

BIRD

SPIN-VAC

**ROTATING EVAPORATOR
NEGATIVE PRESSURE TYPE**

Conventional procedures for the concentration of heat sensitive compounds, biological extracts and solvents of low volatility are outmoded by the BIRD "SPIN-VAC".

By employing the principle of wetting the entire inner surface of the evaporating flask, a much larger evaporating surface is obtained. This feature, plus the applying of a negative pressure, greatly speeds evaporation.

A nickel plated brass shield with inner glass sleeve is rotated at approximately 75 rpm by means of a continuous duty series motor chain drive assembly. The speed can be varied by using an auxiliary speed control, such as a rheostat or variable transformer. The motor is iso-

lated from the evaporating unit by means of the chain-drive assembly thus minimizing the problem of heat transfer. Supplied complete with F adapter, glass connecting tube, support rod, clamp and one 1000 F 24/40 round bottom glass flask. Where lower speeds are desirable, variable speed control for operation on 115 volts is available.

Cat. No. 32-916

PHIPPS & BIRD, INC.

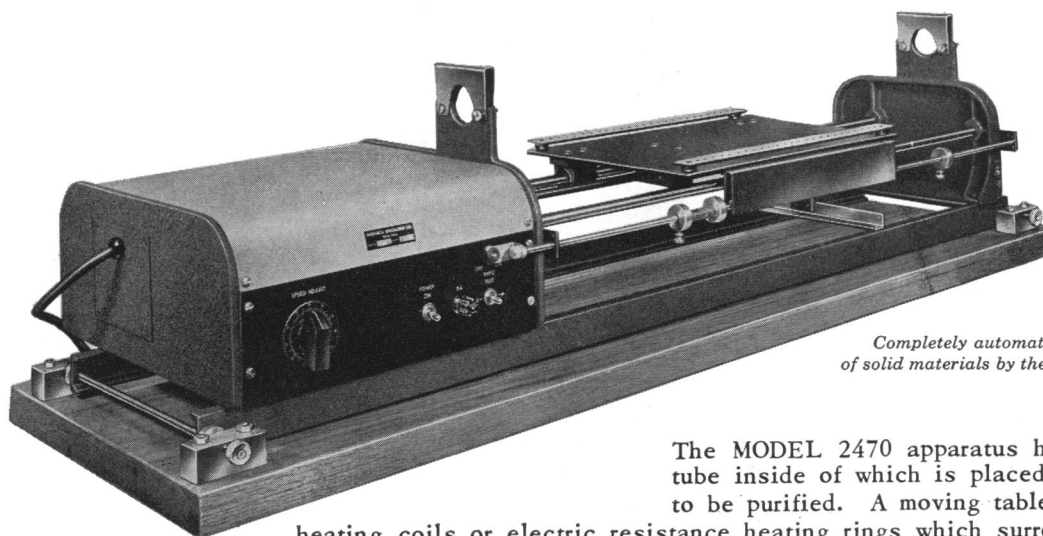
Manufacturers & Distributors of Scientific Equipment



6th & Byrd Streets - Richmond, Va.

The new RSCo MODEL 2470

ZONE MELTING APPARATUS



*Completely automatic equipment for purification
of solid materials by the zone melting technique*

The MODEL 2470 apparatus holds a glass or quartz tube inside of which is placed the charge of material to be purified. A moving table holds either induction heating coils or electric resistance heating rings which surround the tube. A synchronous motor and variable speed reducer drive the table at a constant rate variable from 0.36 to 9 inches per hour. Adjustable stops limit the table travel and actuate a rapid return mechanism. Multiple-pass zone melting is thus completely automatic.

FOR FURTHER INFORMATION
SEND FOR BULLETIN 2470-A
OR CONTACT YOUR
AUTHORIZED RSCo DEALER



RESEARCH SPECIALTIES CO.

2005 HOPKINS ST.

BERKELEY 7, CALIF.

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 1406.

■ **WATER DEMINERALIZER** is portable and requires no electrical outlet for monitoring water purity. Flow of up to 60 gal/hr is delivered. A built-in water-purity indicator operates on a mercury battery. The unit is 9 in. in diameter and 23 in. high. (Comroe Laboratories, Dept. 104)

■ **DIRECT-READING ATTACHMENT** is interchangeable with the 20 in. camera of the manufacturer's 3-meter research spectrograph to permit rapid, direct read-out analysis on routine applications without interference with research use of the spectrograph. The attachment provides for simultaneous analysis of up to eight constituents, performing the analysis in less than 2 min. Resetting of the spectrograph to eight elements can be accomplished in less than 1 hour. Changes in alignment resulting from environmental changes are automatically compensated. (Baird-Atomic Inc., Dept. 84)

■ **BIOLOGICAL INACTIVATOR** forms a smoothly flowing film of liquid by centrifugal force and continuously irradiates the flowing film with ultraviolet light. The apparatus is designed for vaccine production, but use for research in other fields such as food sterilization is suggested. (Spinco Division, Beckman Instruments Inc., Dept. 97)

■ **MICRO VAPOR-PRESSURE APPARATUS** is based on the method devised by A. Y. Mottlau. The apparatus provides two identical vapor-pressure bulbs with mercury-sealed injection orifices. To perform a measurement, a bulb is evacuated, its pressure is measured, and a 1-cm³ sample is injected. Four cubic centimeters of bulb volume remains as vapor space. The sample comes to equilibrium at the 100°F temperature of the water-jacketed bulb in 1 minute. Equilibrium pressure is then measured at a total volume of 5 cm³. Five-fold improvement of accuracy over previously used methods is claimed. (Fisher Scientific Co., Dept. 87)

■ **COBALT-60 IRRADIATION UNIT** provides dose rates of several million roentgens per hour. The unit is self-contained and automatic in operation. No additional room shielding is required. The cavity for items to be irradiated is 6 in. in diameter by 7⁷/₈ in. high. Samples are inserted by a motor-driven mechanism, and exposure is terminated automatically. (Atomic Energy of Canada, Ltd., Dept. 99)

■ **COMPONENT TESTER** is programmed by a hand-punched card which, when inserted into the instrument, determines connections for the particular test to be performed and for values and tolerances. Components which can be tested include inductors, transformers, transistors, and relays. (California Technical Industries, Dept. 102)

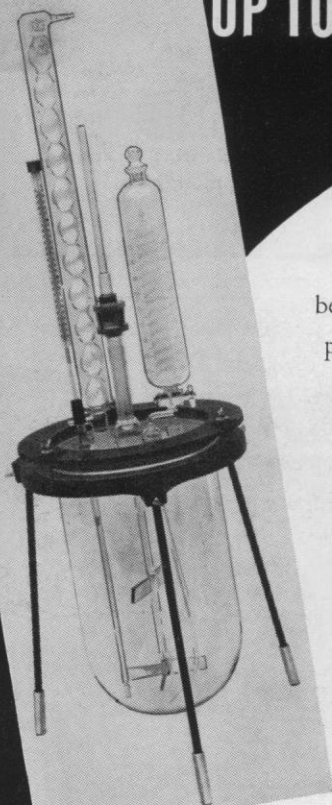
■ **MEGACYCLE COUNTER** resets from any number to zero in less than 1 μsec. The unit is a decade counter using a beam-switching tube. Indication is by neon number-electrode tube. All ten outputs are available for print-out. Power requirements are 300 v, 30 ma d-c and 6.3 v, 0.9 amp a-c. (Burroughs Electronic Tube Division, Dept. 106)

■ **POWER SUPPLIES** furnish from 250 to 1000 va at frequencies ranging from 330 to 3700 cy/sec. Units are usable with loads having power factors from 0.7 leading to 0.7 lagging. Full power output is available over the output-voltage range of 90 to 130 v r.m.s. Voltage regulation is ± 2 percent. Frequency stability is better than ± 0.25 percent after 15-min warm-up. (Tel-Instrument Electronic Corp., Dept. 107)

JOSHUA STERN
National Bureau of Standards

SCIENCE, VOL. 127

NOW... RESIN REACTION APPARATUS with Round Bottom Flasks UP TO 33-LITER CAPACITY



Because of a new cover plate design, "SGA" Resin Reaction Apparatus can now be supplied with round bottom flasks in pilot plant sizes. The 3/4-inch thick removable cover plate has five standard taper joints to receive the non-flooding condenser, special "Adjustatherm" thermometer (0–250° C.) with 1/2-inch diameter stem, stuffing box with heavy-duty stirrer, separatory funnel and gas inlet tube. Except for the metal tripod stand and clamping assembly, the entire unit is made of "Pyrex" brand glass. No metallic contamination can occur. The apparatus is easy to assemble and disassemble. Rugged construction.

PJ-124 Resin Reaction Apparatus — complete as illustrated.

Please specify capacity:

| Capacity, ml | 8,500 | 12,000 | 18,000 | 33,000 |
|---|-------------|-----------------|------------------|------------------|
| Size of Flask, I.D. | 7 x 17 1/2" | 8 1/4 x 17 1/2" | 10 1/4 x 17 1/2" | 12 1/4 x 17 1/2" |
| Complete | \$224.48 | \$256.69 | \$287.15 | \$322.27 |
| J-1299-2 Glas-Col Heating Mantle (Aluminum), each | 69.00 | 80.00 | 105.00 | 130.00 |

NOTE: If a thermometer with a range other than that stipulated is required, please specify.

- apparatus
- instruments
- chemicals
- glassware



SCIENTIFIC GLASS
APPARATUS CO., INC.
BLOOMFIELD, NEW JERSEY



Dr. William W. Piper joined the staff of the General Electric Research Laboratory in 1951, after receiving his Ph.D. in Physics from Ohio State University (1950) and his B.S. from Columbia University (1946). His fields of interest include theoretical and experimental studies of electroluminescence, crystal growth, electrical and optical properties of transparent crystals, and atomic field computations.

Research in electroluminescence

**Single crystals led General Electric's
Dr. William W. Piper to new understanding of light sources**

Electroluminescence, the process in which electrical energy is converted directly into light within a phosphor, has been known for many years. Only in the last decade, however, have scientists obtained detailed knowledge of its characteristics. Early studies were carried out with samples consisting of large numbers of microscopic phosphor particles. The complexity of this experimental system made it difficult to interpret the data obtained in terms of a fundamental explanation of electroluminescence.

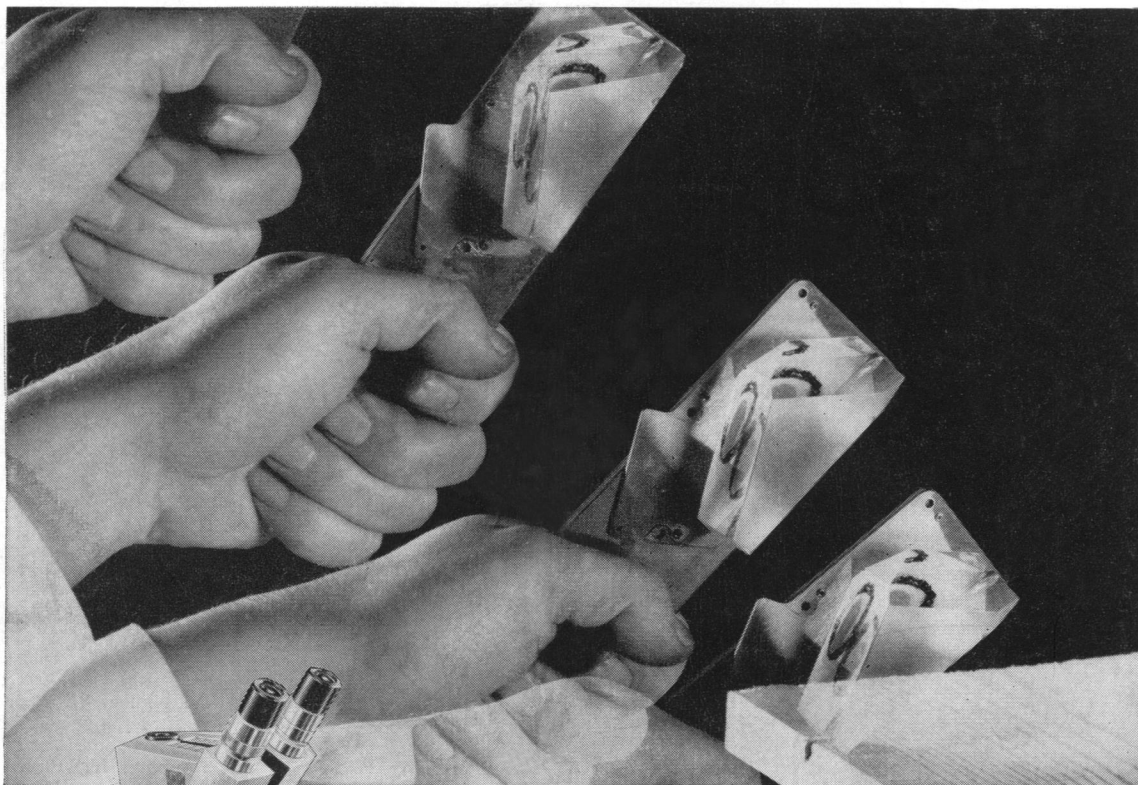
Shortly after Dr. William W. Piper joined the staff of the General Electric Research Laboratory, he learned how to grow single crystals of zinc sulfide

phosphors. His studies of these single crystals soon led to the successful identification of the means by which electroluminescence occurs in this material.

The improved understanding of the basic processes involved is aiding in the development of new light sources, such as electroluminescent ceiling panels and radar plotting boards, contributing both to a higher level of living and the national defense.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



Multi-exposure shot showing "PERMANENT" mounted prism being crashed into a piece of wood. Bond was not affected in any way. Your AO Sales Representative will perform this demonstration right before your eyes.

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AMERICAN-MADE AO SPENCER CYCLOPTIC
STEREOSCOPIC MICROSCOPES START
AT A LOW \$189.00*...

This stroboscopic photograph shows the amazing holding power of the specially developed "PERMANENT" bonding agent used to mount prisms in the new AO Spencer Cycloptic Stereoscopic Microscopes.

This method of prism mounting means you can put your Cycloptic to extreme use...attachment to a vibrating production machine, rough and tumble field trips, even years of student handling...and still be assured of positive, per-

manent prism alignment.

This careful attention to detail is typical of the thoroughness that marked every step of the development of this instrument. Enthusiastic users tell us we have achieved our goal of top quality at a low, low cost.

The entire AO Spencer Stereoscopic story is yours for the asking. Mail coupon below for handsome 36 page brochure which gives complete specifications.

*Model 56F-1, in quantities of 5 or more



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INSTRUMENT DIVISION, BUFFALO 15, NEW YORK

Dept. F-2

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