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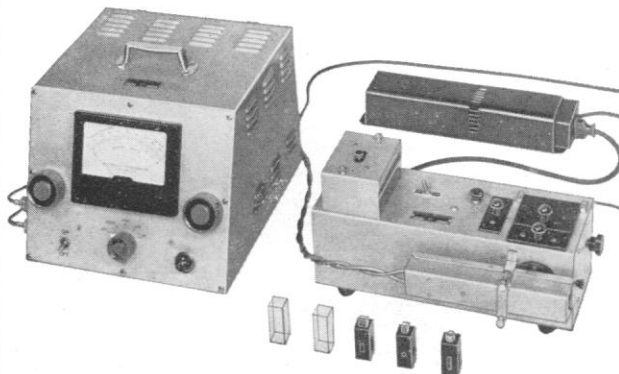
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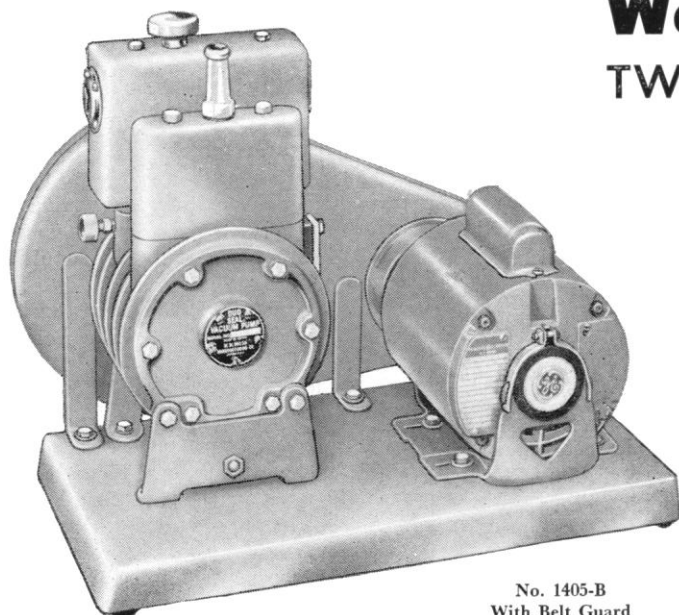
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# Equipment

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. A coupon for use in making inquiries concerning the items listed appears on page 266.

■ **RECORDER** provides 44 or 68 channels of on-off information in two models. Marking is made on electrically sensitive paper. Five chart speeds from 2 to 32 in./hr are available. Actuation is accomplished by contact closure for each channel. (Lindly & Co., Dept. 214)

■ **INFRARED CELL** of effective path length up to 1600 m permits determination of air pollutants at concentrations less than 1 part per million. Ozone, carbon monoxide, or oxides of nitrogen or sulfide may be determined. Two cells are arranged to be used simultaneously, one in the sample beam and one in the reference beam of the manufacturer's model 21 spectrophotometer. (Perkin-Elmer Corp., Dept. 201)

■ **ANNUNCIATOR** for monitoring automatic systems uses static magnetic controls instead of relays. The magnetic elements

are capable of the logic functions: and, not, or, and memory. A circuit can be included which will return the system to its previous state when power has been restored after a power failure. (Panellit, Inc., Dept. 197)

■ **AUXILIARY RECORDER** may be used with the manufacturer's infrared spectrophotometers to provide versatility in recording. Signals are picked up from the spectrophotometer by means of a potentiometer mounted on the instrument's pen-drive shaft. Three modes of operation permit recording of 100-percent transmittance, or any 10-percent transmittance or any 20-percent transmittance at full scale. A fourth mode permits 100-percent transmittance to be compressed for recording on punched cards. The recorder operates simultaneously with the built-in recorder of the instrument. (Baird-Atomic Inc., Dept. 202)

■ **MICROWAVE AMPLIFIER** for 2 to 4 kMcy/sec operation provides 1-w peak pulse power output at 30-db gain or 100 mw continuous-wave with 20-db gain. Connection is available for pulse modulation or automatic-gain-control applications. Gain may be controlled over a 30-db range. (Alfred Electronics, Dept. 187)

■ **PYROMETER** is a dual-range instrument for measurement of surface temperature. A low range, 0° to 500°F, and a high range, 0° to 1500°F, may be selected by a switch. Compensators are corrected automatically for changes in ambient temperature. Accuracy is  $\pm 1.5$  percent. (Pyrometer Instrument Co., Inc., Dept. 205)

■ **VOLTMETER** combines a laboratory-standard meter with a feedback multi-stage high-gain amplifier to provide accuracy of  $\pm 1/4$  percent r.m.s. voltage measurement with 10-megohm input impedance. Voltage range is 0.002 to 500 r.m.s. Frequency response is constant from 50 to 2000 cy/sec. (Trio Laboratories, Inc., Dept. 207)

■ **PULSE-CODE GENERATOR** provides high-speed pulse programs at high impedance and high power output for study of memory components and digital logic. Ten-bit codes are provided at clock rates to 1 Mcy/sec with controllable repeat at selected intervals. Output is variable from 50 ma to 5 amp peak current. (Electro-Pulse, Inc., Dept. 208)

■ **TORQUE TESTER** measures torque in inch pounds and deflection in degrees for all types of torsion springs. A set of arbors and adapters permits a wide variety of sizes to be measured. Springs of wire size up to  $1/8$  in. diameter with torques from  $1/2$  in. oz to 48 in. lb can be checked. (Carlson Co., Dept. 209)



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■ **LOW-TEMPERATURE PROBES** designed for measurement of temperature gradients in liquid oxygen provide output 0 to 5 v for a temperature span of 20°F in the liquid-oxygen range. Probes are also available for use with liquid argon, liquid nitrogen, or other liquids in the range from -240° to -320°F. Semiconductor sensing elements are used. Nominal resistance is 12 kohm, maximum current rating 3.0 ma, and calibration accuracy 0.1°F. (Arnoux Corporation, Dept. 188)

■ **STROBOSCOPIC DEVICE** may be used with a motion-picture camera to take slow-motion pictures of vibration tests with film running at normal speeds. The device combines a stroboscopic illuminator with a pulse-type camera synchronizer so that one exposure is made per frame. For viewing, the film is projected at normal speeds to display the same slow-motion effect as is provided by visual stroboscopic observation. (Chadwick-Helmuth Co., Dept. 212)

■ **COULOMETRIC ANALYZER** is a titration equipment in which a measured quantity of electricity is used to reach the end point of an analytical reaction. Results are read in digital form as micro-equivalents of the sample. Current is held constant within  $\pm 0.05$  percent for line-voltage variation between 107 and 127 v a-c. (Leeds and Northrup Co., Dept. 213)

■ **AMMETER**, for ranges to 100 amp (d-c), provides accuracy of 0.2 percent. Ranges are selected by means of tapered plugs and holes. The instrument movement features diamond pivots and shock-mounted jewels. Scale is hand drawn 6.3 in. long and is mirrored to avoid parallax. Period is 1 sec. (Sensitive Research Instrument Corp., Dept. 216)

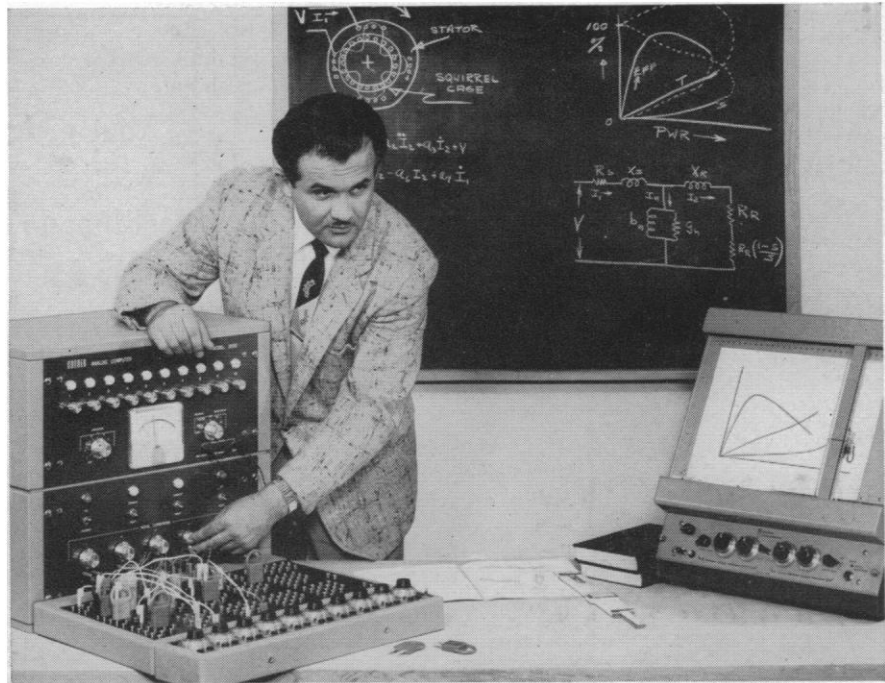
■ **LIQUID DISPENSER** delivers with reproducibility of  $\pm 0.15$  percent with a glass system or 1.0 percent with a rubber system. The device may be set to operate in a continuous repetitive mode, 36 per minute, or for single deliveries. Volume to be delivered is adjustable to 12-ml capacity. (Fisher Scientific Co., Dept. 203)

■ **FLOW VISUALIZATION APPARATUS** uses petroleum fuel to generate smoke that is ejected from a manifold in equally spaced jets to produce a laminar pattern of alternate smoke and clean-air streams between two heavy glass plates. Models representing sections of structures to be studied are placed between the glass plates. The air streams can be adjusted in speed through a wide range. (Design Engineers, Dept. 204)

JOSHUA STERN

National Bureau of Standards

1 AUGUST 1958



Displaying induction motor performance graphically with the Donner Model 3000

*The simultaneous equations describing the mesh currents in the induction motor equivalent circuit are used to create the computer programming schematic shown on the left hand side of the blackboard. The Donner Model 3000 Analog Computer solves the equations with an arbitrary choice of parameters and displays the solution on the oscilloscope or recorder. Shown on the recorder are traces representing torque, slip, and efficiency as a function of the power developed in a squirrel cage induction motor. Effects of parameter variations on motor performance are readily investigated and graphically displayed. The computer is also appropriate for study of transient recovery and poly-phase motor or transformer fundamentals.*

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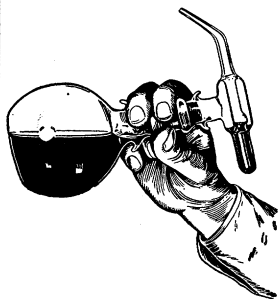
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Dept. 508

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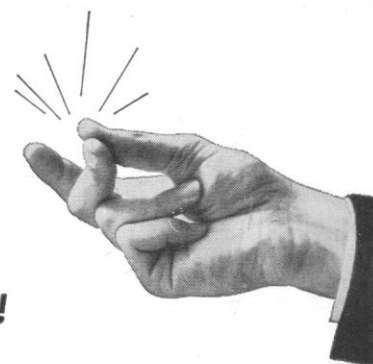
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tor, 900 North Michigan Avenue, Chicago. X

Botanist. M.A. Bryology, taxonomy, ecology,  
Sigma Xi wants research position Washington,  
D.C. Box 184, SCIENCE. X

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181, SCIENCE. X

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Chemist; M.S. or equivalent for supervisory  
position in pharmaceutical control; New England  
city 250,000. (d) Bacteriologist; degree; super-  
vise well-staffed section, 300-bed Texas hospital;  
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hospital chemistry; by four pathologists operat-  
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# GET YOUR ADVANCE COPY

## of the General Program-Directory of the AAAS Washington Meeting by first class mail – early in December

The General Program-Directory of the 125th Meeting of the AAAS in Washington, D.C., Dec. 26–31, 1958, will be available to anyone, at cost, within the first week in December—whether he can attend the Meeting or not. You will want the General Program-Directory for your reference shelf.

### Program content

1. The two-session general symposium, "Moving Frontiers of Science III: The Structure of Science and Scientific Organizations Abroad," arranged by the Committee on AAAS Meetings.
2. The six sessions of the Conference on Scientific Communication Problems.
3. Programs of the 18 AAAS sections (symposia and contributed papers).
4. Programs of the more than 90 participating societies.
5. The Special Sessions: AAAS, Academy Conference, Conference on Scientific Manpower, National Geographic Society, Phi Beta Kappa, Sigma Xi, RESA.
6. Details of the Sheraton-Park Hotel—center of the Meeting—and of the other hotels and session sites.
7. Titles of the latest foreign and domestic scientific films to be shown in the AAAS Science Theatre.
8. Exhibitors in the 1958 Annual Exposition of Science and Industry and descriptions of their exhibits.

### Directory content

1. AAAS officers, staff, committees for 1958.
2. Complete roll of AAAS presidents and their fields.
3. The 279 affiliated organizations.
4. Historical sketch and organization of the Association; the Constitution and Bylaws.
5. Publications of the Association.
6. AAAS Awards—including all past winners.
7. Membership figures by sections.
8. Section committees (Council members) in detail.
9. Local committees.
10. Future Meetings of the AAAS through 1962.
11. New and current activities of the AAAS.

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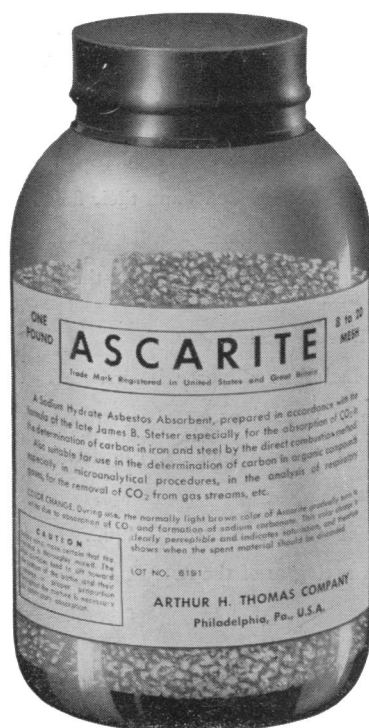
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NOTE—For bibliography on the use of Ascarite, see page 399 of our catalog.

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