FABER-CASTELL

AGENTS.

TECHNICAL BOOKS (PTY.) LTD.,
FIRST FLOOR,
40 ST. GEORGE'S STREET,
CAPE TOWN.

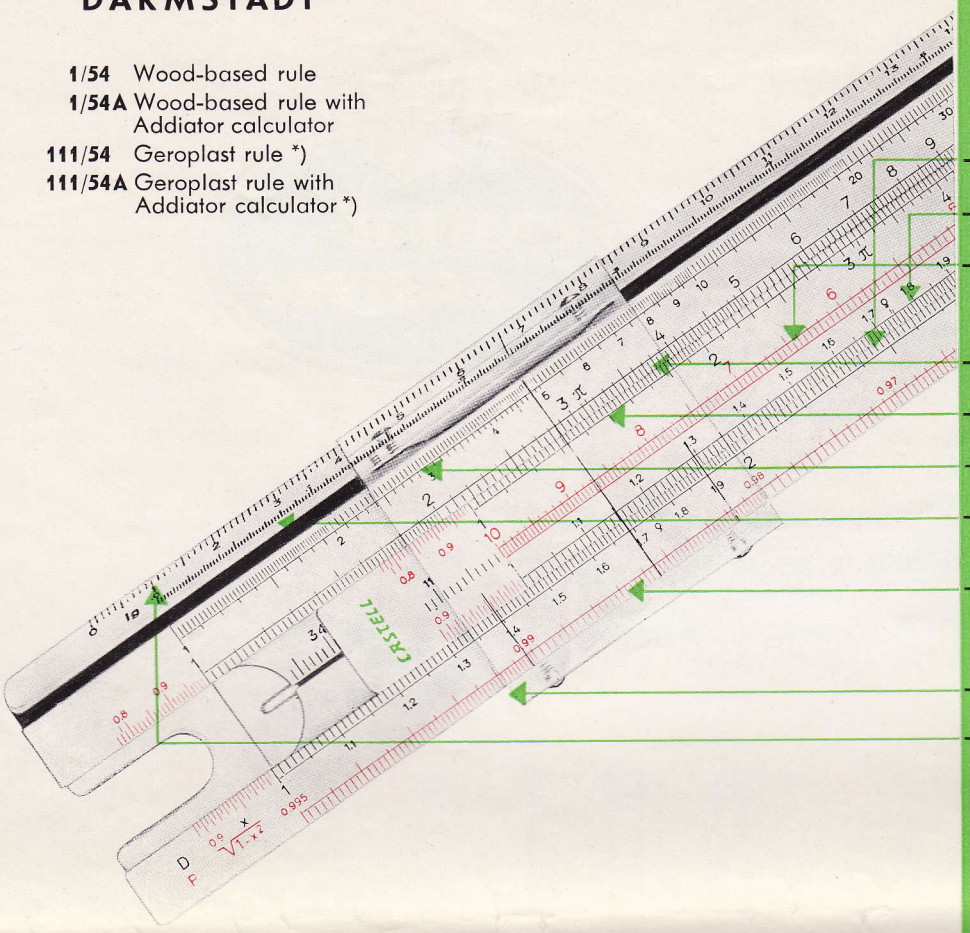
SLIDE RULES

A.W. FABER - CASTELL
STEIN BEI NÜRNBERG

CASTELL

"DARMSTADT"

1/54 Wood-based rule
1/54A Wood-based rule with Addiator calculator
111/54 Geroplast rule *)
111/54A Geroplast rule with Addiator calculator *)



*) with trigonometrical graduations on the face of the slide rule.

OCCUPATIONS:

Physicists.
Technicians dealing with High Frequency.
Mathematicians.
Scientific Workers.
Electrical and Mechanical Engineers.
Radio Engineers.
Students.

FUNCTIONS:

D: Fixed basic graduation
C: Movable basic graduation
} For multiplication, division and calculation of ratios.

Cr: Reciprocal scale: For simple and compound multiplication and division, in conjunction with D and C.

A: Fixed square graduation
B: Movable square graduation
} For calculating squares and square roots.

Cu: Cubic graduation: for calculating cubes and cube roots.

L: Logarithmic graduation: For calculating mantissae and characteristics.

P: Pythagorean scale: for calculating formula $y = \sqrt{1-x^2}$, in conjunction with scales C and D for vectorial calculations.

S, T: Trigonometrical graduations: for problems involving angles.

Inch graduation: can be used — in conjunction with the scale on the base of the rule — as gauge for measuring hollow spaces.

Back of Slide:

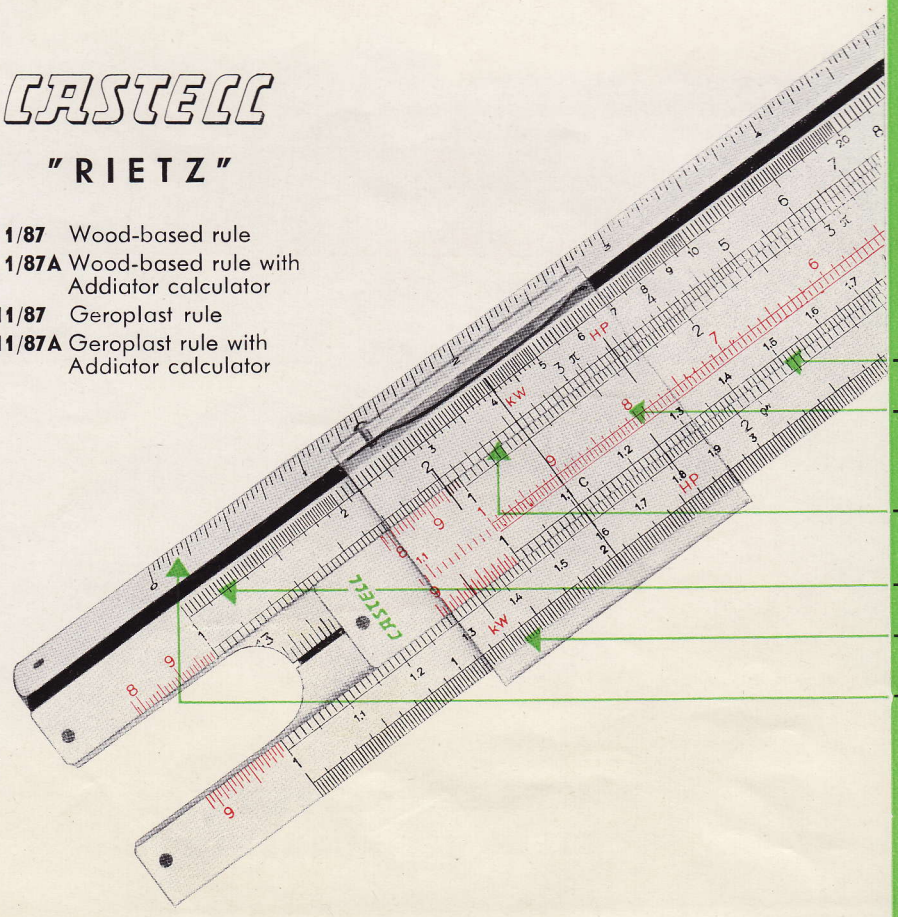
E: Exponential graduation: $1{\cdot}01 - 10^5$: for calculating "e" functions and also of powers with whole and fractional exponents, also for the construction of hyperbolic functions.

Also available with 400^d graduation

CASTELL

"RIETZ"

1/87 Wood-based rule
1/87A Wood-based rule with Addiator calculator
111/87 Geroplast rule
111/87A Geroplast rule with Addiator calculator



OCCUPATIONS:

Mechanical Engineers.
Building Engineers.
Mechanical Technicians.
Draughtsmen.
Works Managers.
Students in Technical Schools.

FUNCTIONS:

C, D: Basic Graduations: for multiplication and division.

Cr: Reciprocal Scale: for simple and compound multiplication and division, in conjunction with C and D.

A, B: Square Graduations: for calculating squares and square roots.

Cu: Cubic Graduation: for calculating cubes and cube roots.

L: Logarithmic Scale.

Inch graduation: can be used — in conjunction with the scale on the base of the rule — as gauge for measuring hollow spaces.

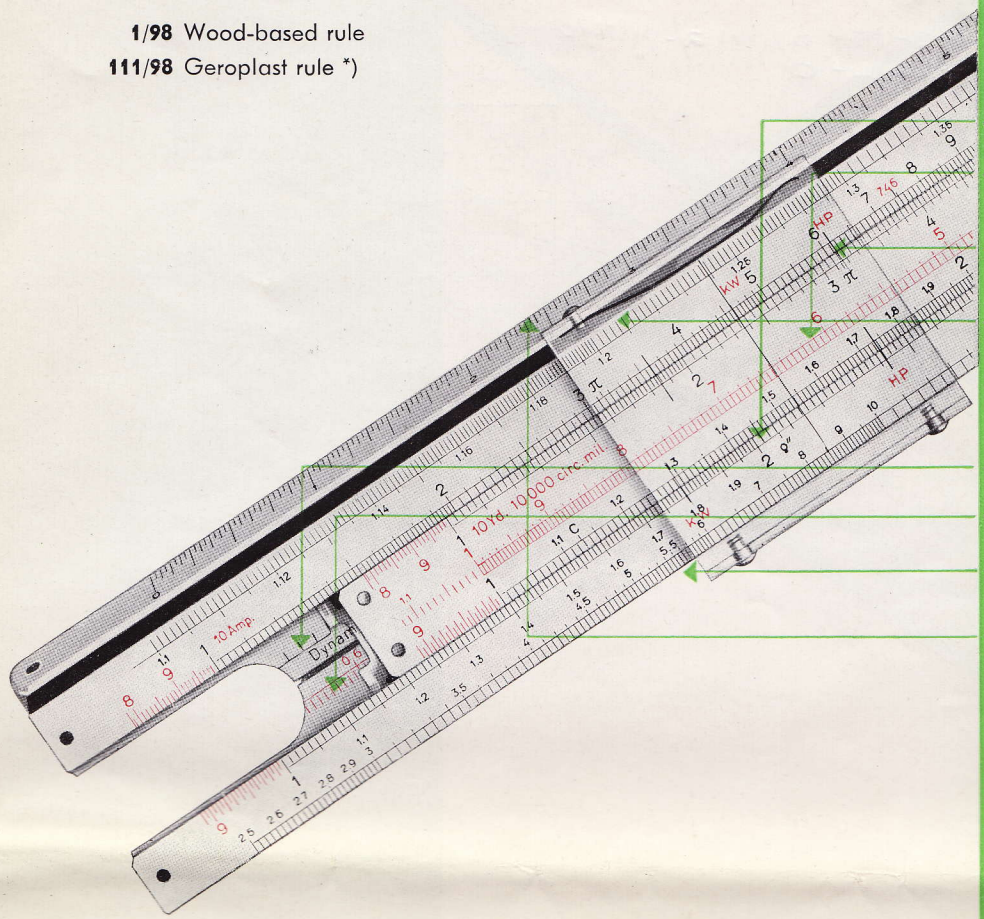
Back of Slide:

S,ST,T: Trigonometric graduations.
Also available with 400^d scale.

CASTELL

"ELECTRO"

1/98 Wood-based rule
111/98 Geroplast rule *)



*) with the scales W and V on the face of the slide rule

OCCUPATIONS:

Electrical Engineers.
Electrical Technicians.
Works Managers in the Electrical Industry.
Electrical Engineering Trainees.
Electricians.

FUNCTIONS:

— C, D: Basic graduations: for multiplication and division.
— Cr: Reciprocal graduation: for simple and compound multiplication and division.
— A, B: Square graduations: for calculation of squares and square roots.
— LU, LL: Log-Log or exponential graduation from 1·1 to 100,000, for calculating powers with whole or fractional exponents, and also for constructing hyperbolic functions.
— W: Scale for determining efficiency of dynamos and motors.
— V: Scale for determining voltage-drop in electric circuits.
— Cu: Cubic graduation: for calculation of cubes and cube roots.
— Inch graduation.

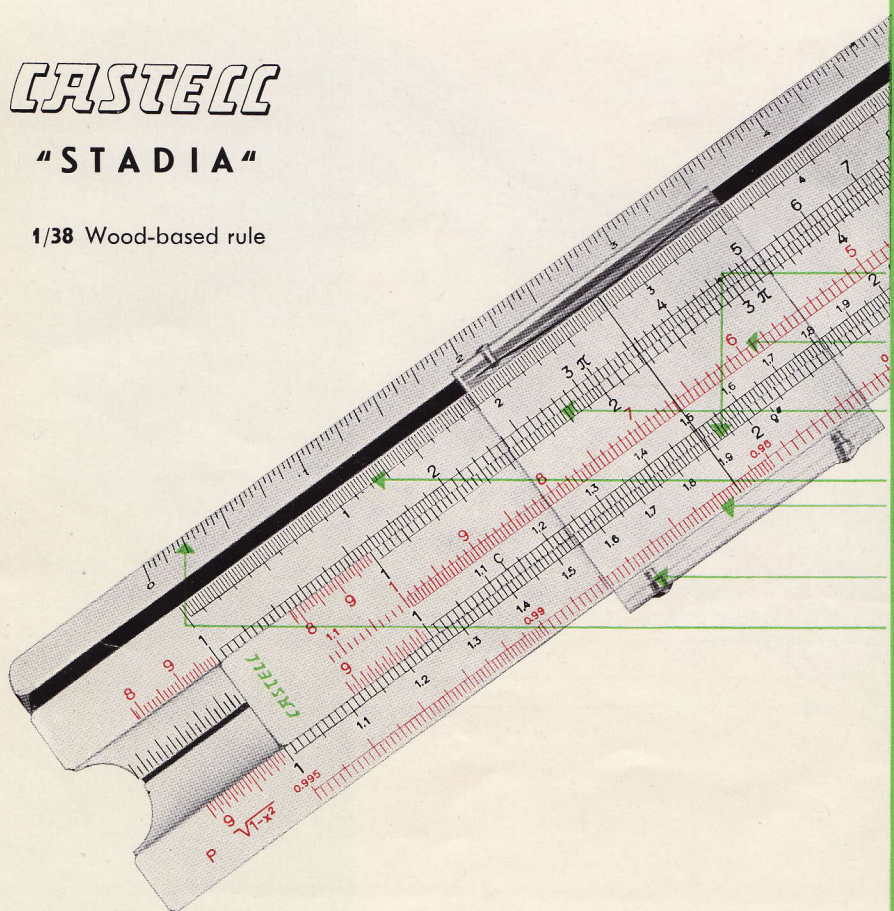
Back of Slide:

S: Sine-cosine graduation.
L: Logarithmic graduation.
T: Tan-cotan graduation.

CASTELL

"STADIA"

1/38 Wood-based rule



OCCUPATIONS:

Surveyors.
Surveyors' Assistants.
Geometricians.
Cartographers.

FUNCTIONS:

— C, D: Basic graduations: for multiplication, division and calculation of ratios.
— Cr: Reciprocal graduation: for simple and compound multiplication and division.
— A, B: Square graduations: for calculation of squares and square roots.
— L: Logarithmic graduation.
— P: Pythagorean graduation: for problems involving the formula $y = \sqrt{1-x^2}$
— S, T: Sine-cosine and tan-cotan graduation.
— Inch graduation: can be used — in conjunction with the scale on the base of the rule — as gauge for measuring hollow spaces.

Back of Slide:

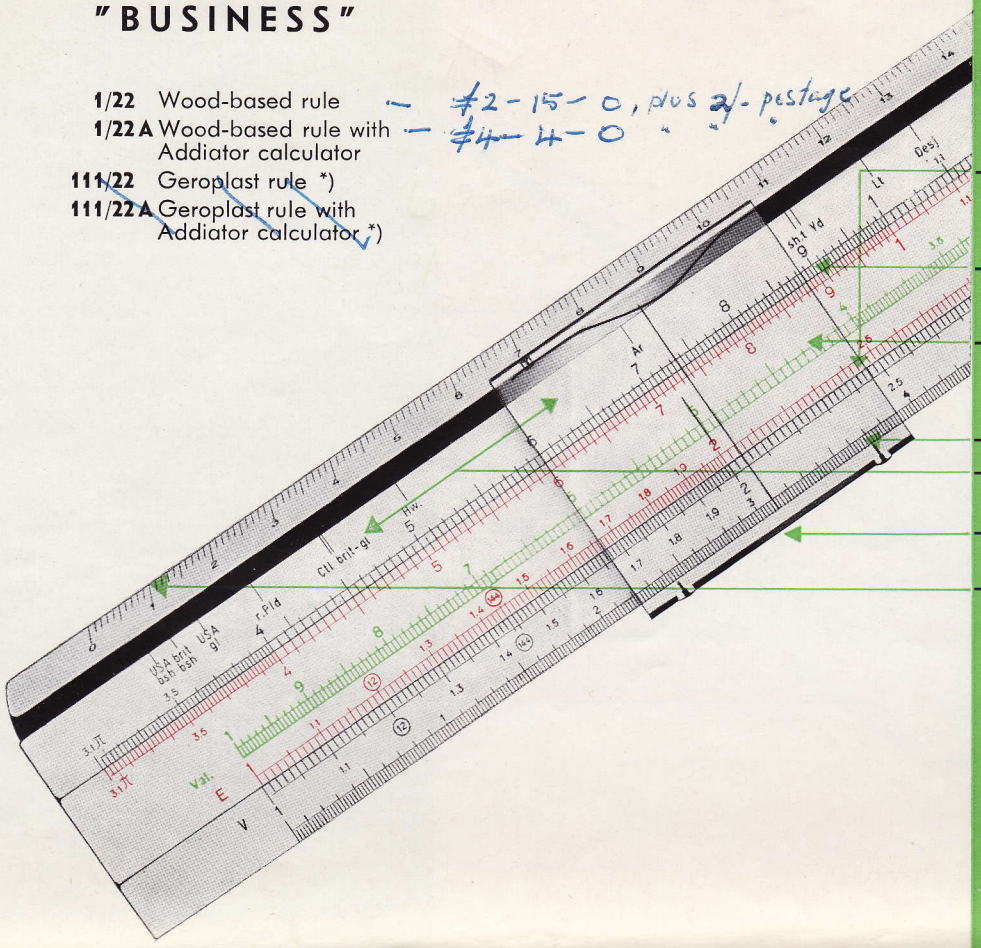
Sine-cosine graduation and $\cos^2$-graduation for determining difference in height and horizontal distance.

3

CASTELL

"BUSINESS"

1/22 Wood-based rule — £2-15-0, plus 2/- postage
1/22 A Wood-based rule with Addiator calculator — £4-4-0 " "
111/22 Geroplast rule *)
111/22 A Geroplast rule with Addiator calculator *)



*) with the scale for conversion of s and d on the face of the rule

OCCUPATIONS:

Businessmen.
Bankers and Financiers.
Commercial Employees.
Civil Servants.

FUNCTIONS:

- D, C: Lower graduations of main body and slide: for multiplication, division and calculation of ratios.
- A, B: Upper graduations of main body and slide: complementary to D and C.
- Cr: Central graduation of slide: for calculation of interest and for compound multiplication and division.
- L: Logarithmic graduation.
- Adjustment-marks for international variations in weights and measures.
- Scale for conversion of s and d into decimals of English £.
- Inch graduation.

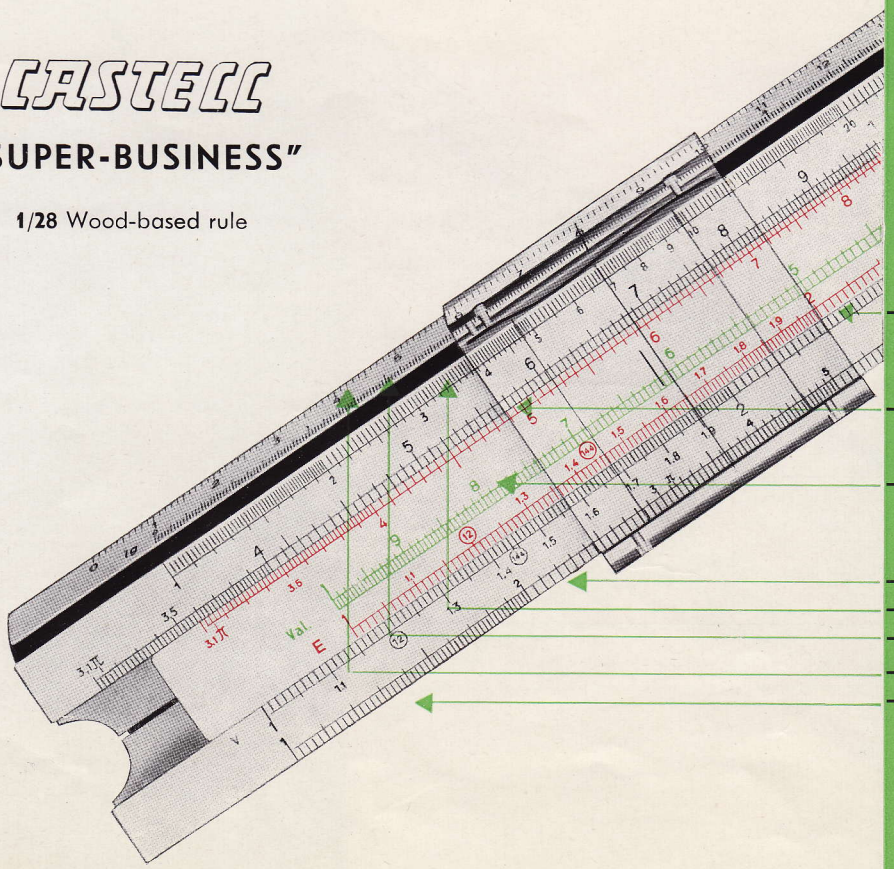
Back of Slide:

- E: Exponential graduation for calculation of compound interest.

CASTELL

"SUPER-BUSINESS"

1/28 Wood-based rule



OCCUPATIONS:

Businessmen.
Dealers in Technical Apparatus.
Wholesalers and Retailers.
Economists.
Factory Technicians.

FUNCTIONS:

- D, C: Lower graduation of main body and slide: for multiplication, division and calculation of ratios.
- A, B: Upper graduation of main body and slide: complementary to D and C.
- Cr: Central graduation of slide: for calculation of interest and for compound multiplication and division.
- S: Square graduation.
- Cu: Cubic graduation.
- L: Logarithmic graduation.
- Inch graduation.
- Scale for conversion of s and d into decimals of English £.

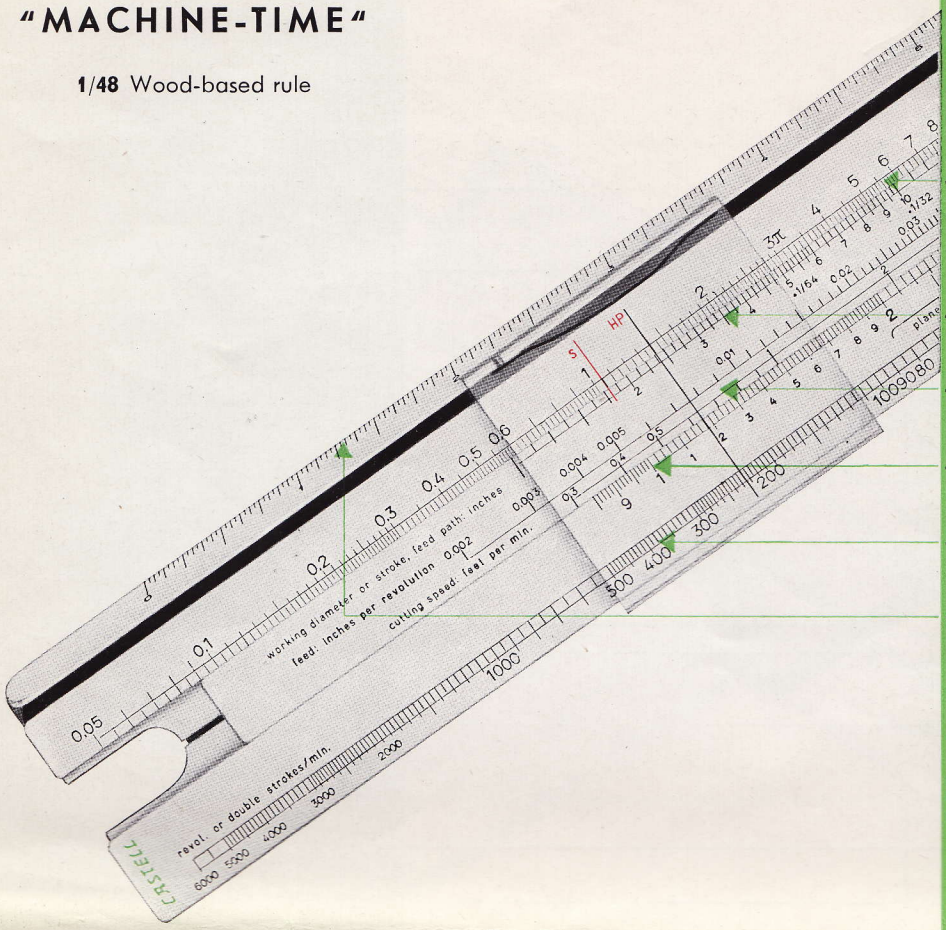
Back of Slide:

- E: Exponential graduation for calculation of compound interest.

CASTELL

"MACHINE-TIME"

1/48 Wood-based rule



OCCUPATIONS:

Technicians in the Metal Industry.
Works Engineers.
Factory Technicians.
Time Computers.
Foremen.

FUNCTIONS:

— Upper graduation of main body: For machine times and performances; also usable — in conjunction with lower graduation of main body — for multiplication and division.

— Upper graduation of slide: For operating-distance (machining-length). For working diameter or stroke.

— Lower graduation of slide: For cutting-speed.
For feed or belt-speed.

— Lower graduation of main body: to be used in conjunction with back of slide for multiplying and dividing.

— Border Graduation:
For r.p.m. or double strokes per minute.

— Inch graduation.

Back of Slide:

Upper graduation:

Square graduation: for calculation of squares and square roots.

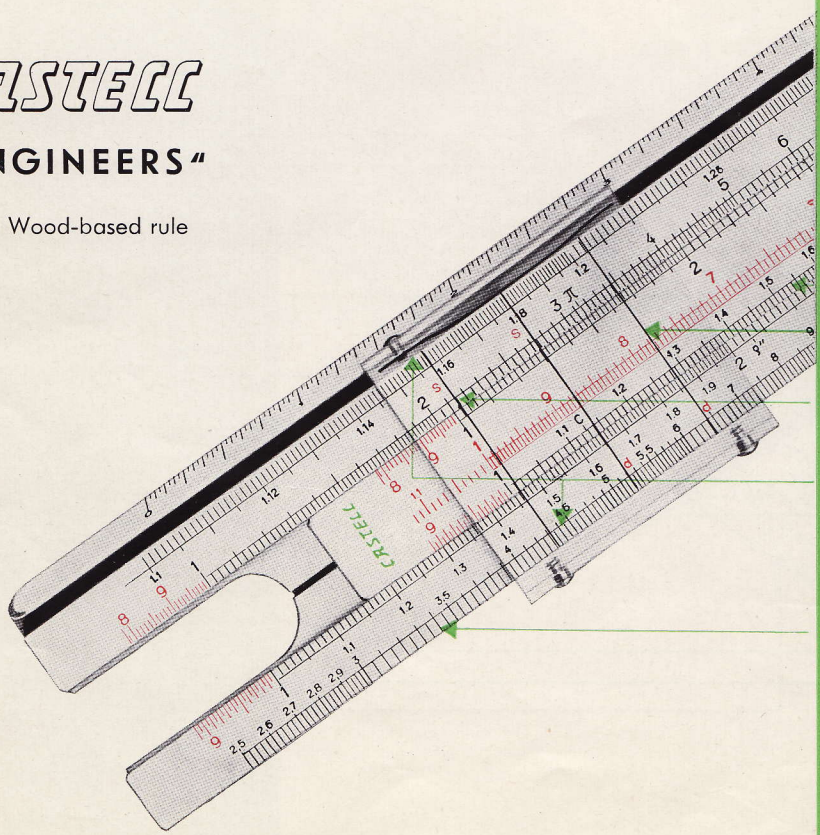
Lower graduation:

Basic graduation: for multiplication and division; also for calculating weights.

CASTELL

"ENGINEERS"

1/92 Wood-based rule



OCCUPATIONS:

Mechanical Engineers.
Mathematicians.
Physicists.
Scientific Workers.

FUNCTIONS:

— C, D: Basic graduations: for multiplication and division.

— Cr: Reciprocal graduation: for simple and compound multiplication and division.

— A, B: Square graduations: for calculation of squares and square roots.

— LU, LL: Log-Log or exponential graduation from 1·1 to 100,000, for calculating powers with whole or fractional exponents, and also for constructing hyperbolic functions.

— Cu: Cubic graduation: for calculations of cubes and cube roots.

Back of Slide:

S: Sine-cosine graduation.
L: Logarithmic graduation.
T: Tan-cotan graduation.

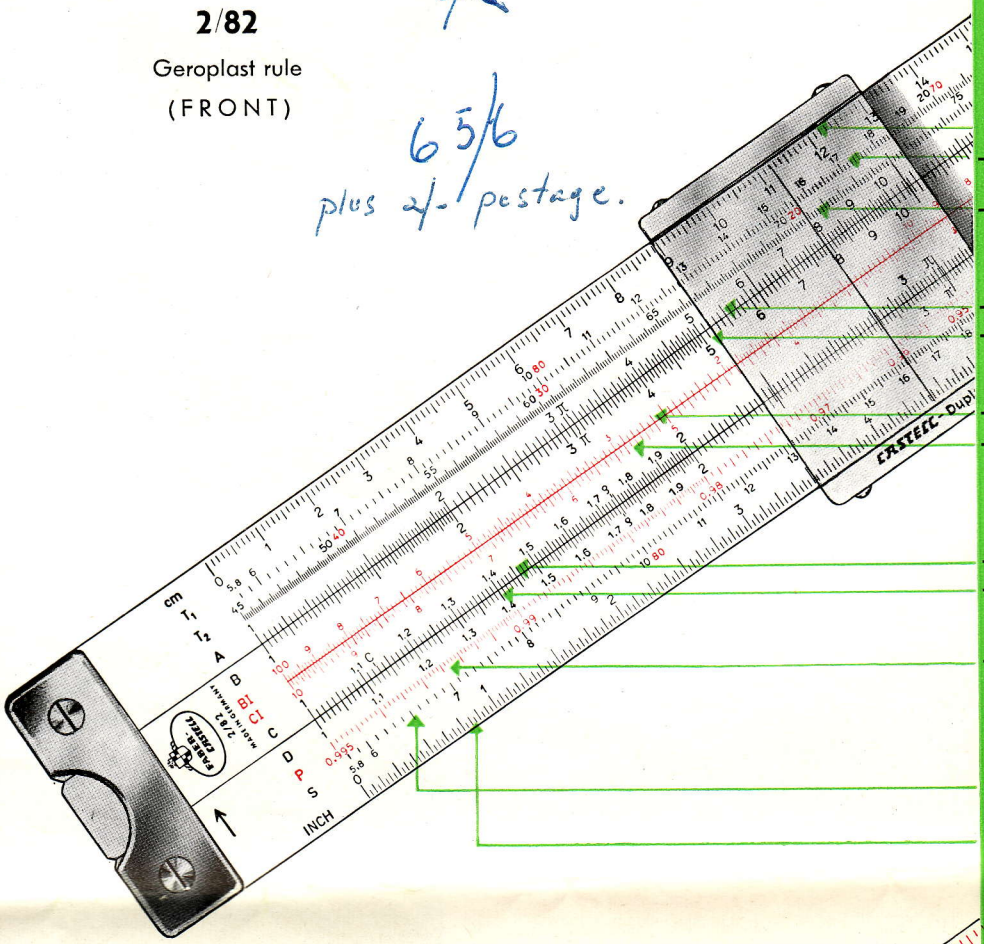
CASTELL

"DUPLEX"

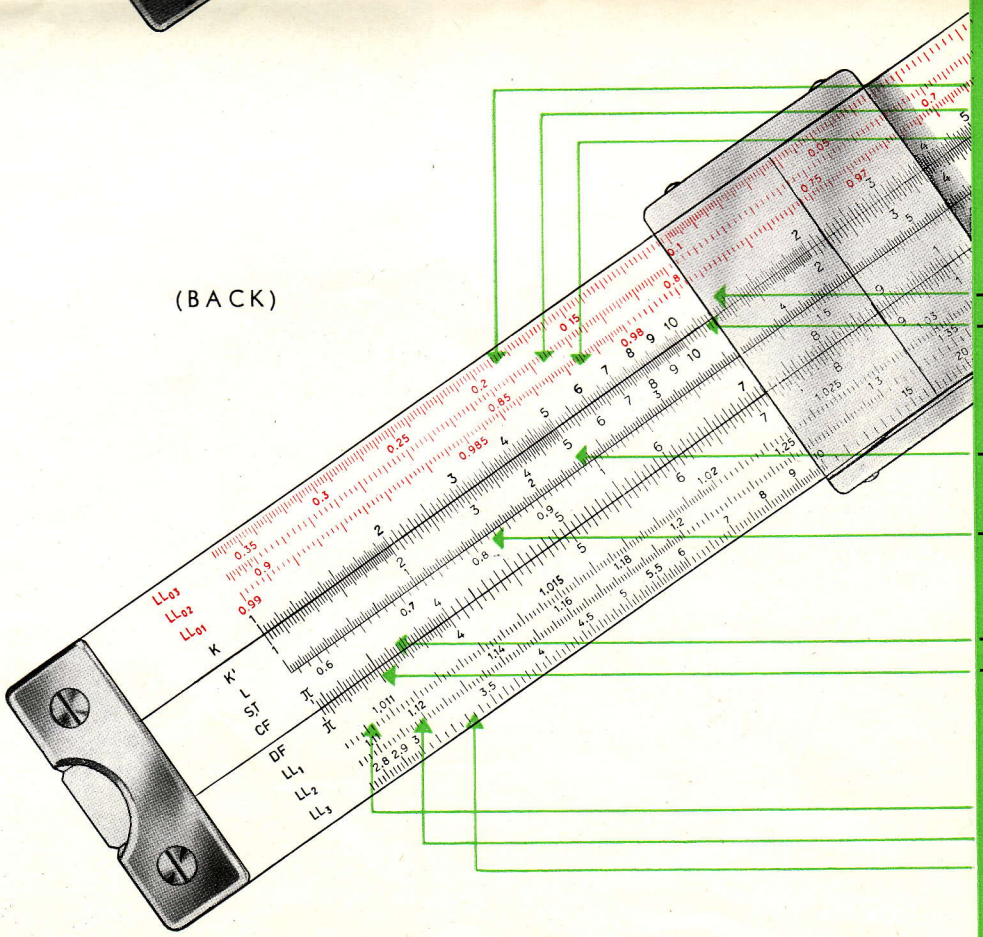
2/82

Geroplast rule

(FRONT)



(BACK)



PROFESSIONS:

Mathematicians.
Physicists.
Engineers.
Technicians.
Students.

FUNCTIONS:

cm-scale.

—— T1 — 1st Tangent Scale from 5·8 to 45°.

—— T2 — 2nd Tangent Scale from 45° to 84·3°.
For trigonometrical calculations.

—— A: fixed quadratic scale.

—— B: movable quadratic scale.
For calculations of squares and square roots.

—— B1: Reciprocal Scale of B.

—— C1: Reciprocal Scale of C.
For simple and compound multiplications and divisions in conjunction with A and B (or C and D).

—— C: Movable basic scale.

—— D: Fixed basic scale.
For multiplications, divisions and ratios.

—— P: Pythagorean Scale.
For solving the equation $y = \sqrt{1-x^2}$ in conjunction with the C and D scales for the calculation of vectors.

—— S: Sine Scale for trigonometrical calculations.

INCH: Inch-scale.

FUNCTIONS:

LL_{03} | LL_{02} | LL_{01} Exponential scales for negative exponents,
for calculation of exponential functions with negative exponents and the natural logarithms from 0·00001 to 0·99.

—— K: Fixed cube scale.

—— K': Movable cube scale.
For calculating cubes and cube roots (K' for further calculation, in the case of compound calculations).

—— L: Mantissa Scale
for calculating mantissae and antilogarithms.

—— ST: Scale for circular measurement of angles,
for small trigonometrical calculations.

—— CF: Basic scale C, folded by π

—— DF: Basic scale D, folded by π
for compound calculations with the value π

LL_1 | LL_2 | LL_3 Exponential scales for positive exponents.
For calculating exponential functions and the natural logarithms for 1·0101 to 22000.

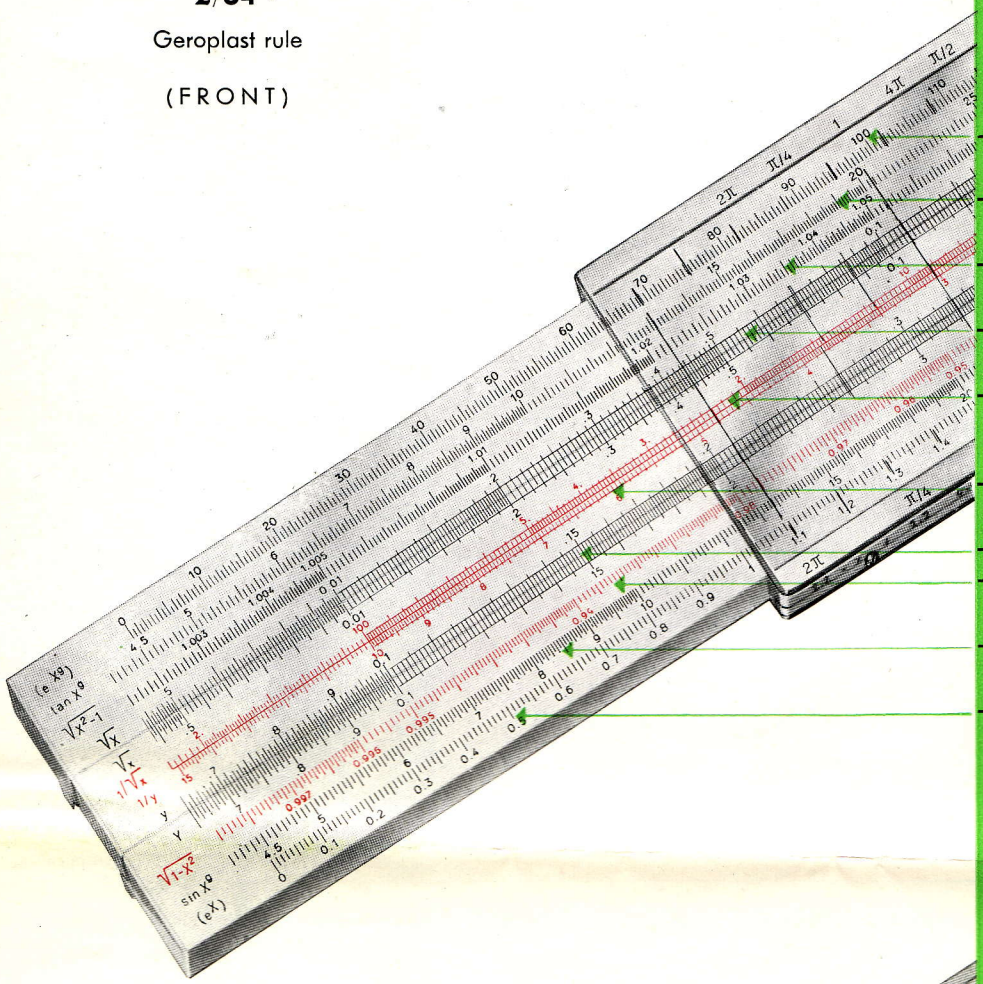
CASTELL

"MATHEMA"

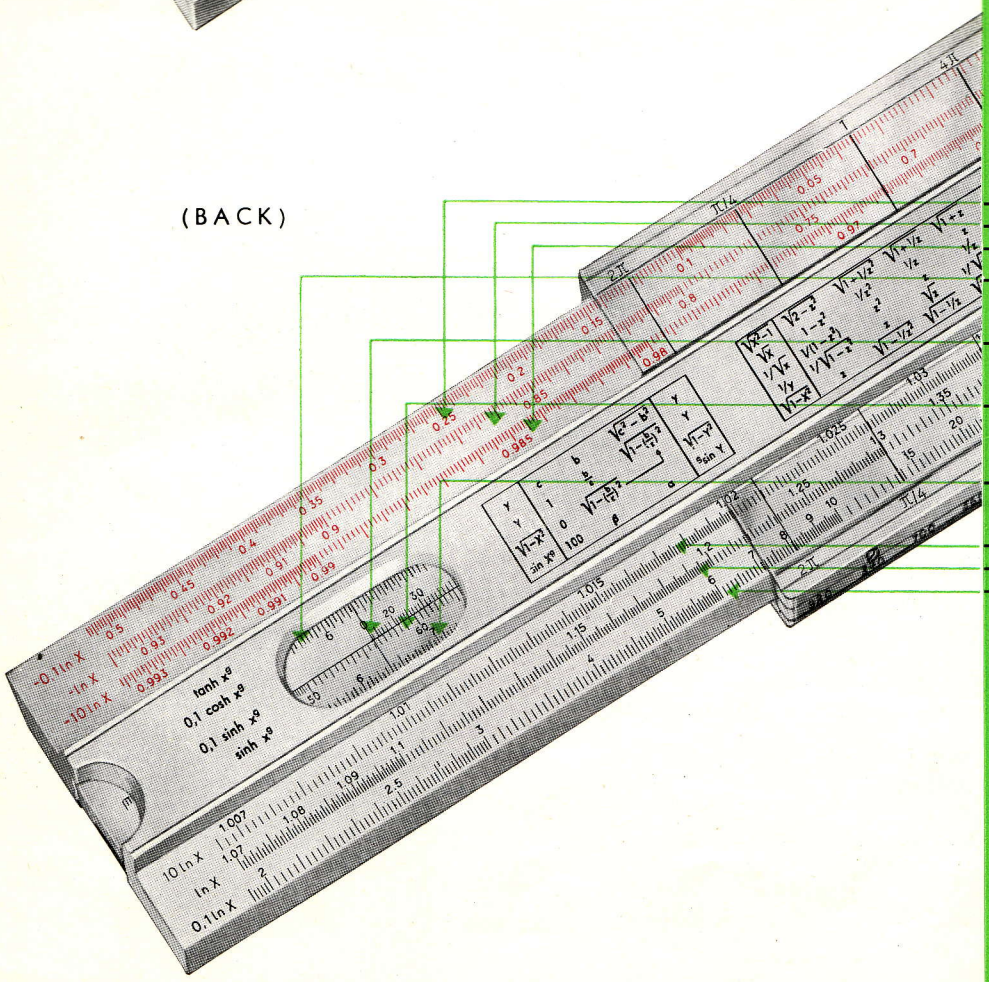
2/84 *)

Geroplast rule

(FRONT)



(BACK)



PROFESSIONS:

Mathematicians.

Physicists.

Engineers engaged in scientific work.

FUNCTIONS:

- (g ln Y) — Natural logarithm (in "new degrees").
- g tan Y — Tangent and cotangent scales ("new degrees").
- $\sqrt{1+Y^2}$ — Hyperbolic scale (Pythagorean Scale II).
- Y^2, y^2 — Parabolic Scales (quadratic scales).
- $1/y^2$ — Reciprocal Parabolic Scale (reciprocal quadratic scale).
- $1/y$ — Reciprocal Basic Scale (from 15-0·7).
- y, Y — Basic Scales (from 0·07-1·5).
- $\sqrt{1-Y^2}$ — Circular Scale (Pythagorean Scale I).
- g sin Y — Sine and Cosine Scale ("new degrees").
- (ln Y) — Natural Logarithm.

*) English instructions in preparation

FUNCTIONS:

- e^{-10Y}, e^{-Y}, $e^{-0,1\,Y}$ — Exponential Scales with negative exponents.
- g tanh y — Scale of hyperbolic tangent (in "new degrees").
- g cosh 10y — Scale of hyperbolic cosine (in "new degrees").
- g sinh 10y — 1st scale of hyperbolic sine (in "new degrees").
- g sinh y — 2nd scale of hyperbolic sine (in "new degrees").
- $e^{0,1Y}$, e^{Y}, e^{10Y} — Exponential Scales with positive exponents.

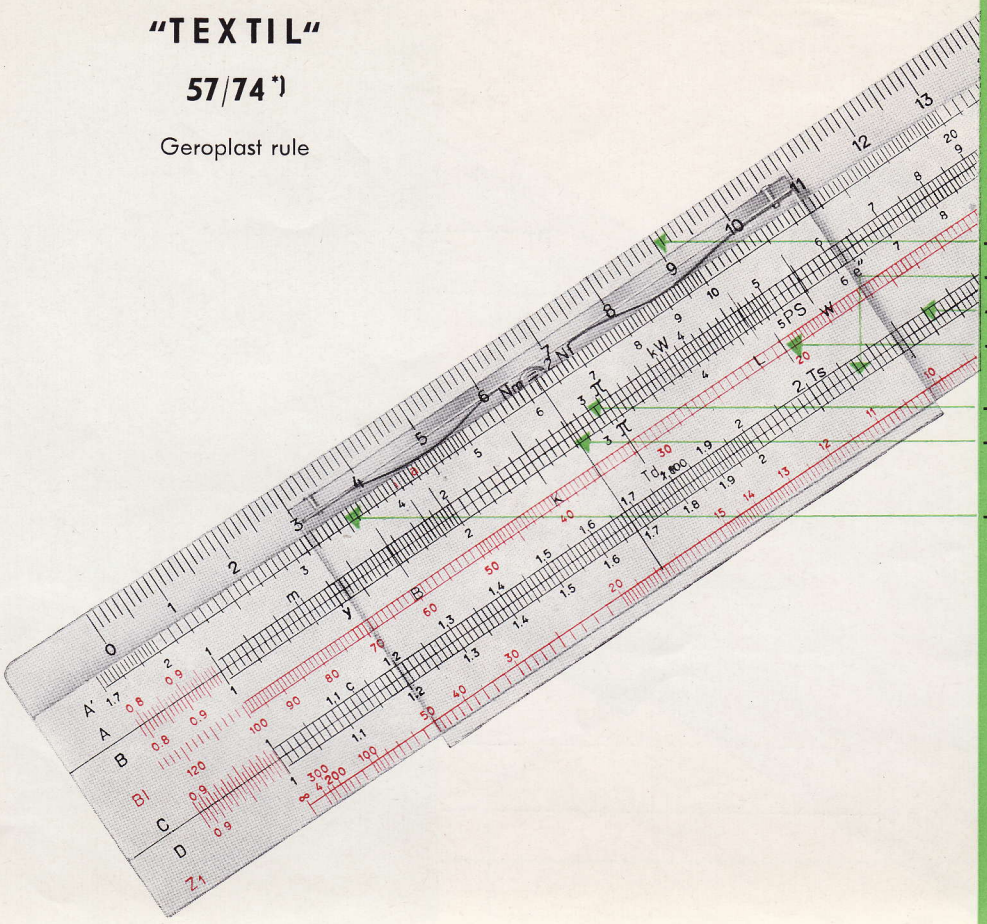
Through a special vernier arrangement of the cursor the range of application for the natural logarithm scales is extended to 10^8. Special marks on the cursor enable readings to be taken immediately.

CASTELL

"TEXTIL"

57/74 *)

Geroplast rule



PROFESSIONS:

Engineers
Technicians
Businessmen
The Textile industry

FUNCTIONS:

—— cm-scale.
—— D: Fixed basic scale.
—— C: Movable basic scale.
—— BI: Reciprocal scale (in conjunction with A and B).
—— A: Fixed quadratic scale.
—— B: Movable quadratic scale.

—— A': Scale for conversion of Kgs. into English lbs. (454 g).

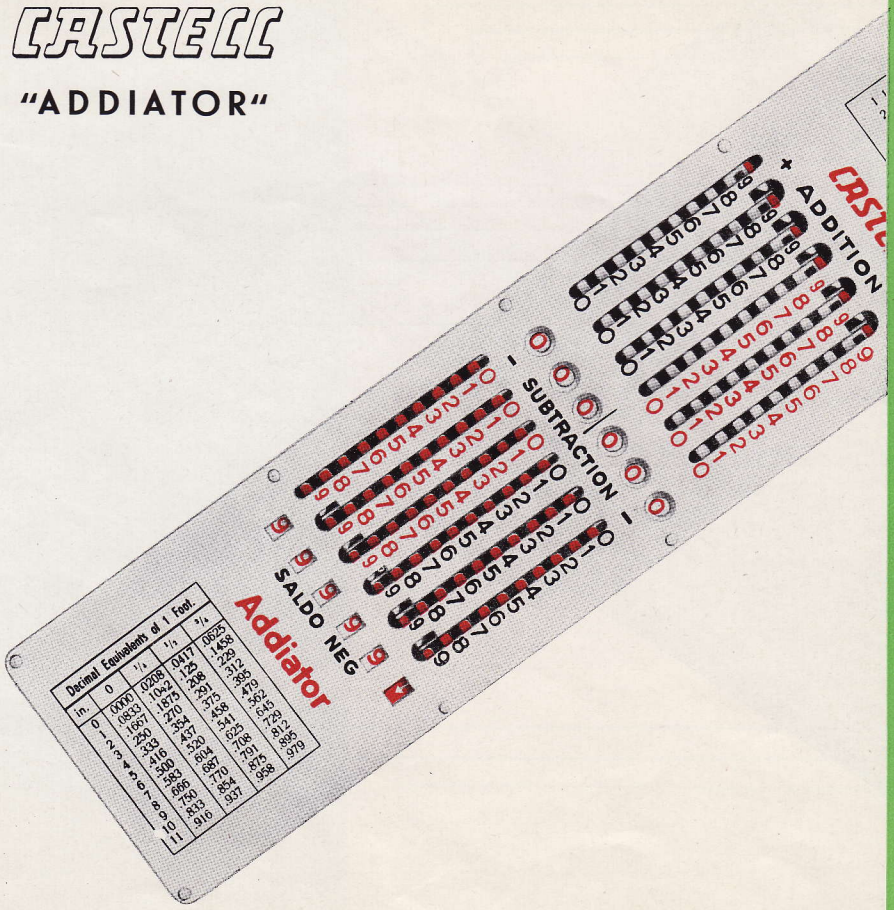
Z_1
Z_2 (Back of Slide)
Z_3 (Back of Slide)
} Graduations for ascertaining yarn-sizes for 2 (or more) single threads.

The individual scales and also the cursor have marks corresponding to the various factors for the conversion of yarn-sizes, thread-thicknesses, lengths and weights, etc.

*) in preparation

CASTELL

"ADDIATOR"



FABER-CASTELL Slide Rules

are the only ones in the world supplied in various models with the original Addiator calculator for additions and subtractions. The adding apparatus also shows debit-balances. Construction: with brass insertions and lateral steel spring base (wood based rules only);

as shown in the illustration (in the case of Geroplast rules).

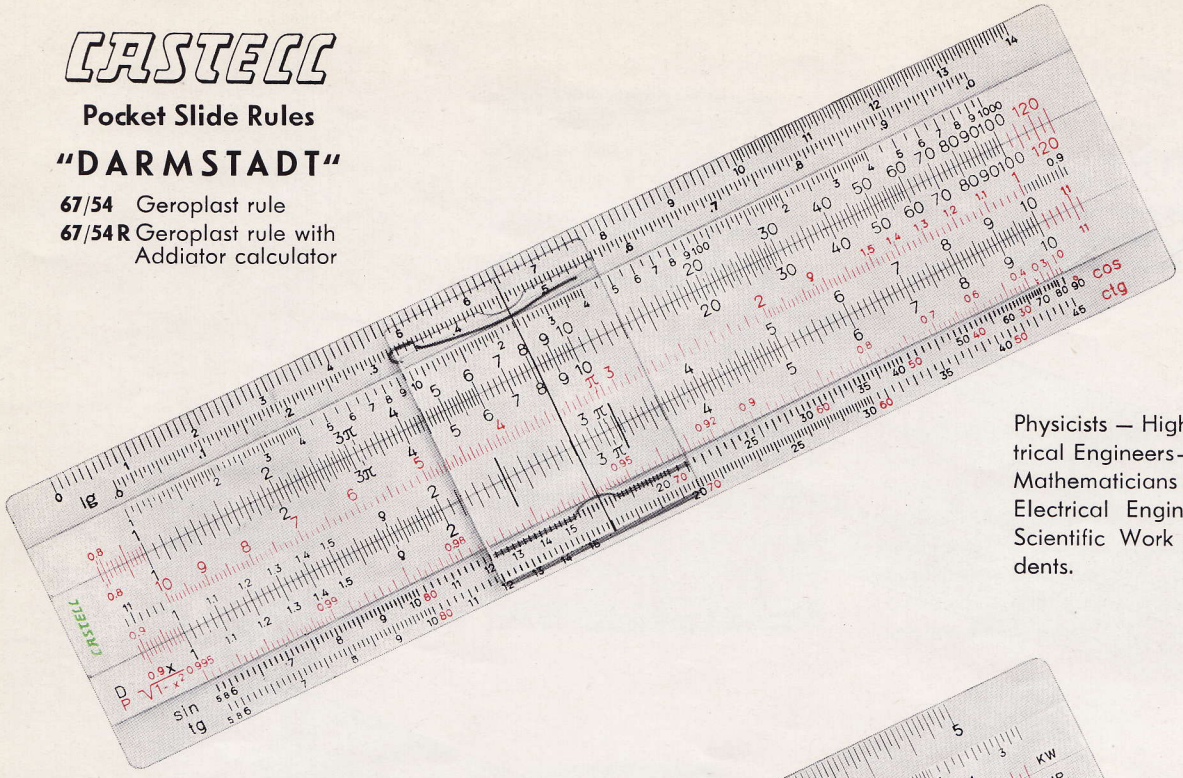
CASTELL

Pocket Slide Rules

"DARMSTADT"

67/54 Geroplast rule

67/54 R Geroplast rule with Addiator calculator

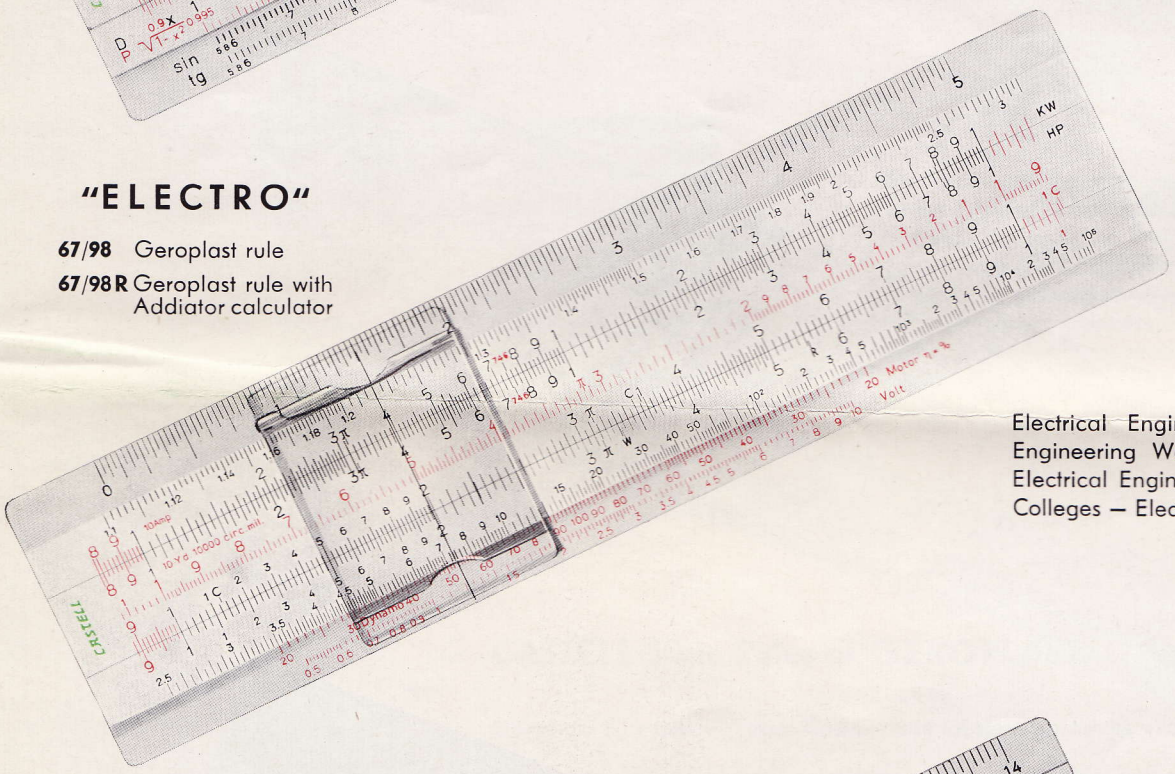


Physicists — High-Frequence Electrical Engineers — Radio Engineers Mathematicians — Engineers and Electrical Engineers engaged in Scientific Work — University Students.

"ELECTRO"

67/98 Geroplast rule

67/98 R Geroplast rule with Addiator calculator

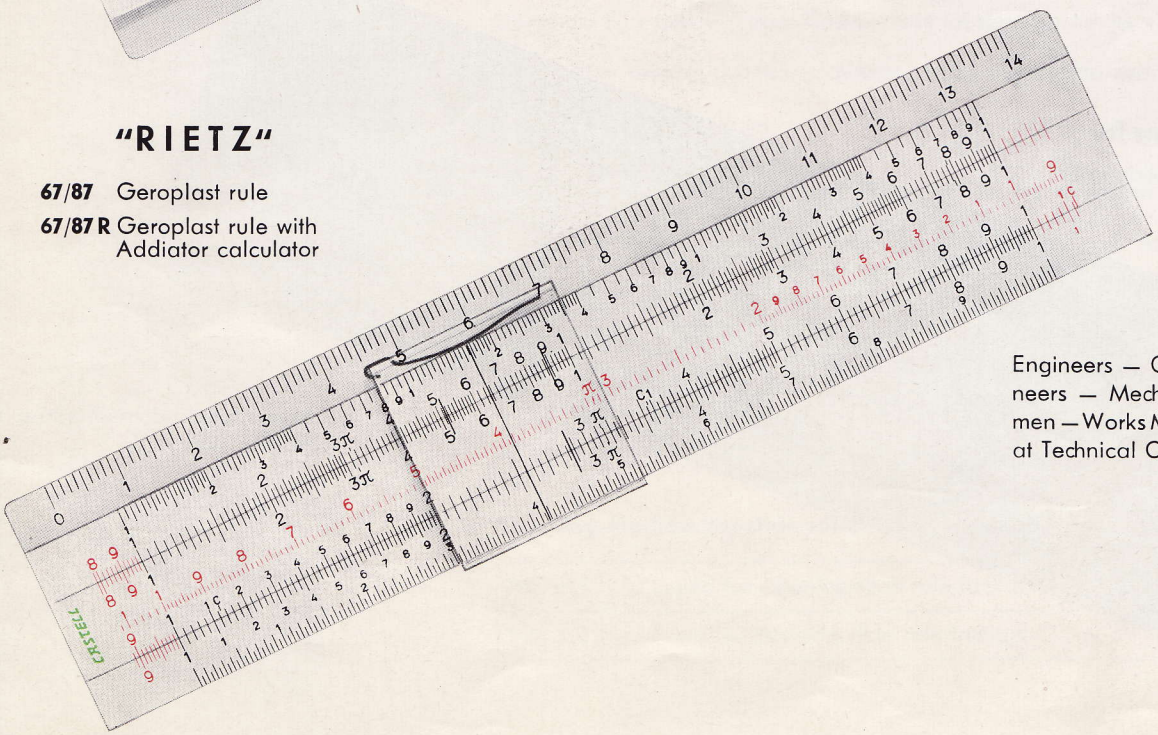


Electrical Engineers — Electrical Engineering Works Managers — Electrical Engineering Trainees — Colleges — Electricians.

"RIETZ"

67/87 Geroplast rule

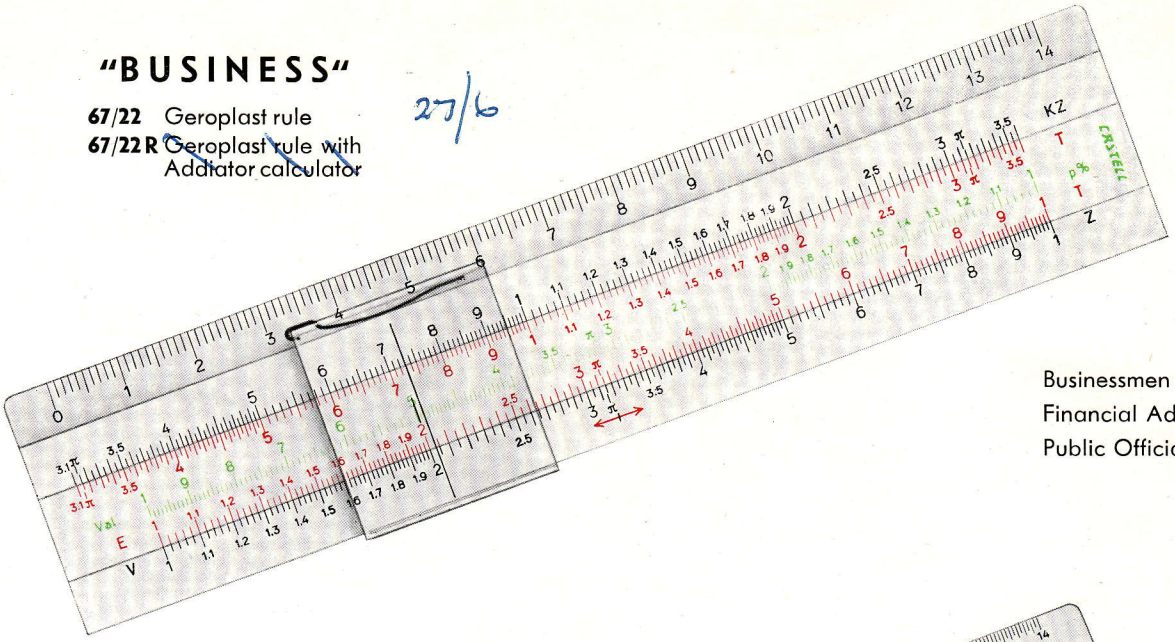
67/87 R Geroplast rule with Addiator calculator



Engineers — Constructional Engineers — Mechanics — Draughtsmen — Works Managers — Students at Technical Colleges.

"BUSINESS"

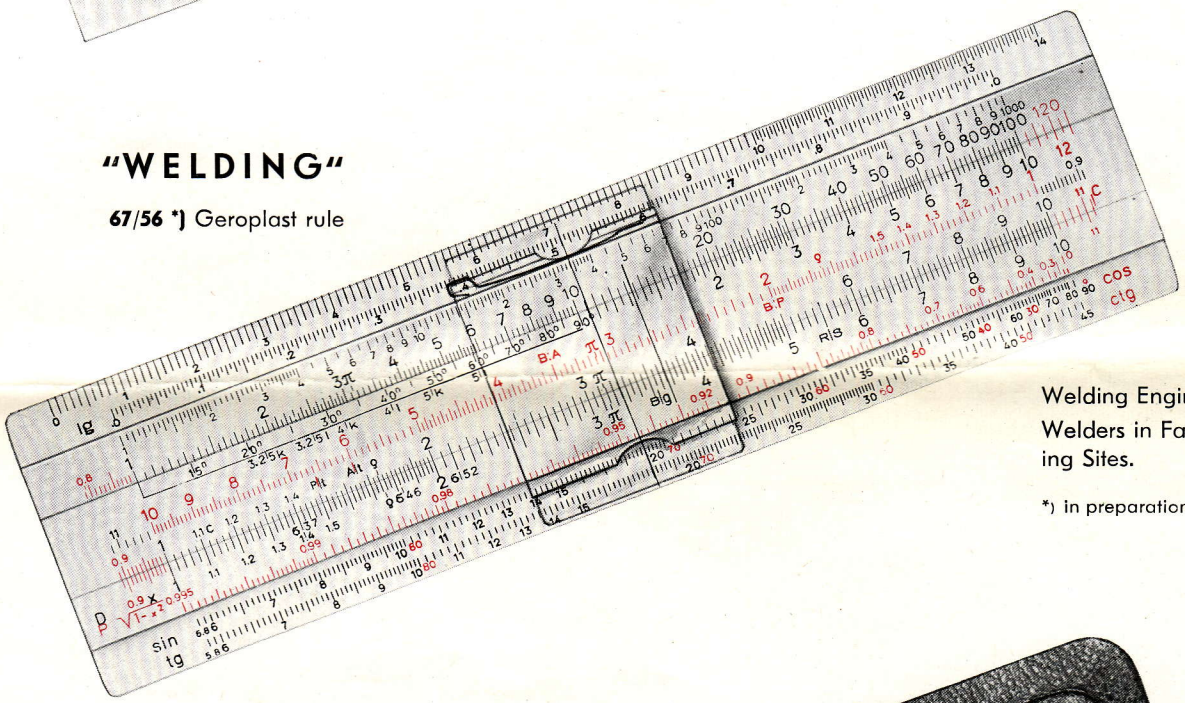
67/22 Geroplast rule
67/22 R Geroplast rule with Addiator calculator



Businessmen
Financial Advisers
Public Officials.

"WELDING"

67/56 *) Geroplast rule

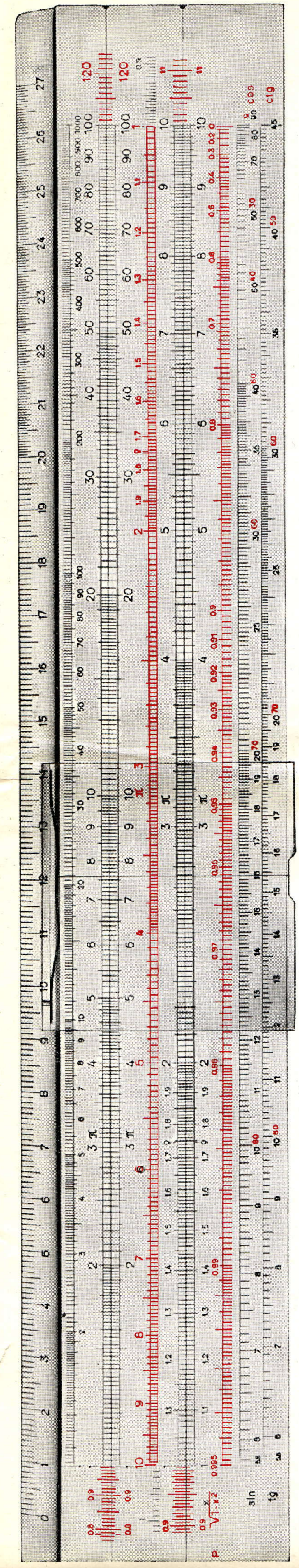


Welding Engineers
Welders in Factories and on Building Sites.

*) in preparation

Cases for
Pocket slide rules

Cases of green corned leather for CASTELL slide rules.



CASTELL-Cursors

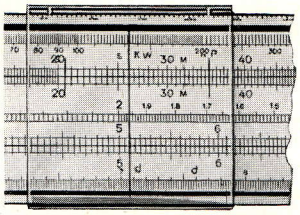


Fig. A

The CASTELL Slide-Rules are fitted with "open-view" cursors made of perspex (Fig. A). These give an absolutely unimpeded view of the entire system of graduations on the rule, the glass parts at the sides being constructed with the same object.

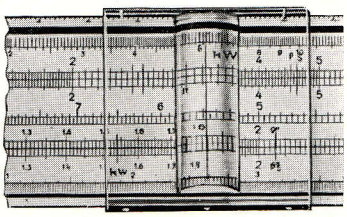


Fig. B

If specially required, these "open view" cursors will be supplied with semi-cylindrical lenses (Fig. B), giving increased accuracy in reading. With the three- and four-line cursors the semi-cylindrical lens is adjustable along the cursor, according to the particular cursor-line being used.

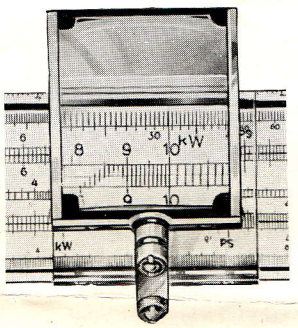


Fig. C

For especially exacting requirements where reading-accuracy is concerned, the slide-rules can be fitted with periscopic magnifying cursors (Fig. C). The magnifying glass is swivel-mounted so that the table of constants on the back of the slide-rule can be read with equal ease.

CASTELL Slide Rules of GEROPLAST

Geroplast is a special Faber-Castell material selected, for its excellent properties, from among the many different types of material available for the manufacture of Slide Rules.

Its outstanding feature is the "high fidelity" of the engraved graduations which retain their initial accuracy after many years of use. The Slide Rule shown in the illustration is made of Geroplast: note the "sharpness" of the graduation-marks and their perfect legibility. Geroplast is also impervious to climatic influences. Castell Geroplast Slide Rules are non-inflammable and can be recommended for use in laboratories.

Cleaning Medium for slide rules

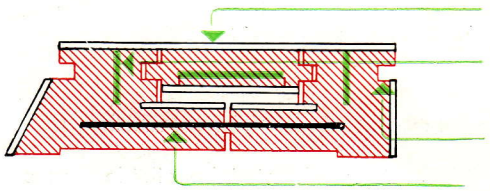
No. 211	Liquid for cleaning slide rule facings
No. 212	Paste for cleaning slide rule facings

TABLE SHOWING THE OPERATIONS WHICH CAN BE CARRIED OUT WITH THE VARIOUS "CASTELL" MODELS.

	Reading obtainable direct.	Readings obtainable with one movement of the slide. For 1 factor.	For 2 factors.	For 3 factors.	Further Fields of Calculation:	
"Business" 67/22	$\frac{1}{a}$	$\sqrt{a}$	$a \cdot b$, $\frac{a}{b}$, a^2, $\frac{1}{a^2}$, $a \cdot \frac{1}{b}$	$a \cdot b \cdot c$, $\frac{a}{b \cdot c}$, $\frac{a \cdot b}{c}$	Interest, arbitrage, percentages, ratios, conversion of s and d into decimals of a £	
"Business" 1/22 "Business" 4/22	$\log a$				As before, also compound interest, conversion of foreign weights and measures	
"Super-Business" 1/28	$\frac{1}{a}$, a^2, $\sqrt{a}$, $\frac{1}{\sqrt{a}}$, $\log a$	$\frac{1}{a^2}$, a^4, $\frac{1}{\sqrt{a}}$	$\frac{1}{a^2}$, a^2, a^3, $\sqrt{a}$, $\sqrt[3]{a}$, $\sqrt{a^3}$, $\sqrt[3]{a^2}$	$a^3 \cdot b^3$, $\frac{a^3}{b^3}$, $\frac{1}{a^3 \cdot b^3}$	$\frac{a^3 \cdot b^3}{c^3}$, $a^2 b^3 \sqrt{c^3}$	Simple and compound interest, arbitrage.
"Stadia" 1/38	$a^3 \sqrt{a}$, $\sqrt{a^3}$, $\sqrt[3]{a^2}$, $\sin \alpha$, $\operatorname{tg} \alpha$, $\frac{1}{a^2}$, $\cos \alpha$, $\operatorname{ctg} \alpha$	$\frac{1}{a^3}$, $a^3 \sqrt{a}$, $\sqrt{a^3}$, $\sqrt[3]{a^2}$	$\frac{\sqrt{a}}{b}$, $\frac{1}{a^3 \cdot b^3}$, $\frac{a^3}{a^3 b}$			Determining differences in height and also horizontal distances on open land.
"Darmstadt" 1/54 4/54 "Darmstadt" 67/54	$a^{2,5}$, $a^{1,6}$, $a^{1,25}$, $a^{\pi/2}$, $\frac{2,5}{1,6}\sqrt{a}$, $\frac{1}{1,6\sqrt{a}}$	$\frac{1}{a^5}$	$a^3 \cdot b^3$, $\frac{1}{a^3 \cdot b^3}$			Functions of e, such as e^n, e^{-n}, $\sqrt[n]{e}$ also a^{10}, $\sqrt[10]{a}$, $\ln a$, a^n, $\sqrt[n]{a}$,
"Mathema" 2/84		$\sqrt{1+a^2}$				
"Duplex" 2/82	$a^3 \sqrt{a}$, $\sqrt{a^3}$, $\sqrt[3]{a^2}$	$\frac{1}{a^5}$, a^5, a^6	$a^3 \cdot b^3$, $\frac{a^3}{b^3}$, $\frac{1}{a^3 \cdot b^3}$			Calculations with triangles
"Rietz" 1/87 "Rietz" 4/87 "Rietz" 67/87	$\frac{1}{a^3}$	$\frac{1}{a^5}$, a^5, $a^3 \sqrt{a}$, $\sqrt{a^3}$, $\sqrt[3]{a^2}$	$\sin \alpha$, $\cos \alpha$, $\operatorname{tg} \alpha$, $\operatorname{ctg} \alpha$			Calculation of angles below 5° 43'.
"Electro" 1/98 "Electro" 4/98			$a \cdot b$, $\frac{a}{b}$, $\frac{1}{a \cdot b}$, ab^2, $a^2 b^2$, $\frac{a^2}{b^2}$, $a \sqrt{b}$, $\frac{a}{\sqrt{b}}$, $\frac{\sqrt{a}}{b}$, $\frac{1}{a \cdot b^2}$, $\frac{a^3}{b^3}$	$a \cdot b \cdot c$, $\frac{a}{b \cdot c}$, $\frac{a \cdot b}{c}$, $a^2 \cdot b^2 \cdot c^2$, $\frac{a^2}{c^2}$, $\frac{a^2 \cdot b^2}{c^2}$, $a \cdot b \cdot \sqrt{c}$, $a^2 \cdot b^2 \cdot c$	$\frac{a^2 \cdot b^2}{c^2}$, $a^3 \cdot b^3 \cdot \sqrt{c^3}$	Determining the efficiency of dynamos and motors also voltage-drop in circuits, calculation of ohmic resistance, calculation of weight of copper transmission-lines.
"Electro" 67/98			$\sqrt{a \cdot b}$, $\sqrt{\frac{a}{b}} \cdot \frac{1}{\sqrt{a \cdot b}}$, $a^2 \cdot b^3$, $\frac{a^2}{b^3}$, $b \cdot \sin \alpha$, $\frac{a}{\cos \beta}$, $b \cdot \operatorname{tg} \alpha$, $\frac{a}{\operatorname{ctg} \beta}$			

These and all other types of "CASTELL" Slide-Rules are supplied with adequate instructions.

HOW THE SLIDE-RULES ARE CONSTRUCTED.

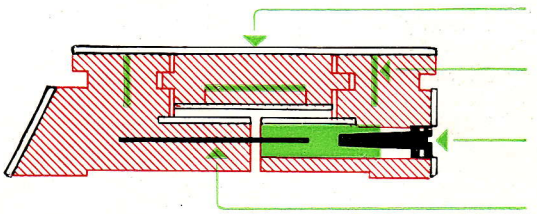


Layer of celluloid on which scale is marked.

Metal insert to stabilise shape and render slide-rule easier to operate.

Cursor-groove.

Resilient slide-rule base, with lattice-spring.



Layer of celluloid on which scale is marked.

Metal insert to stabilise shape and render slide-rule easier to operate.

Adjusting-screw for setting slide to desired degree of freedom of movement.

Resilient slide-rule base, with lattice-spring.

The system of graduations engraved on the layer of celluloid by a special process is extremely regular and accurate besides being easily legible.

All CASTELL Slide-Rules constructed of wood have metal inserts in order to make their shape more stable. Rules which have become warped from unusual causes may therefore be bent back into their original position without undesirable consequences.

A lattice-spring extending over the entire length of the slide-rule enables it to be adjusted easily and accurately without detracting from the freedom of movement of the slide.

In the slide-rule with a graduated length of 20" the base-spring is also combined with adjusting-screws whereby tension can be applied, or removed, to ensure the slide running flush to the face of the stock scales. Despite the length of the rule, this adjustment assures an easy movement of the slide.