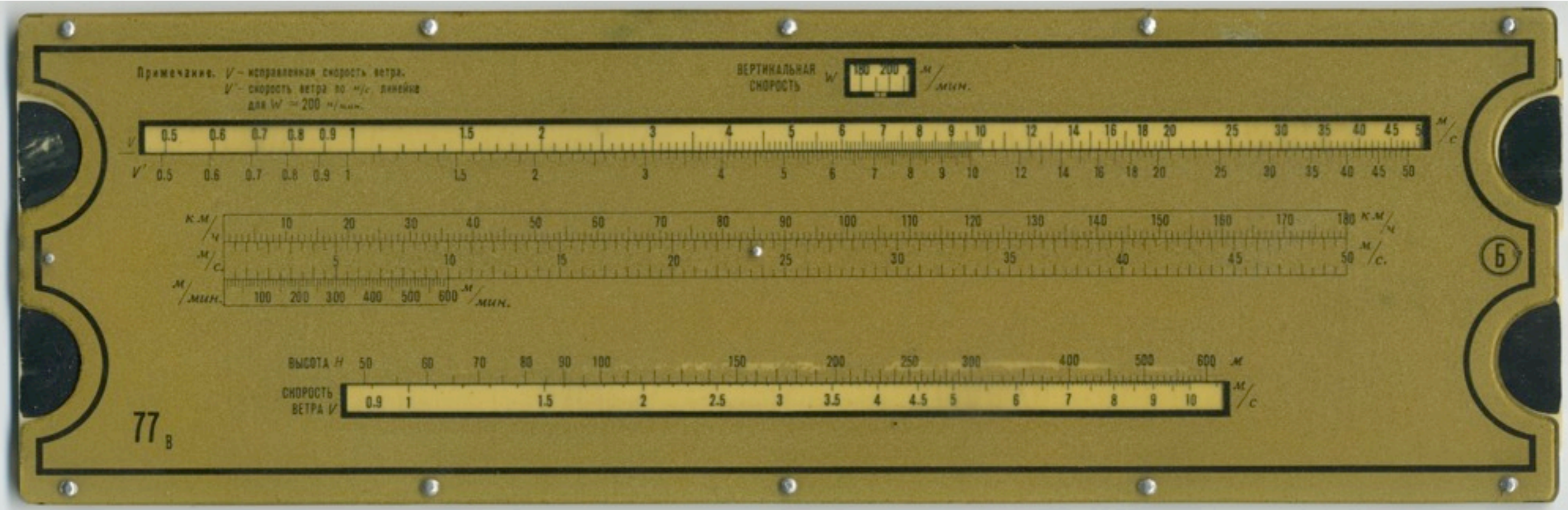
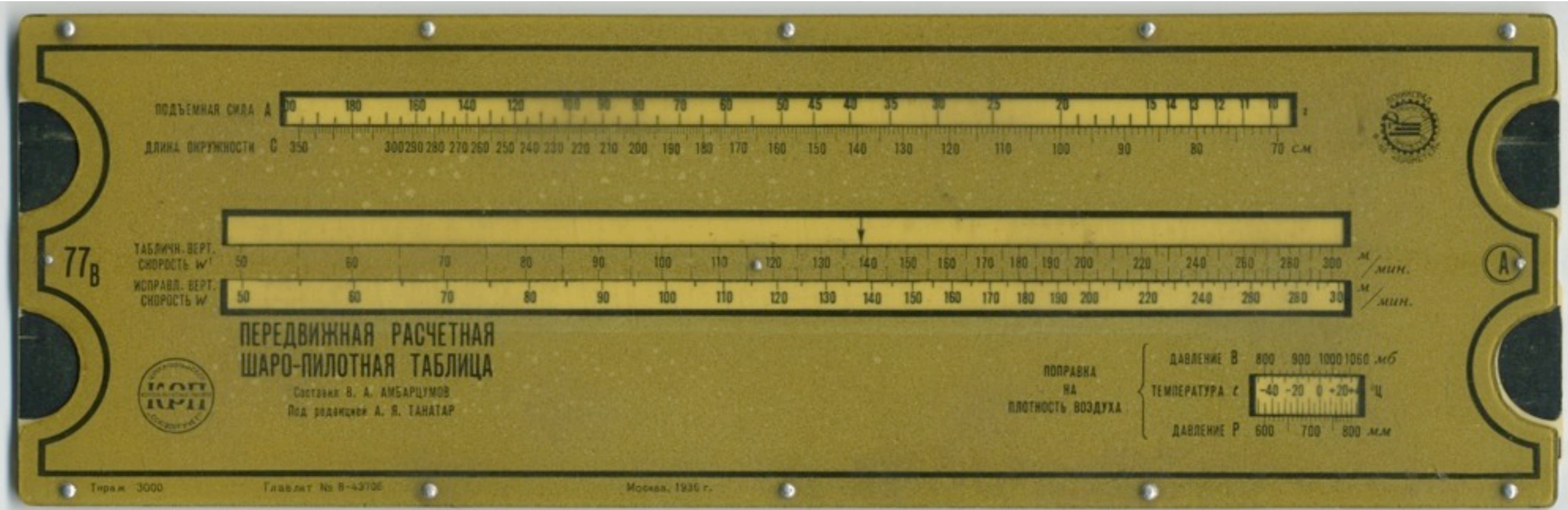
ШКАЛА ДВИЖКА РАССЧИТАНА ДЛЯ МЕДИ С УДЕЛЬНЫМ СОПРОТИВЛЕНИЕМ ПРИ 20 °С РАВНЫМ 0.01754 Ω/ММ²

УДЕЛЬНЫЙ ВЕС МЕДИ ПРИНЯТ РАВНЫМ 8.89 г/СМ³

2.5. Balloon-pilot slide chart

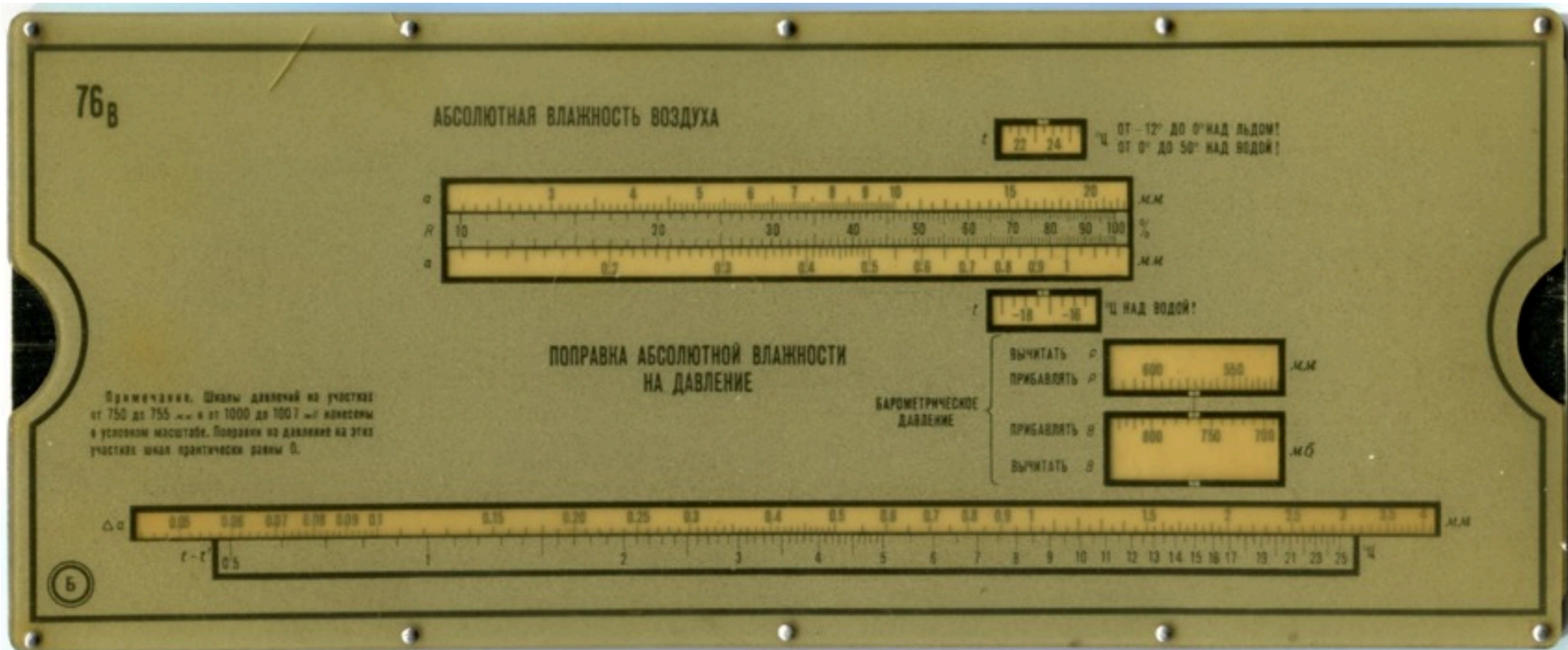
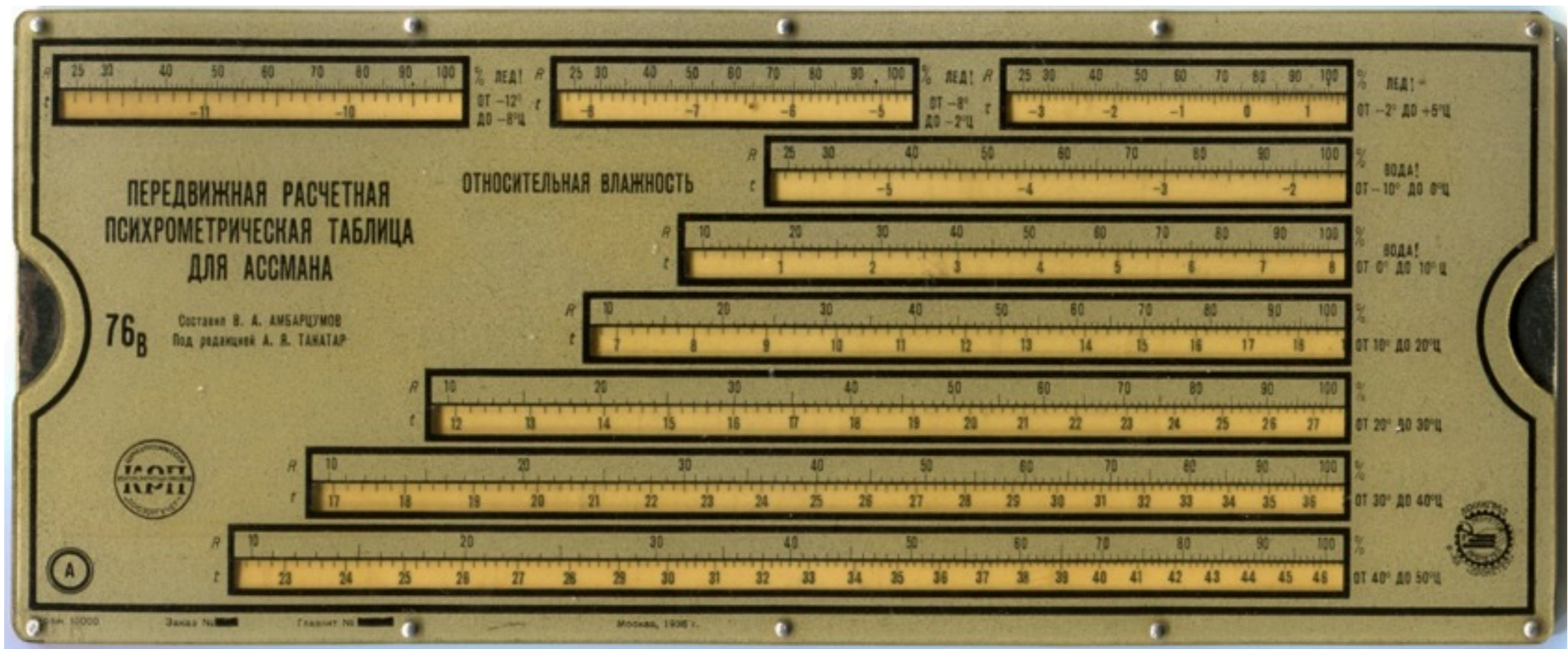
This chart with two slides has been designed by V. A. Ambartsumov for Soiuzorg, and made 1936 in 3000 copies by Prometei. Material is celluloid and its size is 24.5 cm x 8 cm. A review of the chart is given in journal "Метеорология и гидрология" 1938, № 4, p. 145–147.





2.6. Slide chart for Assmann's psychrometer

This chart for calculating relative humidity has been again designed by V. A. Ambartsumov for Soiuzorg organisation (kontora schetnykh priborov), and made 1936 in 10000 copies by Prometei. Material is celluloid and its size is 23.6 cm x 9.8 cm. According to review of the chart in journal "Метеорология и гидрология" 1936, № 12, p. 81–82, the quality of the chart is good, but accuracy worse than in the printed tables. The scan of the slide rule is on the following slide.



3. Slide rule literature

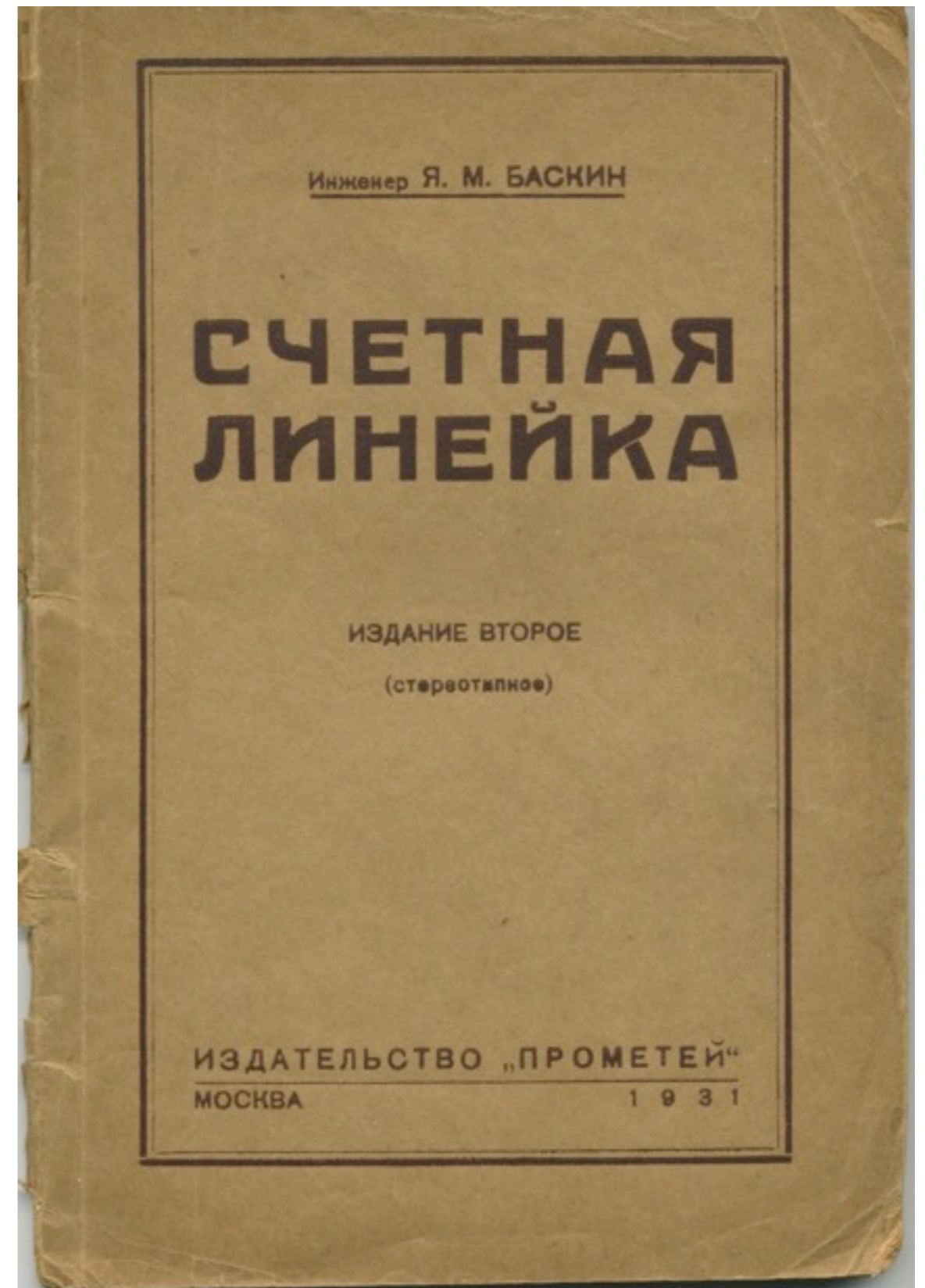
Prometei was also leading soviet publisher of slide rule literature and produced 1931–1937 nine editions of slide rule instruction book of engineer, later professor Iakob Moiseevich Baskin. The total number of copies printed was 185000. The book considers use of Rietz rule, but unfortunately the only information about Prometei rules there is that Baskin together with engineer E. Kleshchev was leading the production of Prometei.

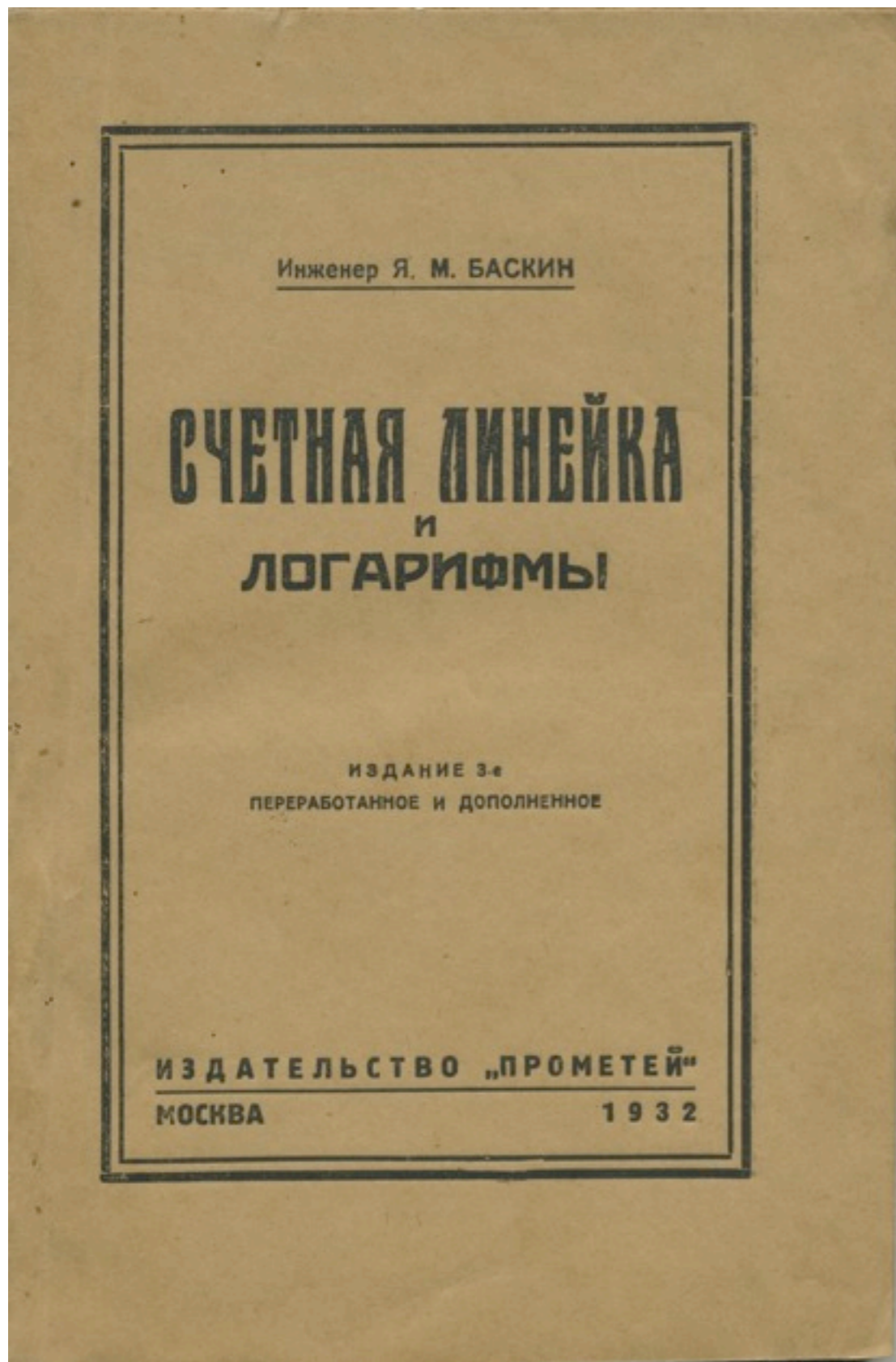
In addition Prometei published a small booklet of professor Vachlav Mrochek, which was delivered free of charge with Rietz slide rules.

Baskin, 1st edition,
10000 copies

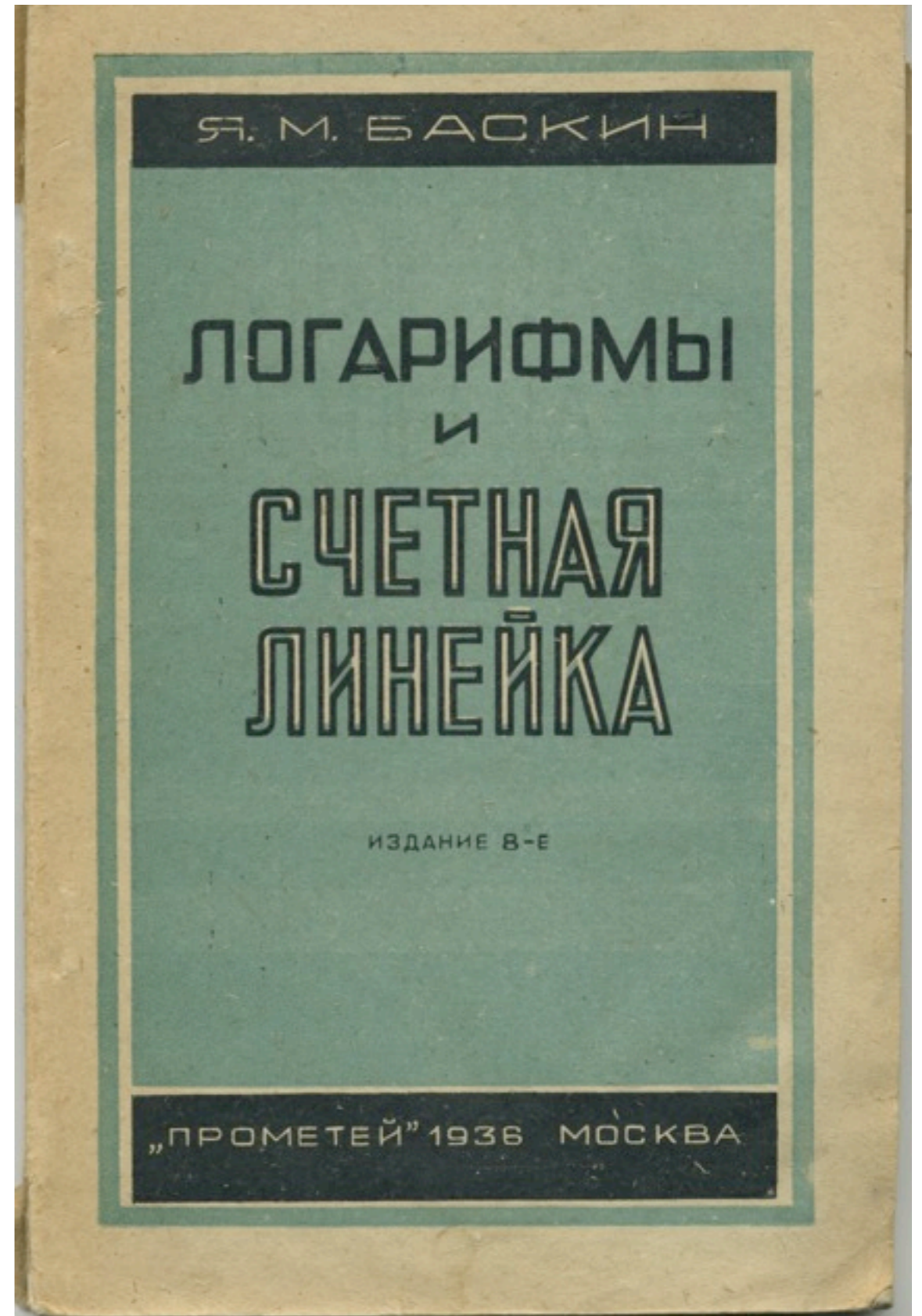


Baskin, 2nd edition,
20000 copies



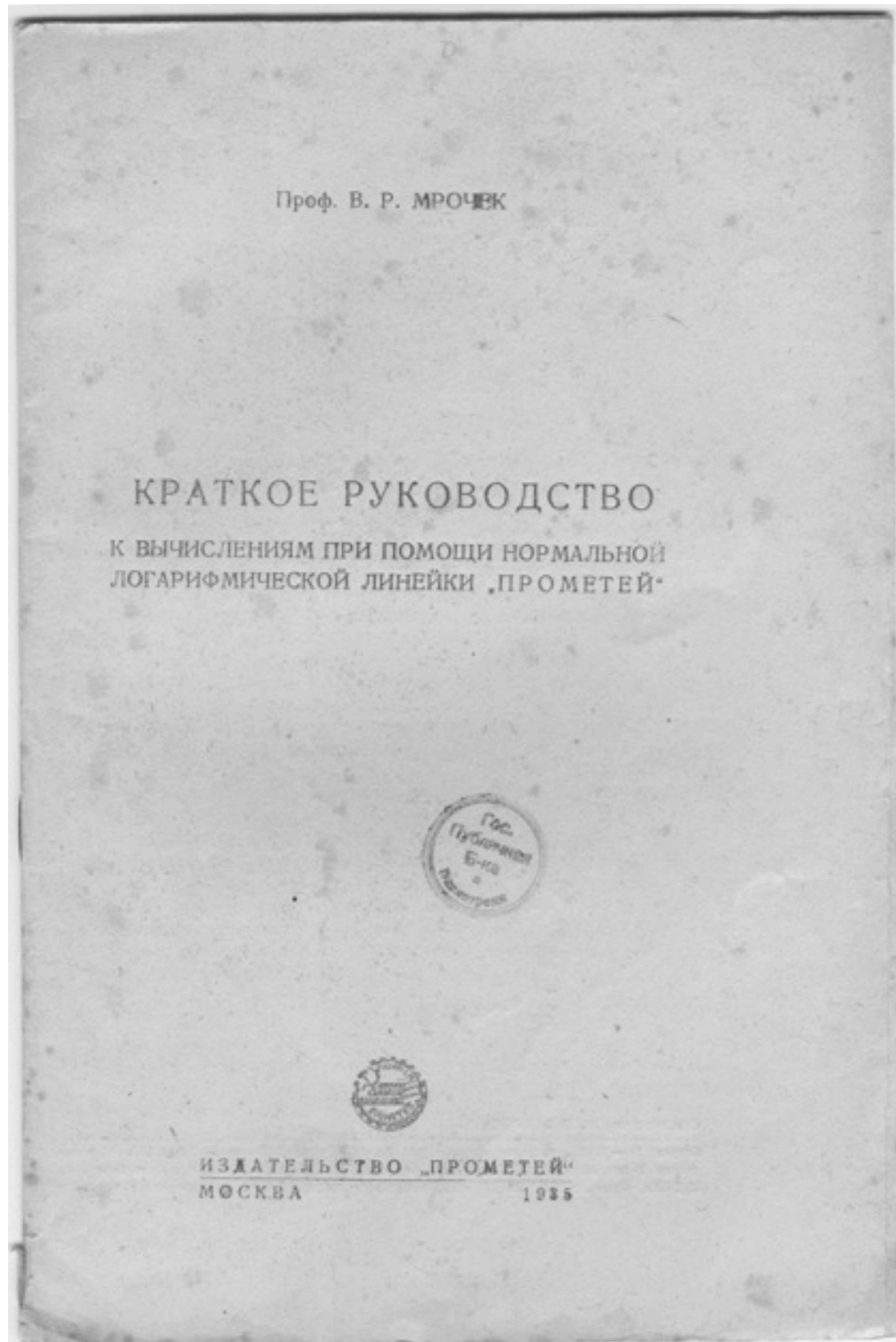


Baskin, 3rd edition,
25000 copies



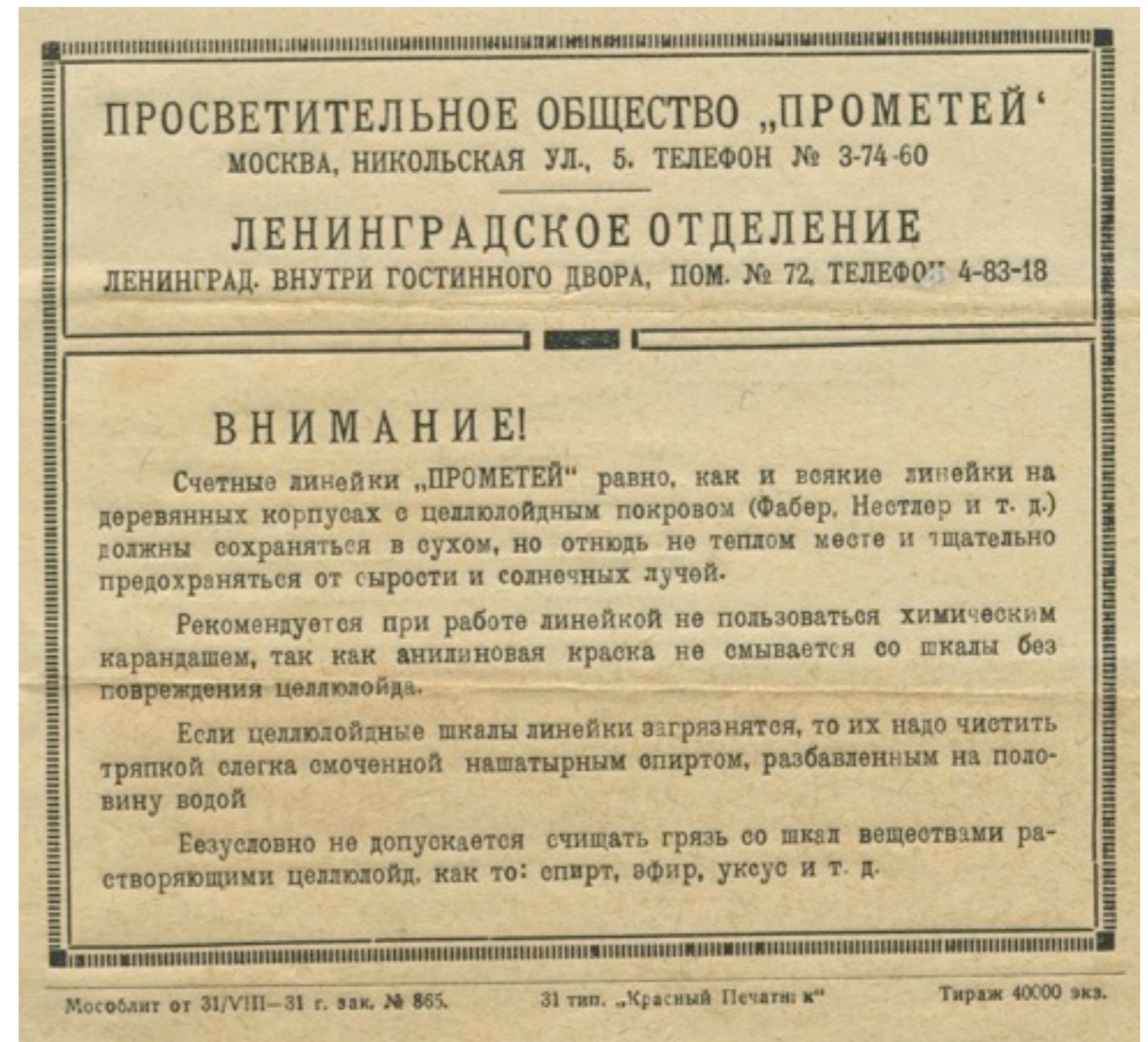
Baskin, 8th edition,
15000 copies

Mrochek, 1935 25000 copies



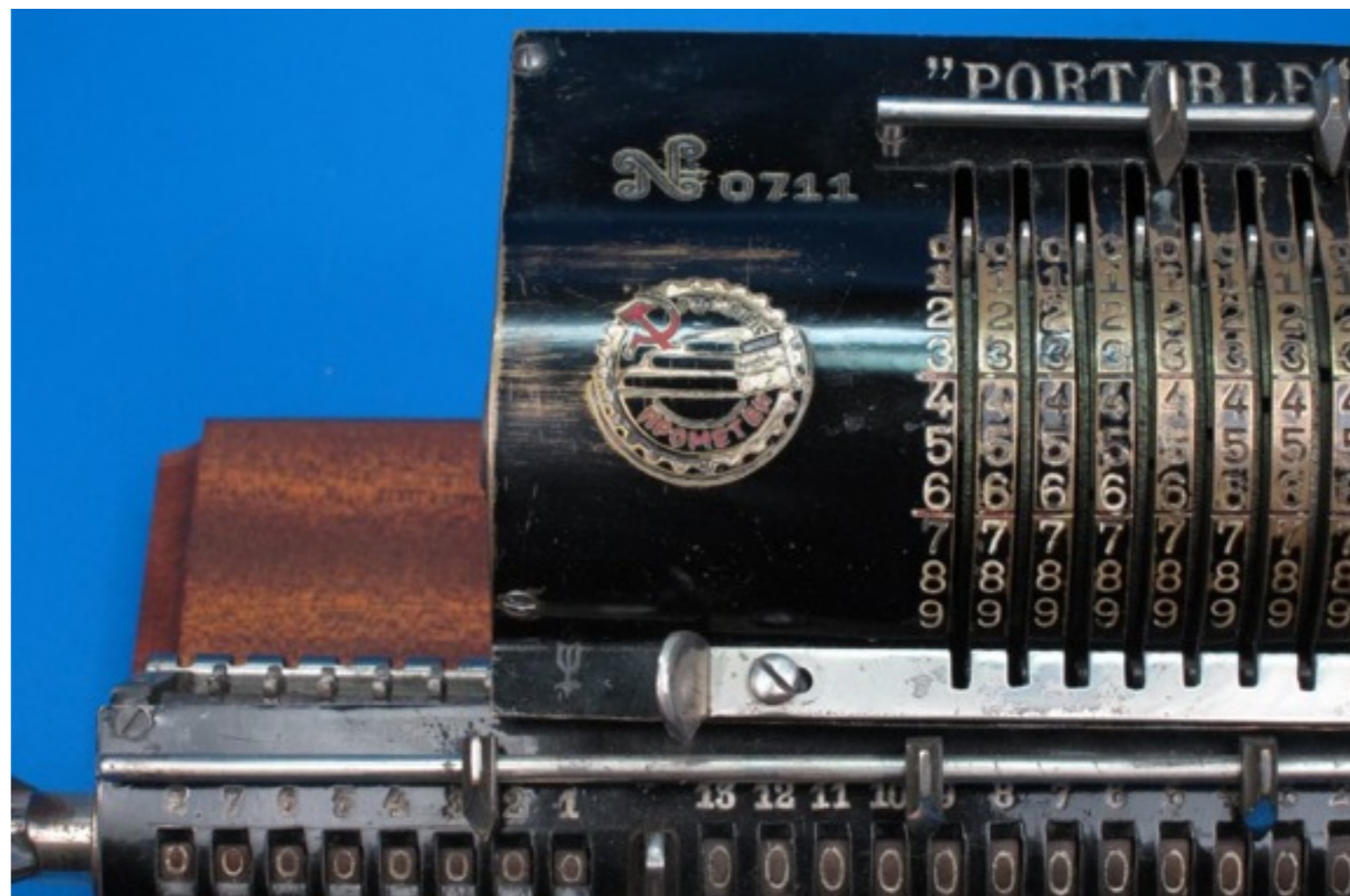
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How to take care for Prometei, 1931 40000 copies



4. Pinwheel calculator Portable

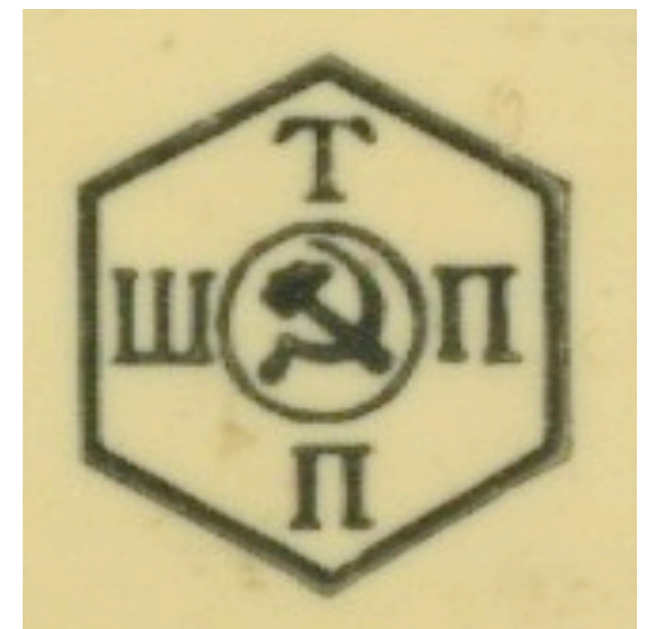
Portable was made in Leningrad for Prometejs by "Valtion kustannusliike Kirja" (State publishing house of Finnish literature). According to H.-J.: Denker Portable was of better quality than other soviet calculators.



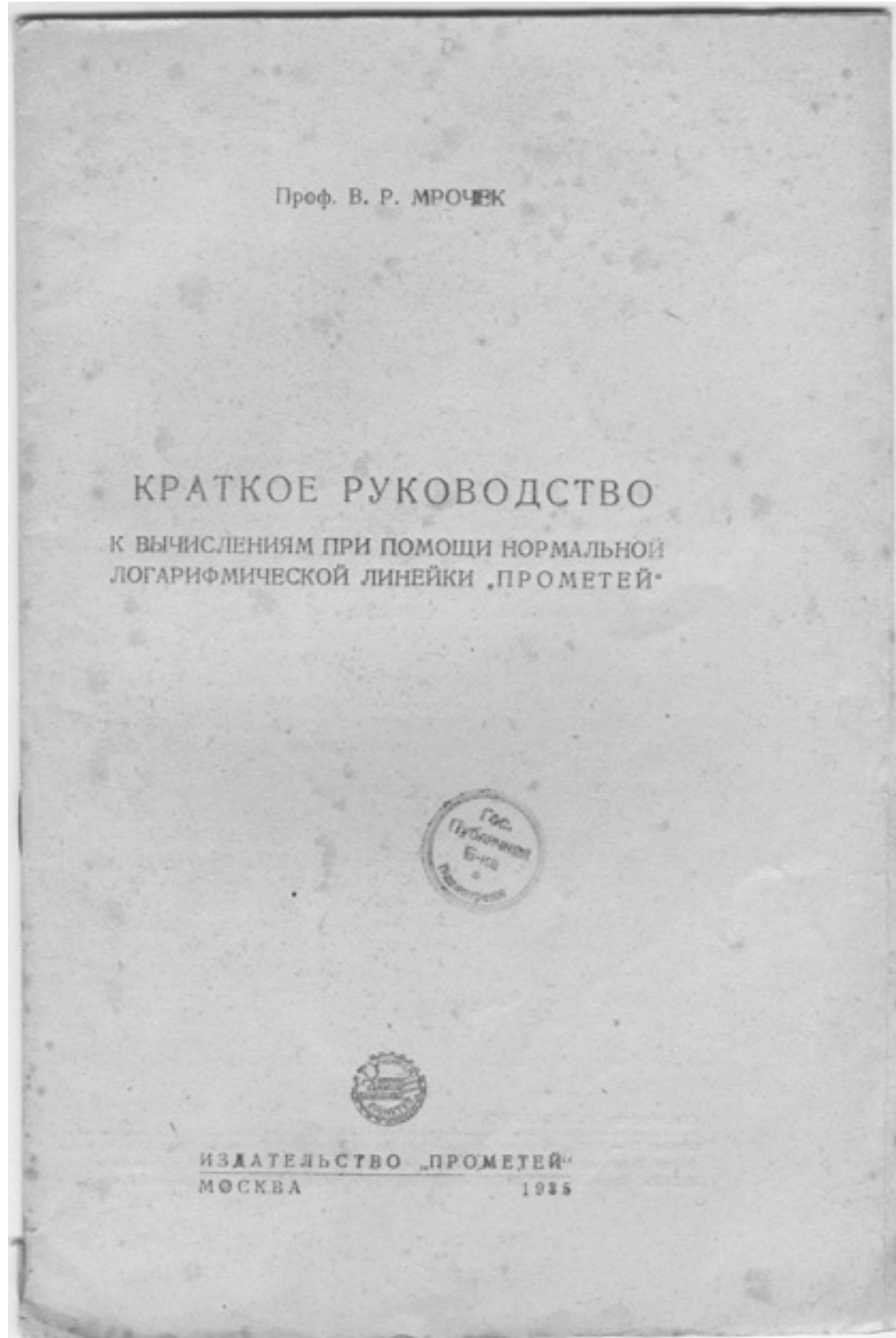
Photos © Hans-Jürgen Denker

5. The successor of Prometei

Prometejs society was liquidated in 1937. The production of slide rule continued at the same address. Prometei instructions written by V. Mrochek got a new name Instruction to use the slide rule "SPAR". SPAR became a member in the factory group (trust) "Trest Shkol'nykh Pis'mennykh Prinadlezhnostei" (Трест Школьных Письменных Принадлежностей, abbreviation ТШПП), where another Leningrad slide rule factory Soiuz (Союз) already belonged. The logo of the group can be seen in many soviet slide rules between 1935 and 1950.

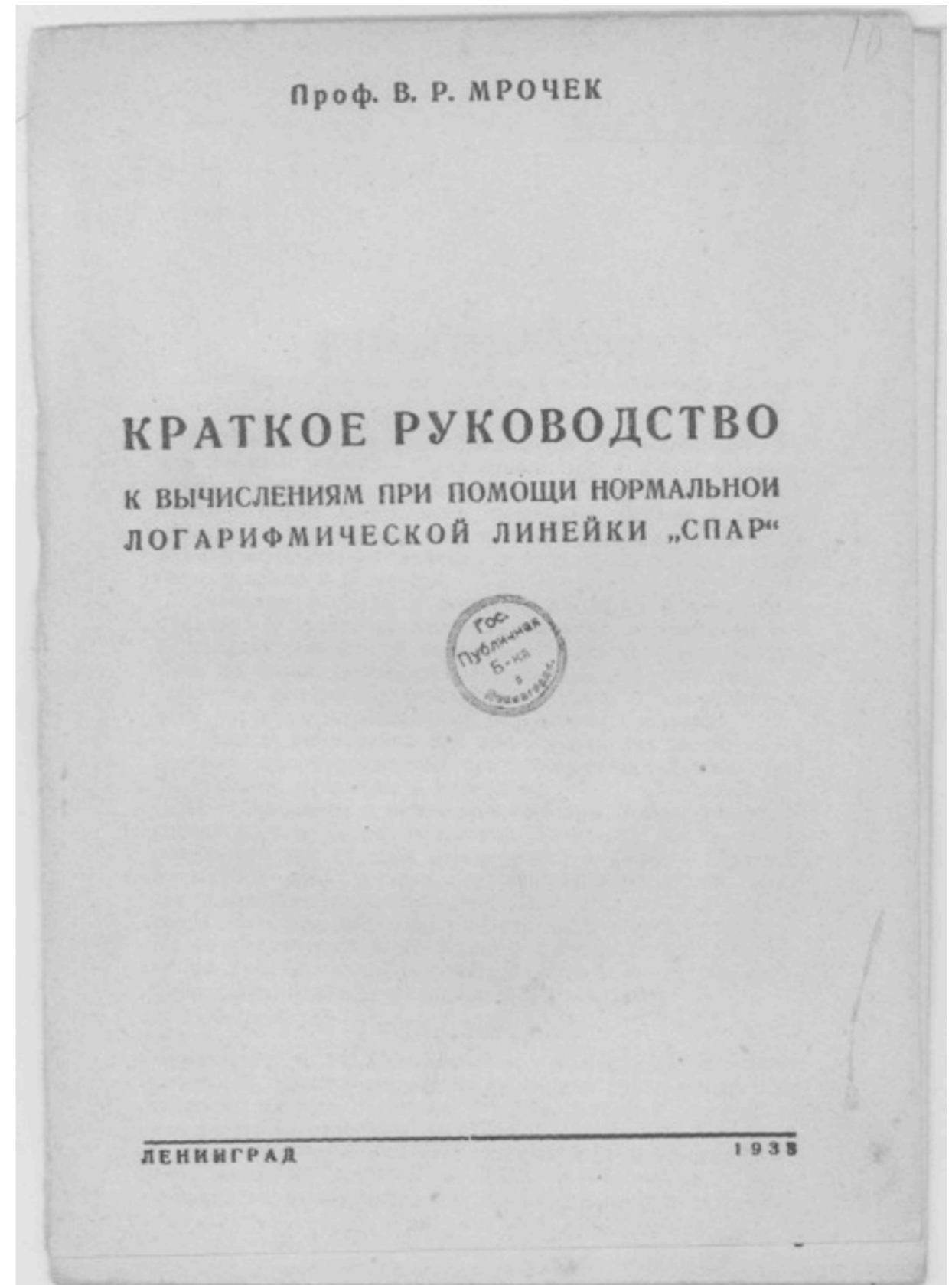


Mrochek, 1935
25000 copies



© National Library of Russia

Mrochek, 1938
50000 copies



© National Library of Russia



SPAR logo

The well of a 1938 SPAR slide with SPAR logo. On the right of the logo abbreviations of the trust "ТШПП" and "НКМП" (NarKomat Mestnoi Promyshlennosti) After the war the name SPAR was dropped out and the factory name was called simply "Fabrika Schetnykh Priborov".

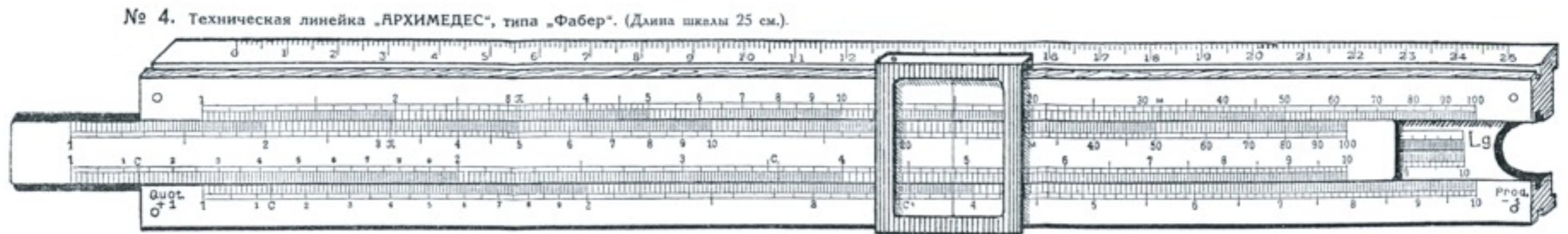
Other SPAR products

Besides slide rules SPAR factory made in 1940 fountain pens and rulers, see "Технические условия на изделия фабрик: "СВЕТОЧ", "СОКОЛ", "СЧЕТНЫХ ПРИБОРОВ" и завода "СОЮЗ" на 1940 г., 1940". It is probable that these belonged already to product assortment of Prometei.

6. The predecessor of Prometei

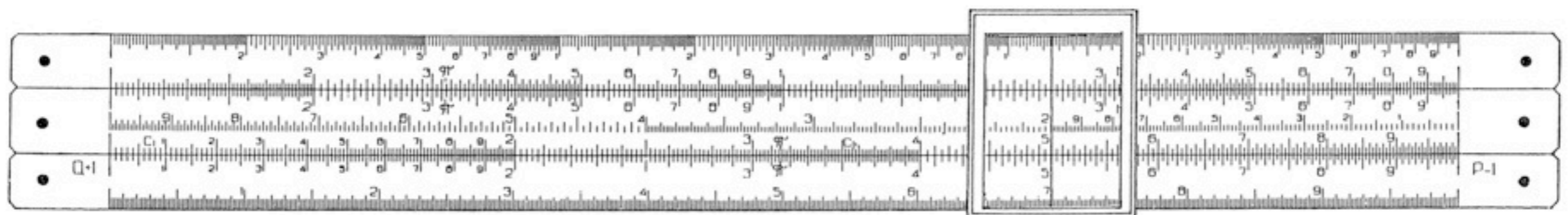
The quality of Prometei rules is good, but where did the know how and machinery to make slide rules come from? German Faber and Nestler rules certainly were models for Prometei and I suspect that German experts were employed by Prometei. In the 1920s in Leningrad there existed slide rule workshops "Архимедес" (Arkhimedes), and "Унион" (Union). Arkhimedes published two instruction books for its slide rules in 1926, 1927 and Union one in 1929. Thus it is possible that Prometei has obtained know how from these two, even though there is some information that the quality of the first soviet slide rules made around 1929 was not very good.

Arkhimedes technical slide rule № 4, 1927, type Faber, with logarithmic scale on the well and trigonometric scales on the back of the rule.



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Union produced in 1929 already a normal and a short Rietz slide rule with inverse CI scale and its catalogue also lists a commercial and an electrical slide rule.



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7. Acknowledgements

I am grateful to Sergei Frolov, Hans-Jürgen Denker, The National Library of Russia and The National Library of Finland for their help.

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