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Water . . . dirt . . . blood . . . stains . . . or any liquid are repelled by a SILICLAD coated surface.

SILICLAD is a water soluble silicone concentrate that can be used on glass, ceramics, metal, rubber and plastic materials.

A quick dip in a 1% water solution leaves a tough, liquid-repellent coating of silicone on the glass or ceramic surface. A water rinse completes the job . . . no baking necessary.

SILICLAD-treated objects are easier to clean . . . and scratch and abrasion-resistant. Breakage and chipping of expensive glassware pieces are reduced.

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Try SILICLAD yourself on flasks, beakers, graduates, stoppers, burettes, pipettes, bottles, catheters, tubing, blood apparatus . . . and be convinced. SILICLAD is non-toxic, non-irritating, long-lasting.

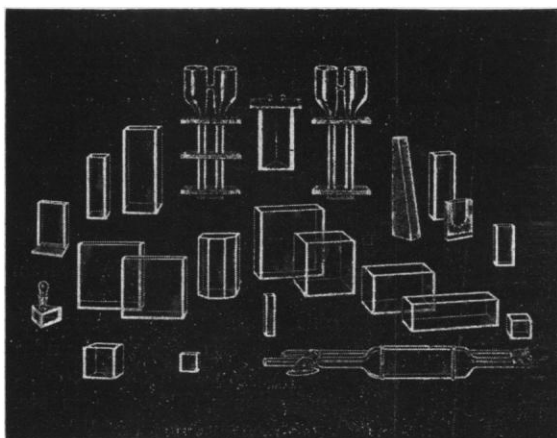
4 ounces of SILICLAD concentrate (makes up to 25 pints of working solution) \$3.50
1 dozen 4-ounce bottles \$36

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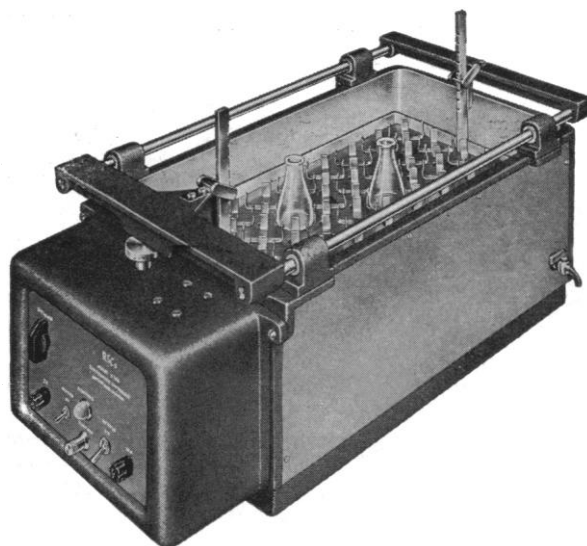
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TEMPERATURE CONTROLLED WATER BATH SHAKER

Model 2156

RESEARCH SPECIALTIES CO. presents its Model 2156 Water Bath Shaker, a variable speed reciprocating mechanism with a thermostatically controlled heated water bath. Engineered to provide many years of reliable, efficient, trouble-free service, the Water Bath Shaker was designed especially for use in the biological laboratory.



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EQUIPMENT NEWS

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Science does not assume responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to Science, Room 740, 11 W. 42 St., New York 36, N.Y. Include the name(s) of the manufacturer(s) and the department number(s).

■ **SAND AND DUST CHAMBER** provides a controlled composition and density level and sand and dust for testing. Relative humidity is automatically maintained below 30 percent. Temperature is maintained constant at either 25° or 70°C. (Tenney Engineering Inc., Dept. S430)

■ **X-RAY VIEWER** increases readability of x-ray pictures through contrast enhancement and color TV techniques. Areas of equal optical contrast are displayed in the same color, while variations in density are distinguished by variations in color. The range of the photograph to be viewed is converted to a sequence of electric signals by a cathode-ray, flying-spot scanner. The signal is amplified and subjected to electronic contrast enhancement. The amplified signal is next

fed through a color monitor where the picture is reproduced in color. The image can also be converted from negative to positive by electronic means. (Philco Corp., Dept. S439)

■ **SPHYGMOGRAPH SYSTEM** uses a condenser microphone to detect pulse waves and sounds and records them on an electrocardiograph recorder. Simultaneously recorded are occluding cuff pressures, which are converted into electric signals by a mercury manometer that contains accurately placed platinum electrodes. (Medical Electronics Development Co., Dept. S455)

■ **HIGH-TEMPERATURE ACCELEROMETER** provides an output of 8 mv/grav in ambient temperatures up to 500°F. The associated cathode follower and Teflon-insulated, noise-treated cable can also be used in 500°F ambient temperature; this permits them to be placed near the accelerometer. Acceleration range is 0.25 to 1000 grav. (Endevco Corporation, Dept. S465)

■ **SEISMOGRAPH**, manufactured by Hilger and Watts, Ltd., is of portable design. The instrument records for 24 hr at 60 mm/min. The seismometer elements are

of the moving coil type with permanent magnetic field. The natural period is 1 sec in both vertical and horizontal positions. The unit is sealed in a metal case to permit burying in open ground. Ground movements on the order of 10^{-7} cm can be detected. The recorder, of the photographic drum type, can accommodate three seismometers. (Jarrell-Ash Co., Dept. S456)

■ **LEAK DETECTOR** is a halogen-sensitive instrument that will detect a vacuum system leak of 2 in.³/year. The system to be inspected is connected to the instrument and evacuated to a pressure of 80 to 200 μ . The outside is then blanketed with Freon-12 as a tracer gas. This is followed by probing with a fine gas-stream probe to pinpoint an indicated leak. (NRC Equipment Corp., Dept. S438)

■ **SELF-BALANCING POTENTIOMETRIC RECORDER** measures current or voltage in 40 ranges. Nine chart speeds, from $\frac{1}{3}$ to 12 in./min, are standard, with provision for optional 1-to-5 multiplication or 10-to-1 reduction. Eleven ranges from 1.25 to 1250 are selectively direct reading in millivolts, milliamperes, or microamperes. Higher voltage ranges are provided through a divider. Accuracy is ± 0.1 percent or $\pm 20 \mu\text{v}$, whichever is greater, and speed is 1.8 sec full scale on standard instruments. Chart width is 250 mm. Chart motion at 20 ft/min is provided for scanning in either direction. (E. H. Sargent and Co., Dept. S459)

■ **INTRAHEART MICROPHONE**, designed to be passed through an artery or vein into any part of the heart, measures 0.05 in. in diameter by 0.75 in. long. The microphone is inserted into the tip of a standard cardiac catheter and connects by cable to an oscilloscope. Blood pressure is also measured by a diaphragm in the catheter tip and is displayed simultaneously. (Gulton Industries Inc., Dept. S453)

■ **CONTACT MICRORADIOGRAPHY INSTRUMENT** forms an image by bringing the specimen into close contact with a photographic plate. The photographic x-ray image is in turn magnified and photographed with a light microscope. Useful magnification of 500 is obtainable. Very soft x-radiation is obtained from a tube provided with an extremely thin beryllium radiation window and operating at 5 kv or lower. (Philips Electronics Inc., Dept. S461)

■ **AMPLIFIER** provides either differential or single-ended output. The instrument is entirely transistorized. Direct-current amplification is provided without choppers or carriers. Drift is less than $3 \mu\text{v}$ over a 2-hour period. Frequency response is

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CASE HISTORY 107

CASE HISTORY 108

CASE HISTORY 109

ascorlight M403 Continuous Light Adapter for Photomicrography and Macrophotography

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constant within 1 db from direct current to 20 kcy/sec. Input impedance is 0.5 Mohm. Units measure $3\frac{1}{2}$ by 6 by 12 in. (Video Instruments Co., Inc., Dept. S431)

■ **MICROMICROAMMETER** covers six decades, from 10^{-13} to 10^{-7} amp, on a single scale. Response time is less than 2 sec to 90 percent of currents larger than 10^{-12} amp with 5000 μ mf across the input. Zero drift is within 0.5 decade in 8 hr. Accuracy is ± 0.2 decade. A 216-v tap for polarizing ion chambers is provided, as well as a 6-v output, proportional to input, for driving recorders. (Keithley Instruments, Inc., Dept. S460)

■ **COIL TURN COUNTER** measures the number of turns on coils wound on nonmagnetic forms. Models are available for ranges up to 0 to 61,000 turns. Accuracy is said to be better than ± 0.1 percent. The instrument reads directly in number of turns. (Sunshine Scientific Instrument Co., Dept. S508)

■ **BIOLOGICAL STAINS** and related products are described in a 52-page catalog supplement. Stains in crystalline and in solution form are listed, as well as histological and histochemical reagents. (Hartman-Leddon Co., Dept. S486)

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Model LR

The Model LR features a new design refrigeration system which employs forced air circulation through side and bottom cooling areas to provide a continuous laminar flow of cool air streams onto all portions of the rotor. Chamber temperatures may be set as low as -15°C and automatically maintained within $\pm 1^{\circ}\text{C}$. Rotor compartment temperatures are easily maintained at 0°C and lower, even during runs at maximum speed for extended periods.

Instrumentation includes a continuous reading electric tachometer, two hour timer, automatic temperature controller, variable speed controller, ammeter for rotor acceleration control and various operating safety controls.

A full 1 Hp. Universal motor provides direct power to any rotor employed, without the use of cumbersome high speed attachments, pulleys or gears. All rotors are interchangeably used in both refrigerated and non-refrigerated Lourdes' centrifuges without the use of special adapters.

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FOUR INTERCHANGEABLE ROTORS

ROTOR	CAPACITY (Max.)	RPM. (Max.)	RCF x G (Max.)
11" Angle	1,500cc (6x250cc)	11,000	20,000
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NOTE: Adapters available for smaller tubes.

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Rated the most potent known nicotinamide antagonist¹ 6-aminonicotinamide is once again in adequate supply through our laboratories. Its activity undoubtedly stems from its ability to form the corresponding analogue of DPN in the intact animal.²

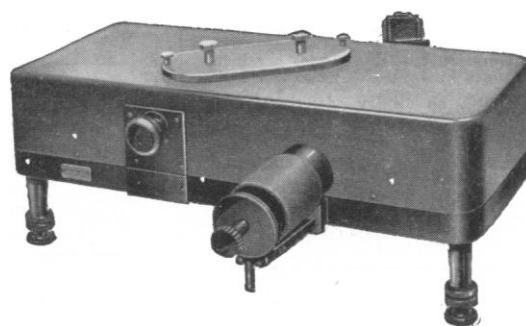
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1. W. J. Johnson and J. D. McColl, Science 122: 834, 1955
2. W. J. Johnson and J. D. McColl, Fed. Proc. 15: 284, 1956
3. D. M. Shapiro and M. M. Kligerman, Proc. No. Am. Radiol. Soc. 1956
4. S. L. Halliday, et al, Fed. Proc. 16: 190, 1957
5. J. D. McColl, W. B. Rice and V. M. Adamkiewicz, Can. J. Biochem. & Physiol., In Press, 1957

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J. Clin. Invest., 32, 1319 (1953)

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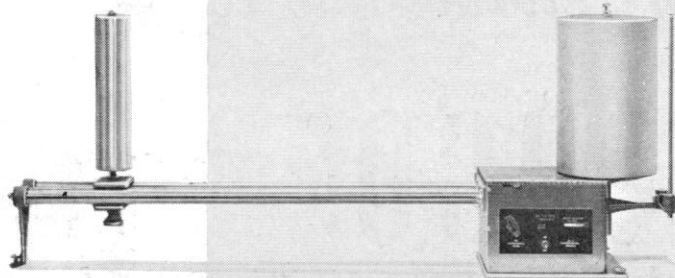
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The characteristics required in research or classroom demonstrations are featured in this kymograph. A combination of five gear shifts and a variable transformer Universal series motor makes available speed ranges of nine thousand to one. The approximate maximum speed is 400 cm. per minute and the minimum .045 per minute. Any speed within this range may be selected.

The drum is made of laminated bakelite tubing and is 64 cm. in circumference, 30.5 cm. high.

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Planetary electrons in the completed shells

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX	XXXI	XXXII	XXXIII	XXXIV	XXXV	XXXVI	XXXVII	XXXVIII	XXXIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L	LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	XL	XLI	XLII
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As revised by William F. Meggers
of the U.S. Bureau of Standards

**LITHOGRAPHED IN
SIX COLORS**

SIZE 42 x 58 INCHES

The principal items portrayed on the chart are as follows:

Atomic Name and Symbol	Isotopes
Atomic Number	Lowest Spectral Term of Normal State
Atomic Diameter	Mass-Energy Equivalent
Atomic Weight	Melting Point
Boiling Point	Nuclear Composition
Configuration of Atom	Paramagnetism
Crystal Lattice	Periods (Rows)
Density	Planets
Diamagnetism	Quantum States of Valence Electrons
Electron Shell Groups	Radioactive Atoms
Electronegativity	Specific Heat
Electropositivity	State (Solid, Liquid, Gas)
Elementary Particles	Valence (Chemical)
End-Atom Cubic Structure	Valence (Electronic)
End-Atom Number Formula	Valence (Ionic)
Expansion	Young's Modulus
Group (Column or Family)	
Ionization Potential	

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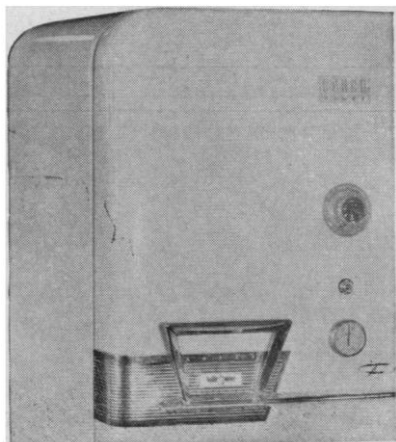
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