

**Water or Oil Bath
Heating — Circulation
Temperature Control
in ONE compact unit**

BRONWILL®
Constant Temperature
CIRCULATOR
(Pat. Pending)

- **CONVERTS** any suitable container into a constant temperature bath.
- **WILL CIRCULATE** tempered fluid with controlled flow.
- **NEW** long-life, quiet motor — 4500 RPM.
- **CONTACT THERMOMETER.** Magnetic setting 0 - 100° C.
- **TEMPERATURE** sensitivity $\pm 0.01^\circ \text{C}$ in insulated bath.

A COMPLETE PORTABLE UNIT ONLY
20" HIGH FOR HEATING, CIRCULATION AND TEMPERATURE CONTROL

Write Dept. S-77 for full details.



BRONWILL
SCIENTIFIC DIVISION
WILL CORPORATION

131 GOULD ST. ROCHESTER 10, N.Y.
DEALERS: Will Corporation • Harshaw Scientific • Chicago Apparatus • Braun-Knecht-Heiman • Canlab

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).

■ **FORCE TRANSDUCERS** use variable-permeance rectilinear transducers to sense displacements resulting from a force-to-displacement conversion ring. The transducers are said to be less sensitive to temperature changes than are differential transformers or strain gages. The transducer senses either compression or tension without mechanical adjustment. (Crescent Engineering and Research Co., Dept. S422)

■ **CONDUCTIVITY CELL** is designed as a nonclogging tube for measurement of solutions flowing through a liquid system. Electrodes are flush with the bore of the plastic cell. Threaded metal pipe ends permit connection of the cell into the sampling system. A wide range of cell constants, with or without temperature compensation, is available. (Industrial Instruments, Inc., Dept. S255)

■ **SILICONES** and their physiological properties are the subject of a 48-page booklet entitled "Silicones in medicine and surgery." The booklet purports to be the most thorough review of the literature of the subject ever assembled. A variety of aspects of silicones is covered, including dentistry, vial coatings, dermatology, instrument sterilization, and so forth. (Dow Corning Corp., Dept. S416)

■ **ENCLOSED WORK AREAS** are the basis for laboratory design and operation for purity and hazard control. Designed to be universal and flexible, the enclosures have their own air supply and exhaust system with services brought directly through. The enclosures are built up of basic components. A variety of accessories, including remote manipulators, is available. Over-all dimensions of the basic unit are length, 3 ft, height, 2 ft; and depth, 20 or 28 in. (Kewaunee Mfg. Co., Dept. S265)

■ **ELECTRIC INSTRUMENTS** utilize diamond pivots and shock-mounted sapphire jewels to achieve high accuracy with high ruggedness. Instruments incorporating these pivots have accuracies up to ± 0.25 percent and can withstand the shock of a 3-ft drop to a concrete floor. Friction is reduced so that readings are repeated without hand "tapping" in the most sensitive instrument. No significant wear is reported after 5 million full-scale

deflections. Pivots in existing instruments may be replaced with the new diamond pivots. (Sensitive Research Instrument Corp., Dept. S266)

■ **CAPACITANCE BRIDGE** is designed for measurement of capacitance and dissipation factor at a frequency of 1 Mcy/sec. Measurements over the range between 0.1 and 5 Mcy/sec, can be made with reduced accuracy. At 1 Mcy/sec, capacitance accuracy is ± 0.1 percent $\pm 1 \mu\text{f}$; dissipation factor accuracy ± 0.0005 or ± 2 percent of reading, whichever is larger. When dissipation factor is large, corrections must be made in both measurements. (General Radio Co., Dept. S450)

■ **CULTURE TUBE CLOSURES** of stainless steel, available in six sizes, eliminate use of cotton plugs in growing cultures. Evaporation of medium is reduced by approximately 50 percent. Pressure fingers that grip the outside of the tube prevent accidental removal. (Bellco Glass, Inc., Dept. S448)

■ **DELAY LINE** consists of 120 sections of LC m -derived networks and a 1-pole, 120-position rotary switch to vary delay. Fourteen models are available with maximum time delays 1.2 to 1200 μsec . Impedance varies from 75 to 1000 ohm. Cutoff frequency in megacycles is 38.4 divided by the total time delay in microseconds. (Advance Electronics Lab, Inc., Dept. S449)

■ **QUARTZ-CRYSTAL X-RAY GONIOMETER**, manufactured by Hilger and Watts, Ltd., permits orientation of crystal surface and lattice planes to within 30 sec of arc. A crystal-carrying turret and a Geiger-counter-detector mount rotate independently about a common center. Each carries a precisely divided glass circle. Peak reflections from lattice planes are observed on a rate-of-count meter. Either a high-intensity microfocus x-ray source or conventional x-ray diffraction equipment may be used as source of radiation. (Jarrell-Ash Co., Dept. S451)

■ **LABORATORY SAFETY** is the subject of 56-page booklet. In addition to descriptions of equipment designed for safe handling in the laboratory, the booklet contains sections on accident prevention, first aid, fire prevention, and bibliographic references on laboratory safety. (Fisher Scientific, Dept. S446)

■ **ASPIRATOR**, of explosion-proof design, provides pressure from 0 to 35 lb or vacuum from 0 to 25 in.-Hg. Oil, oil vapor, and moisture are removed by traps. The unit is portable, weighing 35 lb. (American Hospital Supply Corp., Dept. S447)

■ **COMBINATION METER AND AMPLIFIER** covers 15 voltage ranges from 100 μ v to 1000 v and ten current ranges from 100 μ ma to 100 ma. The instrument can also be used as a d-c amplifier with up to 80-db gain and high input impedance. Output impedance is less than 2 ohm. Drift after warmup is less than 10 μ v. Accuracy is ± 3 percent on all ranges. (Kin Tel, Dept. S441)

■ **ATOMIC FREQUENCY STANDARD**, called the "Atomichron," features a long-time output stability of $1/10^9$ and provides output frequencies of approximately 5, 10, and 100 Mcy/sec accurate to $3/10^9$. The instrument is based on the resonance frequency. Model 1101 lower-accuracy, and lower-priced, version of the previous model 1001 which is stable to $5/10^{10}$. (National Co., Inc., Dept. S442)

■ **STABLE PLATFORM** provides a central reference from which heading, roll, and pitch angle information may be obtained. The three-gimbal platform weighs approximately 50 lb and occupies 3.75 ft³. The platform is referenced to a magnetic north indicator with provision for free operation during flights in the vicinity of the poles. (Dynamics Corp. of America, Dept. S443)

■ **RADIATION ABSORBERS** in a calibrated set of 30 (25 aluminum and 5 lead) provide a means of establishing absorption curves for the purpose of checking radio-purity of an isotope, or to estimate isotopic composition. Each absorber is calibrated to three significant figures, and its mass per unit area is marked. (Technical Associates, Dept. S444)

■ **"RADIO PILL,"** a plastic capsule $1\frac{1}{8}$ in. long and 0.4 in. diameter, is a frequency-modulated transmitter designed for research in the intestinal tract. The capsule is swallowed and, as it passes through the body, its transistor oscillator transmits a signal that is frequency modulated by pressure. The signals are picked up outside the body and recorded. The position of the pill is traced by fluoroscopy and can be changed by applying magnetic forces from outside the body. Modification for temperature sensing is under development. (Radio Corporation of America, Dept. S437)

■ **ULTRASONIC PROBE** for calibration of ultrasonic equipment has a range of 2 kcy/sec to 2 Mcy/sec. The probe is said to cause only minimum disturbance of the acoustic field being measured. Two models are available, one calibrated at 500 kcy/sec, and the other at five points, 40, 300, 500, 700, and 1000 kcy/sec, to an accuracy of ± 2 db. (Gulton Industries, Dept. S452)

JOSHUA STERN

National Bureau of Standards

12 JULY 1957



for
RESEARCH
in

**NUTRITION
and BLOOD**

The following
SCHWARZ preparations
are of interest:

THYMIDINE . . .

in growth studies, blood building and certain types of anemia.

NUCLEIC ACID AND SODIUM NUCLEATE . . .

in studies of growth and longevity, agranulocytosis and nutritional deficiencies.

MINUCLEIN® . . .

(Brand of Schwarz Tonic Nucleates), containing calcium, copper, iron, magnesium, manganese and phosphorus, as soluble ribonucleates complex, for studies in mineral nutrition.

LYCEDAN® . . .

(Brand of Schwarz Adenosine-5-Phosphoric Acid), as sterile ampoules for parenteral use in investigations.

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for certain nutritional conditions.

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as intermediates in conditions affecting glycolysis.

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These Schwarz fine chemicals satisfy the exacting requirements of products intended for laboratory and biochemical use.

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SL 357

ANTIMETABOLITES AND CANCER

AAAS Symposium Volume

6" x 9", 318 pp., 54 illus.,
clothbound, 1955

Price \$5.75,

AAAS Members' prepaid
price \$5.00

"This volume presents the great variety of techniques and disciplines being brought to bear on the problem of cancer therapy and the vitality of the chemotherapeutic approach to cancer. This is an important book and merits the careful consideration of cancer investigators, biochemists, pharmacologists and general biologists."

Cancer, Jan-Feb 1956.

"All who are concerned with the problems of chemotherapy in malignant disease and those who wish to broaden their knowledge of the challenging subject of anti-metabolites will find a wealth of information in this edition. . . .

"The text is clearly written and readily understandable by those who have a good working knowledge of biology and chemistry and are familiar with terms which are currently used in the medical sciences; it is particularly recommended to the attention of those engaged in research, teaching, and treatment of cancer, and in study of the problems of growth." *American Journal of Public Health*, Feb 1956.

**American Association
for the
Advancement of Science**
1515 Mass. Ave., NW
Washington 5, D.C.

PERSONNEL PLACEMENT

CLASSIFIED: 18¢ per word, minimum charge \$3.60. Use of Box Number counts as 10 additional words.

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Box (give number)
Science
1515 Massachusetts Ave., NW
Washington 5, D.C.

POSITIONS WANTED

Microbiologist, Ph.D.; 4 years' experience including biochemistry and infectious diseases. Publications. Box 214, SCIENCE. X

Physiologist-Pharmacologist, Ph.D., 40; 7 years' teaching experience and 3 years' industrial experience. Publications. Member pertinent societies. Desires a challenging teaching, with independent research, position. Available September. Box 211, SCIENCE. 7/12, 19

Ph.D. (major, plant pathology; minors, botany, chemistry); 5 years' full-time medical school teaching; 9 years as director, bacteriology departments in research and development, chemical company. Medical Bureau, Burneice Larson, Director, 900 North Michigan Avenue, Chicago. X

Steroid Biochemist, Ph.D.; 10 years of supervisory, research, and teaching experience at well-known institution. Box 216, SCIENCE. X

Veterinary Pathologist, Bacteriologist, D.V.M., Ph.D.; teaching-research experience, comparative pathology, infectious diseases; publications. Desires primarily research position. Box 215, SCIENCE. 7/19

POSITIONS OPEN

ADMINISTRATIVE ASSISTANT

An educational institution, central New Jersey area, is in need of a female administrative secretary to act as assistant to head of one of its research divisions. Must be college trained, preferably biological sciences, have some experience in secretarial administration, and possess singular capacity for organizing office routine and working competently without supervision. Also essential are good typing skill and familiarity with basic office procedures.

This position offers considerable responsibility and challenge with commensurate salary. The associates are pleasant and the employee benefits liberal. Any who are interested may write to Personnel Office, Rutgers University, New Brunswick, New Jersey, stating education, experience, age, and other factors which may have further bearing on suitability for this position. X

Bacteriologist, male, to supervise microbiological control laboratory in midwestern university research institute. M.S. or B.S. with experience; approximately \$5000. Box 207, SCIENCE. 7/12

"OUR PREVIOUS AD

created a great deal of interest, for which we are grateful. Additional advertising in your magazine is contemplated."

POSITIONS OPEN

(a) Associate Director in charge of organic research, Ph.D.; key position, pharmaceutical company; attractive contract; university city, Midwest. (b) Chemist with industrial experience; manufacturers of sugar products; Midwest or Cuba. (c) Bacteriologist; preferably Ph.D.; association, group of pathologists; medical school city, East. (d) Ph.D. in Chemotherapy; training in bacteriology, mycology, allied fields desirable; research experience, preferably industrial, advantageous; pharmaceutical company; East. (e) Biochemist or Nutritionist with some experience as science writer; duties include surveying literature for various departments, pharmaceutical company; \$7000-\$10,000; Midwest. (f) Physiologist and Biochemist; faculty positions, university dental school; West. (g) Biochemist, Ph.D.; voluntary general hospital, 650 beds; college town near university city, East; \$10,000. S6-1 Medical Bureau, Burneice Larson, Director, 900 North Michigan, Chicago. X

Bacteriologist, Immunochemist, Ph.D. Effect of metabolites on toxin synthesis and antigenic properties of bacteria. Send complete resumé. Research institute, East. Box 220, SCIENCE. X

Biology. Instructor for temporary appointment beginning September 1957. General biology, zoological background preferred. Youth, enthusiasm, and M.S. required. Large southwestern university. Box 198, SCIENCE. 6/28; 7/5, 12

Director, diagnostic and research tuberculosis laboratory, central Florida, physician or non-physician microbiologist or clinical chemist. Part-time employment will be considered. Write Dr. Albert V. Hardy, Director, Bureau of Laboratories, State Board of Health, P.O. Box 210, Jacksonville, Florida. uc

Instructor in Biochemistry, eastern metropolitan medical college. Ph.D. required. Salary dependent upon qualifications. Available 1 September. Apply Box 217, SCIENCE. 7/19

Physical or Photo Chemist needed by medical research foundation presently engaged in research work in biologics and ultraviolet. Will be trained to assist and aid in supervision of investigational programs. Excellent, unusual opportunity available. Box 219, SCIENCE. 7/19, 26; 8/2

Physician, not over 35, male; single or married. Experience not necessary; salary open. M.D. licensed in Illinois. Will accept M.D. who is eligible to receive license in Illinois. Applicant must have genuine interest in biologics and blood work. Training will be offered. Eventually can become associate director to present executive director. Box 192, SCIENCE. 6/28; 7/5, 12

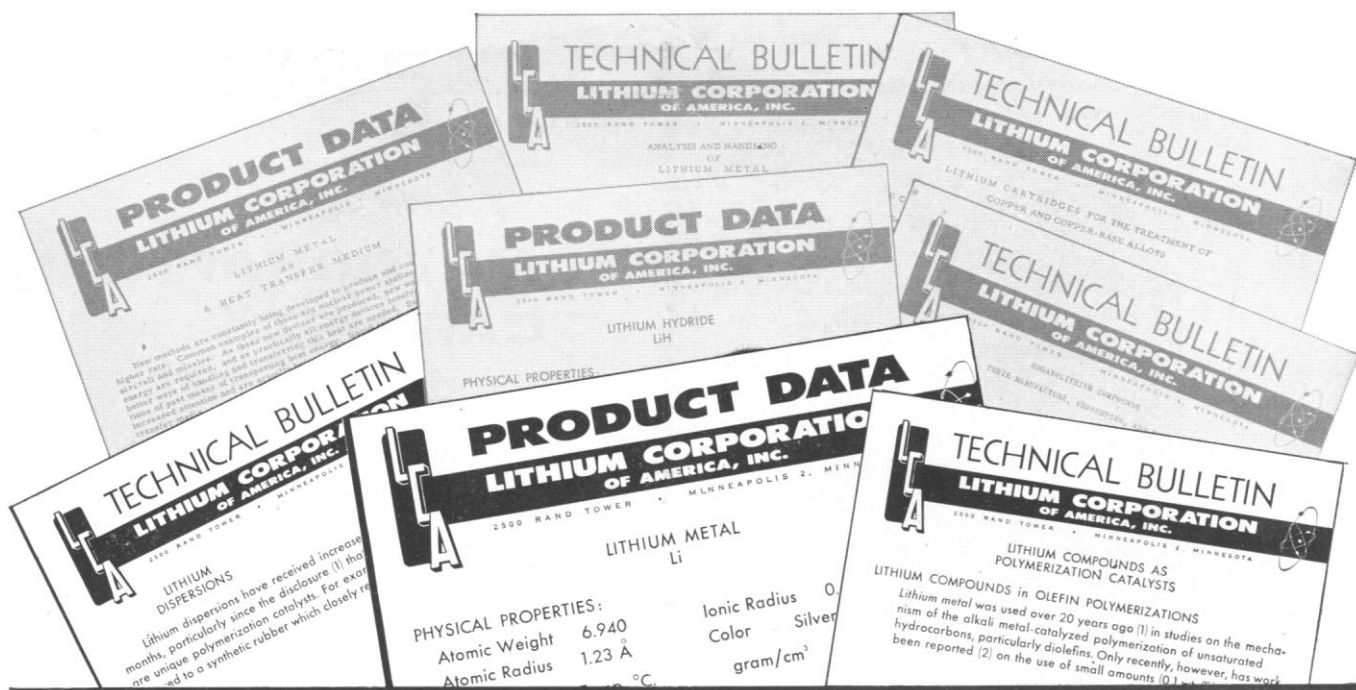
Research Assistant, B.S. or M.S. Conscientious person with good college record in chemistry and/or biology and willingness to learn. Desired for work on the central nervous system employing biochemical and biophysical techniques. Salary level consistent with training and experience. Midwest. Box 161, SCIENCE. 5/31, 6/7, 14, 21, 28, 7/5, 12

Research Biochemist: To join medical team investigating fat emulsions and fat metabolism. Medical school environment; faculty appointment in Department of Biochemistry possible. Post-doctorate fellow or similar qualifications desired. Start approximately \$6000 per year. Box 218, SCIENCE. X

SCIENCE TEACHERS, LIBRARIANS, ADMINISTRATORS urgently needed for September positions in many states and many foreign lands. No fees. Apply direct. Also study awards. Rush \$1 for complete job data, salaries. CRUSADE, SCI, Box 99, Station G, Brooklyn 22, N.Y. EW TF

Supervising Hospital Biochemist for a clinical chemistry laboratory of a large university hospital affiliated with a medical college; also teaching opportunity. Broad experience is required. Salary range, \$7047 to \$7830. Liberal personnel policies. Please address your communication indicating your background and experience to the Administration Office, Cincinnati General Hospital, 3231 Burnet Avenue, Cincinnati 29, Ohio. 6/21, 28; 7/5, 12, 19, 26; 8/2

Zoology-Invertebrate. Visiting professor, retired or sabbatical for spring semester 1958 only. Large university in Southwest. Box 199, SCIENCE. 6/28; 7/5, 12



Still another research tool from Lithium Corporation...

LITHIUM METAL

(LOW SODIUM CONTENT)

The latest from L.C.A.

Following on the heels of the discovery that lithium metal dispersions make unique polymerization catalysts (isoprene polymerized to a synthetic rubber which closely resembles natural rubber) comes recent interest in organolithium compounds as reagents for commercial uses. The preparation of these compounds often requires metallic lithium as the source of the lithium atom. This suggests that a lithium metal of low sodium

content (0.005% maximum) may be advantageous, research-wise, in developing laboratory experiments into possible commercial processes. Atomic energy holds still further possibilities.

This refined grade of lithium metal, as well as the commercial grade, is available in experimental and commercial quantities in the following physical forms: ingot, cup, rod, wire, ribbon, shot and dispersions in suitable media.

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A new, corrosion-resistant, all-purpose cabinet . . .



3673.

Thomas CHROMATOGRAPHY CABINET

Of white Formica both inside and outside
—corrosion-resistant throughout

With built-in leveling devices

Swivel casters and handles to facilitate
rolling under a bench, etc.

THOMAS CHROMATOGRAPHY CABINET, Formica, with vapor-tight, hinged cover, for preparing two-dimensional paper chromatograms by descending or ascending techniques. Formica is practically unaffected by solvents generally used, and its resistance to corrosive properties of mineral acids and their salts is superior to Stainless steel at room temperatures.

The cabinet frame and cover are 1-inch plywood bonded to white Formica inside and outside to provide adequate insulation under normal conditions. Inside dimensions are 25 $\frac{3}{4}$ inches long x 19 $\frac{1}{2}$ inches wide x 27 $\frac{1}{2}$ inches deep, with double-paned glass window in one end, 17 $\frac{1}{4}$ inches high x 11 $\frac{1}{2}$ inches wide. Black phenolic plastic fittings are built in for 4 solvent assemblies which take 8 sheets of suitable paper up to 18 $\frac{1}{4}$ x 22 $\frac{1}{2}$ inches. Swivel casters and two handles permit ready positioning, but in use four adjustable leveling feet carry the weight and fix location. Satisfactory working position, with level solvent troughs, is attained by adjusting feet in conjunction with two liquid levels mounted on cabinet.

The cover, sealed by means of a Neoprene gasket, is attached by means of a nickel-plated brass piano hinge with limit chains at both ends to facilitate handling, and has two trunk latches which insure tight closure. Four openings, $\frac{1}{2}$ -inch diameter, in the cover, fitted with Neoprene stoppers, size No. 00, facilitate replenishment of solvent during a run; a drain pipe in bottom permits flushing as required.

The complement of glassware included with complete cabinets consists of 4 Glass Troughs, 645 mm long x 35 mm wide, with round bottom, capacity approximately 245 ml; 4 Anchor Rods, effective length 590 mm, diameter 8 mm, with bent ends for convenient handling;

8 Anti-Siphon Rods, 650 mm long x 7 mm diameter, with glazed ends; and two Glass Trays, Pyrex brand glass, 18 x 12 x 2 $\frac{1}{2}$ inches inside depth. Complete cabinets also include a plastic rod to prevent tipping of troughs, 24 Paper Clips of Stainless steel, 6 Neoprene Stoppers, size No. 00, 6 ft. Neoprene tubing, $\frac{1}{4}$ -inch bore, to drain cabinet, and Pinchcock, $\frac{3}{4}$ inch size. Height overall, with cover closed, 31 $\frac{1}{4}$ inches.

3673. Chromatography Cabinet, Formica, Thomas, complete with assortment of accessories, as above described, but without paper or siphon for drainage **300.00**

3673-B. Ditto, but without accessories other than one plastic rod to prevent tipping of troughs. **238.75**

JOHN CHROMATOGRAPHIC SPRAY BOTTLE

An ingenious spray tube provides uniformly fine mist or spray, as required for paper chromatography, from a wide variety of liquids with high or low viscosities, different vapor pressures, etc. Sprays paper areas up to 23 inches square conveniently from a distance of approximately 3 ft. when connected with source of air pressure of 3 lbs. per square inch.

Instantaneous control of spray is provided by applying thumb to a $\frac{3}{8}$ -inch vent in rear of the spray tube. Spray tube is of Pyrex brand glass, with permanently attached plastic screw cap size No. 24 which fits commercial narrow mouth, screw neck bottles. Overall height 7 $\frac{1}{2}$ inches; takes rubber tubing $\frac{1}{4}$ -inch bore.



9186-R2. Spray Bottle, Chromatographic (Atomizer), John, (Patent pending), as above described, with spray tube, screw cap and 8 oz. glass bottle, but without air pump or rubber tubing. **8.00**

9186-R2.

Detailed descriptive bulletin sent upon request.



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