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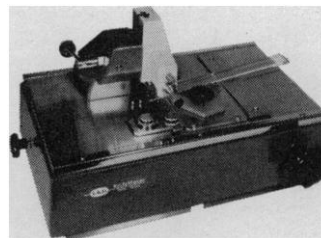
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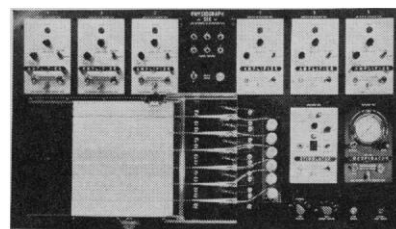
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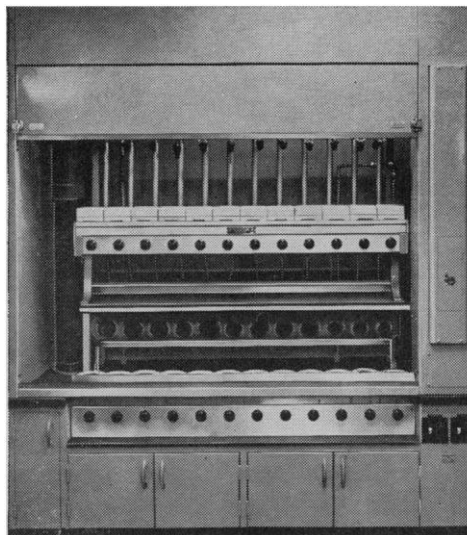
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The material in this section is prepared by the following contributing writers:

Robert L. Bowman (R.L.B.), with the assistance of Denis J. Prager (D.J.P.), Laboratory of Technical Development, National Heart Institute, Bethesda 14, Md. (medical electronics and biomedical laboratory equipment).

Joshua Stern (J.S.), Basic Instrumentation Section, National Bureau of Standards, Washington 25, D.C. (physics, computing, electronics, and nuclear equipment).

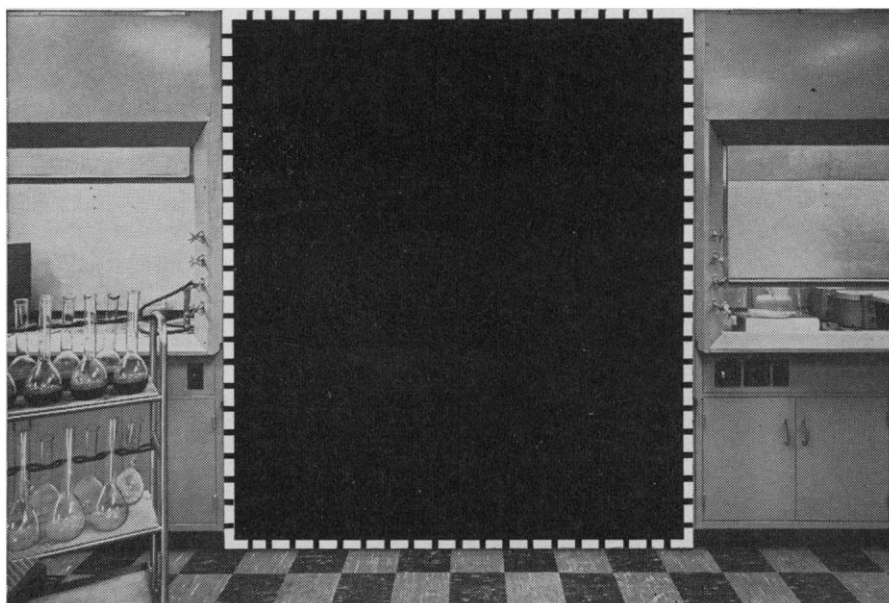
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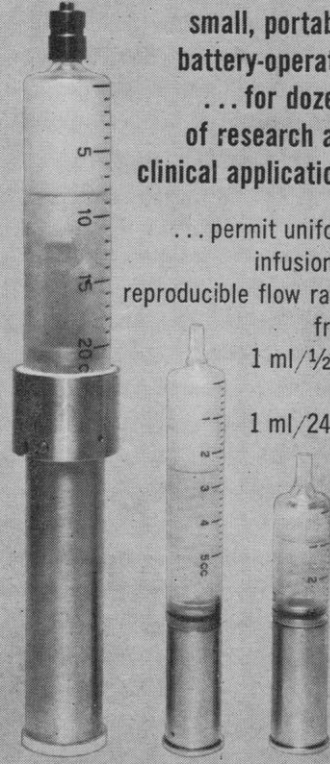
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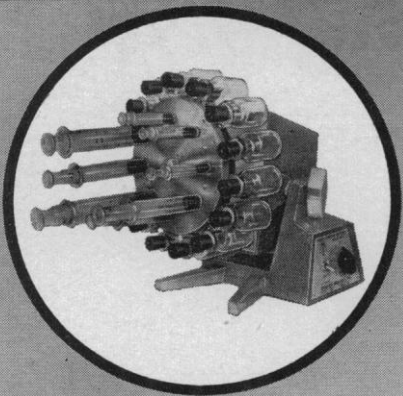
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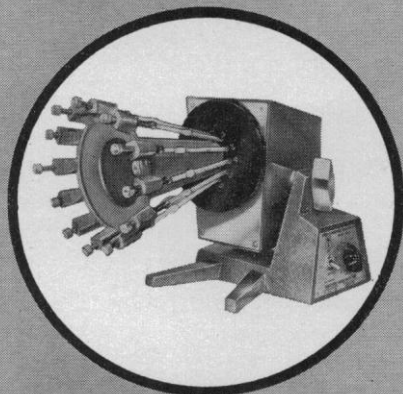
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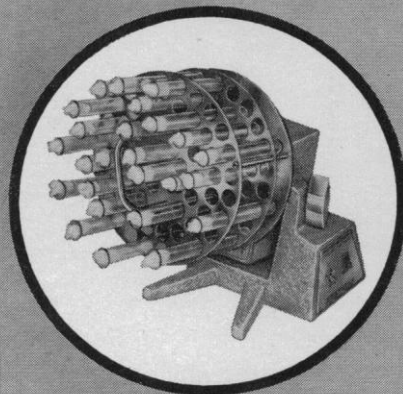
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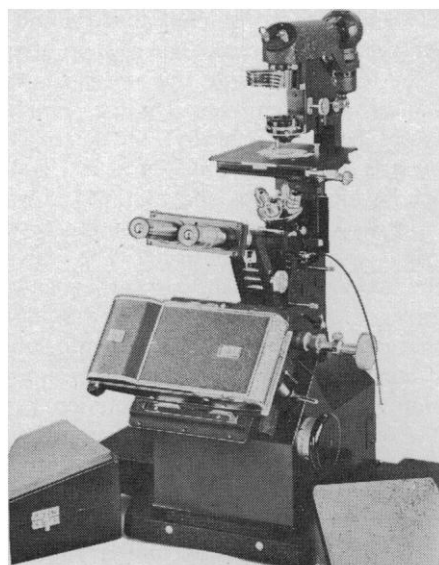
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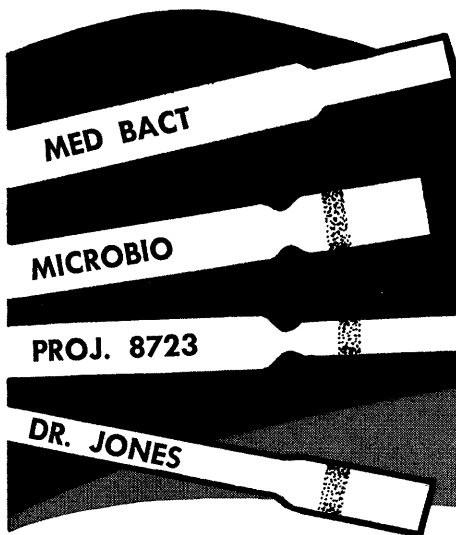


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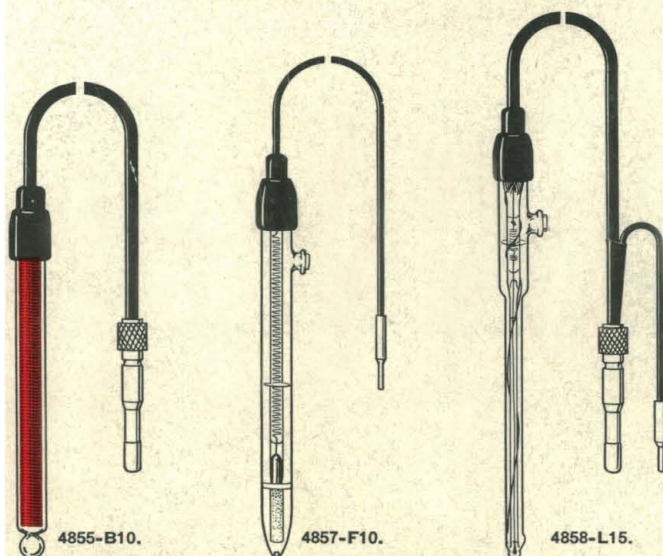
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For **fast** response on pH Meters . . .

Thomas UNIVERSAL pH ELECTRODES



- Low resistance
- Fast response
- Rugged tips

- Combination electrodes for 0.5 ml samples

A series of glass and reference electrodes, 5 inches long \times $\frac{1}{2}$ -inch diameter, for use in standard electrode holders and with connector plugs which fit any pH Meter directly or through available adapters.

The glass electrodes are of low resistance with concomitant fast response but without the usual fragility of bulb. Reference electrodes, both calomel and silver-silver chloride, have clog-resistant, porous ceramic liquid junction plugs; all types, including combination, have removable caps for KCl refill. The combination glass and reference electrodes are much more sturdy than those heretofore available in the U. S. They are easier to manipulate and clean than two separate electrodes and fit into smaller vessels.

Glass Electrodes. Usable with any pH meter calibrated for zero potential at 7 pH, the usual standardization point for all pH-scaled deflection-type meters. The general purpose electrodes are comparable to many "heavy duty" or "rugged tip" electrodes offered to date. Internal shielding prevents electrostatic interference. Ag-AgCl filling is permanently sealed; glass-to-metal seals prevent electrolyte leakage where electrical leads pass into the body of the electrode. Rubber cap relieves strain on lead wire at top of electrode.

Reference Electrodes. Calomel ($\text{Hg-Hg}_2\text{Cl}_2$) and Ag-AgCl (mercury-free) types are provided. Liquid junction with sample is established by sintered ceramic disc sealed in tip. Porous disc is less subject to clogging and erratic flow than fiber-type junctions.

Combination Electrodes. Particularly useful for small sample volumes. Single 6-inch body contains both measuring electrode and calomel reference elements. No. 4858-Q15 is identical with 4858-L15 but is $\frac{1}{2}$ -inch diameter over entire length; No. 4858-L15 has $\frac{1}{4}$ -inch body over 4 inches of stem and fits easily into test tubes or micro cells for measuring samples as small as 0.5 ml.

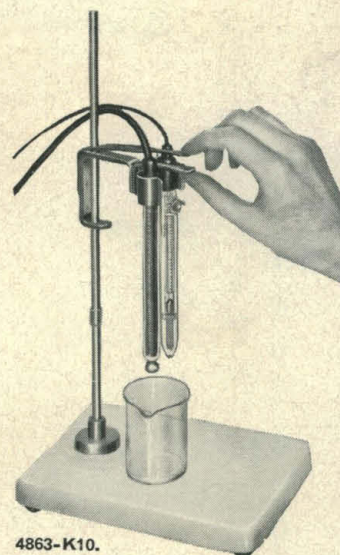
Catalog Number	Type	pH Range	Temp. Range °C	Lead, Inches	Price
GLASS ELECTRODES					
4855-B10	Gen'l Purpose	0-11	0-70	12	17.25
4855-B15	Gen'l Purpose	0-11	0-70	30	17.25
4855-J15	High pH	0-14	0-70	30	18.50
4855-M15	High Temp	0-14	0-100	30	26.75
4855-U15	High Strength	0-11	5-70	30	23.00
REFERENCE ELECTRODES					
4857-F10	Calomel	—	0-70	12	14.00
4857-F15	Calomel	—	0-70	30	14.00
4857-P15	Ag-AgCl	—	0-100	30	15.35
COMBINATION ELECTRODES					
4858-L15	$\frac{1}{4}$ -in. diam.	0-11	0-70	30	29.50
4858-L60	$\frac{1}{4}$ -in. diam.	0-14	0-70	30	38.00
4858-Q15	$\frac{1}{2}$ -in. diam.	0-11	0-70	30	28.00

• New Corrosion Resistant Support

Electrode Support and Holder, Thomas. A corrosion-resistant assembly for use with standard 5 or 6-inch shielded electrodes at a distance from the pH meter to prevent accidental splashing of the meter.

Consisting of spring-loaded, nickel plated Holder and 5 \times 7-inch stable porcelain base with 12 \times $\frac{1}{4}$ -inch stainless steel rod. Holder has spring clips to take standard $\frac{5}{8}$ -inch electrode caps and can be quickly released by one-hand pinch-grips for raising or lowering.

4863-K10. Support and Holder, complete but without electrodes. 14.30



Detailed description sent upon request



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