file any or all of these

1" MICROSLIDES or
2" MICROSLIDES or
3 1/4 X 4 1/4 LANTERN SLIDES or
COLOR TRANSPARENCIES or
PARAFFIN BLOCKS

in easy-to-file, easy-to-find, space-sparing, safe organization and, above all, economically in a

TECHNICON

Lab-aid laboratory filing cabinet

1 patented "Lab-aid" spring separators let you riffle slides like book pages - the one you're seeking pops right into sight.
2 a stack of "Lab-aid" cabinets needs only 19" x 19" floor space.
3 steel fireproof construction and true-tracking design brings drawers straight out - slides don't crush against frame. Nor can drawers pull out accidently and crash on floor.
4 a single 14 drawer section will accommodate up to 6500 microslides.

Technicon LAB-AID is more than a simple cabinet ... it is an integrated filing system which brings order and efficiency to every laboratory filing need. Write today for detailed information.

The Technicon Company
Chauncey, New York

"Lab-aid" Cabinets are manufactured by our French Corporation
COMPAGNIE TECHNICON • 7 rue Georges Ville • Paris
These test tubes stand the test of time

If you gave diplomas to test tubes that completed four years in your laboratory, you'd be impressed with the stick-to-itivity of those with the PYREX trademark. They last.

One school's study shows that PYREX brand test tubes have double the life of others. They're the most economical you can buy.

They last because they're strong. And they're strong because they're made of selected machine-made PYREX brand tubing of correct and uniform wall weight. This famous glass, PYREX brand No. 7740, is balanced for all-round protection against mechanical and thermal shocks and for high chemical stability.

You can use PYREX test tubes with most reagents and repeated cleanings leave them clear and unaffected. You can get them in 22 sizes, all with reinforced rims.

Your laboratory supply dealer will be glad to fill your order in time for next semester.

CORNING GLASS WORKS
55-10 Crystal Street, Corning, N.Y.

PYREX® laboratory ware
...the tested tool of modern research
C. A. Brinkmann & Co.
America's leading independent importers of scientific equipment from Germany, Great Britain and Switzerland

Brinkmann Instruments, Inc.
Manufacturers of
Micro Manipulators,
Photomicrographic Cameras,
Exposure meters for
Photomicrography,
Scanning Photometers for
Paper Electrophoresis

BRINKMANN
NEW YORK, USA

MAIN OFFICE:
378-380 Gr. Neck Road, Great Neck, L. I.
Phone: GREAT Neck 2-7227

PHILADELPHIA OFFICE:
80 East Golf Rd., Oreland, Pa.
Phone: Turner 7-7425

It is our privilege to act as the EXCLUSIVE U. S. Agents for these outstanding foreign concerns:

SARTORIUS Works, Goettingen, Germany—World's largest manufacturers of analytical, micro, automatic and other balances, freezing, brain, ultra and other microtomes.

HERAEUS, Hanau, Germany—Micro Combustion Furnaces, High Temperature Furnaces, Ovens, etc.

COLLISCHAN, Nürnberg, Germany—Automatic Weighing Machines for rapid industrial weighing.

STOE & CO., Heidelberg, Germany—One and Two-Circle Reflection Goniometers, X-Ray Gonio Heads.

SPINDLER & HOYER, Goettingen, Germany—Viscosimeters, Whiteness & Color Meters, Optical Benches, Lenses, Physical Apparatus.

BENDER & HOBEN, Munich, Germany—Outstanding equipment for paper electrophoresis and chromatography developed by Dr. Grassmann, Fraction Collector, Automatic Scanner, etc.

METROHM LTD., Herisau, Switzerland—Highest accuracy research pH Meters and Controllers, polarographic equipment, Coulometers, conductivity meters and controllers.


W. H. SEIBERT, Wetzlar, Germany—Projection Microscope.

C. A. STEINHEIL SÖHNE, Munich, Germany—Spectrographs, Optics.

BREITHAUPF, Cassel, Germany—Transits, Geological Compasses etc.

We also carry a complete stock of ZEISS and LEITZ optical equipment and maintain extensive service facilities staffed by factory personnel at our Main Office in Great Neck, N. Y.
LEITZ MICROSCOPE HEATING STAGE... FOR TEMPERATURES UP TO 1000° C.

This Leitz unit permits micro-analysis in transmitted or reflected light and achieves temperatures up to 1000° C. It is easily attached to any microscope with a rotating stage.

A reputation for integrity and a tradition of service have led thousands of scientific workers to bring their optical problems to Leitz. If you have problems in this field, why not let us help you with them?

See your Leitz dealer and examine these Leitz instruments soon. Write for information.

E. LEITZ, INC., Dept. SC-10
468 Fourth Avenue, New York 16, N. Y.

Please send me the Leitz_____________brochure.

NAME__________________________________________

STREET_________________________________________

CITY_________________________ZONE____STATE____
In the analysis of  
• Bacterial Contaminants  
• Total Counts  
• Coliforms  
• Soil Organisms

ACCURACY — The MF® has been described as the equivalent of six (6) 5-tube MPN's.*

SENSITIVITY — The isolation and identification of specific pathogens by the MF is often possible when other methods fail.†

RELIABILITY — Reproducible results occur time after time. Standard deviation less than half that of MPN. $\sigma_{MF} < \frac{\sigma_{MPN}}{2}$

LESS COSTLY — The reduction in cost per test permits wider and more frequent monitoring of water supplies for corrective action.

MORE RAPID — Total counts in as little as four (4) hours; confirmed tests in sixteen hours versus three to four days with other methods.

SIMPLE TO USE — Routine analyses require no extensive training in operation or in interpretation of results.

A comprehensive summary of literature in many new techniques and a complete line of accessory equipment are available from the laboratories of the

MILLIPORE FILTER CORPORATION  
Watertown 72, Mass., U. S. A.

RAPID-TEMP, THE NEW ELECTRONIC CLINICAL THERMOMETER
Gives Accurate, Practically-Instantaneous Clinical Temperatures by Oral, Rectal or Axillary Methods!

RAPID-TEMP is a new and revolutionary type of clinical thermometer which has the speed and accuracy of modern-day electronics. This simple instrument utilizes a thermal sensing element and operates on the output of a flashlight battery. Except for the meter there are no moving parts and no electronic tubes to burn out and the battery has a useful life of approximately 1 year.

RAPID-TEMP enables the user to take accurate clinical temperatures by the oral, rectal or axillary methods in a matter of seconds instead of minutes, minimizing discomfort to the patient. RAPID-TEMP's action is, for all practical purposes, instantaneous, since a reliable and accurate temperature is obtained in 5 seconds. It completely eliminates the long waiting period in obtaining body temperatures. Accuracy is plus or minus 0.1° F. over the clinical range. Ruggedly constructed RAPID-TEMP consists of two main components...a THERMA PROBE (which encases the thermal sensing element) and an INDICATOR. Probes are interchangeable and replaceable and can be sterilized in boiling water or cleaned with alcohol. No "shaking-down" is required. The easily and accurately-read INDICATOR UNIT consists of a special 4" scale suppressed indicating meter, selector switch, battery adjustment control and 1.5 w flashlight battery.

APPLICATIONS
HOSPITALS—Huge savings of time in daily routines...and a "must" for continuous observations in the operating room.
DOCTORS—An asset in every busy office. Pediatricians will find it a great help in taking temperatures of infants.
RESEARCH LABORATORIES—Animal temperatures are greatly facilitated by RAPID-TEMP's rapidity. Eliminates the difficulty of holding animals quiet for minutes at a time.
ARMED FORCES AND INSTITUTIONS—A tremendous time-saver for mass physicals and periodic examinations.

The Electronic Rapid-Temp Thermometer is a valuable instrument in measuring the temperature of patients while under operation. A constant indicating temperature can be read either for hyperthermia or hypothermia. The Rapid-Temp Thermometer is being used at present in many hospitals.

Can Also Be Used for Remote or CONTINUOUS OBSERVATIONS! ACCURACY ± 0.1° F. OVER THE CLINICAL RANGE!
MICROPRINT CARDS

New Kodagraph Microprint Reader makes them a pleasure to read

The microprint idea can reduce the largest library to a small set of cards. Sixty conventional pages can go on a 3 x 5-inch card, with an abstract and filing data in ordinary-size type on the other side.

The Kodagraph Microprint Reader lets you read in complete comfort. The screen is green and tilted 11° because that's the combination that seems to be easiest on the eyes. It's bright enough to use in ordinary room light. Several people can read at a time.

You feed microprint cards into a Kodagraph Microprint Reader like paper into a typewriter—any size up to 8½ x 14 inches.

Many publishers offer microprint card editions. Many are also prepared to make microprint cards for you from your own literature and reports.

To get started on a microprint system that can help solve the problems of debulking, speedy dissemination, and storage of literature and private internal data, mail the coupon below.

---

EASTMAN KODAK COMPANY

Business Photo Methods Division, Rochester 4, N. Y.

Please send me the information checked:

☐ Where I can see a Kodagraph Microprint Reader.
☐ Folder on the Reader and sample microprint card.
☐ List of publishers of microprint cards and manufacturers of microprint cards to order.

NAME

ADDRESS

Kodak

---

DELTA CHEMICAL WORKS, INC.

23 West 60th St. New York 23, N. Y.

Telephone Plaza 7-6317

---

rOMICRON

EXPOSURE METER

FOR

PHOTOMICROGRAPHY

- self contained, no external wires
- instantaneous readings
- removal from microscope unnecessary
- adaptable to any standard microscope
- readings are easily taken by moving a lever

Ideal for:

Bellows Cameras
Attachment Cameras
Beamsplitters and
Motion Picture Units

Write for pamphlet S-24

PAUL ROSENTHAL

505 Fifth Avenue
New York 17, N. Y.

Microscopes & Scientific Apparatus
QUALITY, DEPENDABILITY, PERFORMANCE

Backed by 25 years of pioneering and engineering "know-how"

left:
Write for Bulletin SC-106.

left:
SERVALL 55-1 SUPERSPEED ANGLE CENTRIFUGE: 15,500-rpm—31,000 x G—400-ml. "The workhorse of the modern laboratory." Versatile rotor • dynamic-balancing assembly • compact construction. Many features originated and developed by SERVALL now used as trade standards. SERVALL 88-1A, same as 88-1 but with heavy duty water-cooled bearing assembly.

above:
MICROTOME: 1/40 to 1/2 micron. Ultra-thin sectioning for electron microscopy. Mechanical advancement • versatile adjustable knife-holder • tissue thickness control dial • collet-type chuck. Write for Bulletin SC-105.

right:
SERVALL REFRIGERATED ANGLE CENTRIFUGE: 15,500-rpm—31,000 x G—2,000-ml. Direct drive on central spindle—no special, awkward attachments required. Many different heads may be spun in this functionally versatile machine ... and each head may be made more versatile by use of adapters. Temperatures well below 0°C may be established and held. Stainless-steel evaporator • angle principle • self-centering assembly • electronic tachometer • temperature holding control • unitized construction • true hermetic high-capacity refrigeration unit—ALL ORIGINATED BY SERVALL.
Write for Bulletin SC-101R.

below:
SERVALL M, SP & SP/X ANGLE CENTRIFUGES: 5,000-rpm—3,500 x G.
Type M accommodates twenty-seven 15-ml tubes
Type SP will hold six 75-ml tubes (plain)
Type SP/X can spin ten 50-ml tubes and five 15-ml tubes in one operation. Also, other types of angle centrifuges available.

Write for Literature

Ivan Sorvall, Inc.
P. O. BOX 230, NORWALK, CONNECTICUT
There must be a reason why more and more of our leading industrial firms, universities and research laboratories are turning to UNITRON Microscopes. These remarkable instruments have dispelled the myth that unexcelled optical and mechanical performance is inconsistent with low cost. Well known UNITRON users include:

Harvard Univ.  
General Motors  
U.S. Dept. of Agric.  
Cornell Univ.  
Princeton Univ.  
Univ. of Michigan  
C.B.S.-Hytron  
IBM Corp.  
U.S. Army and Navy  
Union Carbide & Carbon  
Brown Univ.  
General Electric Co.  
Northwestern Univ.  
Goodyear Atomic Corp.  
Corn Products Refining  
M.I.T.  
Parke-Davis Co.  
Olin Mathieson

We invite you to try any UNITRON microscope in your own laboratory for 10 days at absolutely no cost or obligation. Let the instrument prove its quality and value to you before you decide to purchase.

The UNITRON Microscope Catalog is yours for the asking!  
This colorful illustrated catalog gives complete specifications on all of the instruments briefly described on this page as well as others which we know you will find of interest.

WRITE for your free copy to Dept. SS

UNITRON PHASE CONTRAST, MPE  
Indispensable for the study of living cells and other highly transparent material. Continuous transition from phase to bright-field microscopy by adjusting condenser height. Choice of 4 contrasts. Mechanical stage. 3 phase objectives: P10X, P40X, P100X. Eyepieces: 5X, 10X, 15X. Only $265  
Student Model MPEA, 20-600X. Only $59

UNITRON POLARIZING, MPS  
Student Model MMA, 25-600X. Only $149

UNITRON METALLURGICAL, MMU  
For metals and opaque specimens, and also transparent specimens under both ordinary and polarized light. Vertical, oblique, and transmitted illumination. Transformer housed in microscope base. Focussable stage. Polarizing apparatus and filters. Objectives: 5X, 10X, 40X, 100X. Eyepieces: 5X, 10X, 15X. Only $287  
Student Model MMA, 25-600X. Only $149

UNITRON ELECTROPHORESIS SET  
Dupilicates the performance of costly apparatus. Mounting brackets adjusted to accommodate your present camera (35 mm, No. 120, No. 127, etc.). Viewing telescope permits all adjustments to be made while camera is in place and allows continuous observation of the specimen even during time exposures. Only $39.95

UNITRON CAMERA MICROSCOPE and METALLOGRAPH  
A completely self-contained unit for visual observation, projection, and photography of both opaque and transparent specimens. Built-in 3¼"x4¼" camera, transformer and illuminator. Options include 5 objectives and 7 eyepieces. Mechanical stage, polarizing apparatus, micrometers, etc. Magnification 25-2000X. Additional accessories available. Only $1,145

UNITRON BINOCULAR MODELS  
Model BMPE: binocular version of Phase model MPE described above. Only $490

NOW ALL 3 PROCESSES IN THE KARLER-MISCO APPARATUS

ELECTROCHROMATOGRAPHY • PAPER CHROMATOGRAPHY • PAPER ELECTROPHORISIS

KARLER-MISCO offers, for the first time, a simple, accurate method of performing a two-dimensional fractionation process on a continuous, automatic basis. This unit, complete with Power Supply, necessary parts and instructional brochure can be adapted to a variety of analysis not possible with other equipment. Sturdy, precision construction is used throughout.

WRITE FOR FOLDER NO. 301 B

REFERENCES—
As shown at: December AAAS Meeting in Berkeley; Federation Meetings in April in San Francisco; University of California on Berkeley Campus; Army Medical Service Graduate School at Walter Reed Army Medical Center in Washington, D.C.

KARLER-MISCO, 1834 University Avenue, Berkeley, California
NIAGARA HIGH PRECISION AIR CONDITIONERS

Complete function air conditioning for the most exacting duty, producing any condition in the range 40°F to 140°F. Provides air at saturation. Provides, also, sub-freezing dew point temperatures when Niagara “No Frost” Liquid is used in the spray chamber.

Accurate Humidity Control Using Hygrol Absorbent Liquid

Low dew points under accurate and automatic control are produced by spraying Hygrol Liquid absorbent in the air stream. Hygrol is a liquid, not a salt solution; its use avoids corrosion and maintenance troubles. Automatic reconcentration provides continuous operation.

NIAGARA “No Frost” METHOD

For refrigeration with control of temperatures and humidity with complete freedom from frost and defrosting interruption and sustained full capacity in temperature ranges 32°F to minus 100°F. Uses Niagara “No Frost” Liquid automatically reconcentrated.

NIAGARA AERO HEAT EXCHANGERS

For the cooling and accurate control of temperatures of liquids and gases, without refrigeration and independent of a supply of cooling water, in the range 160°F down to 85°F at 75°F Wet Bulb Atmospheric Temperature.

Vapor Condenser

Independent of a supply of condensing water. Takes advantage of changes in atmospheric wet bulb temperature to maintain a high vacuum. Successfully applied to distillate and reflux cooling, also, refrigerant condensers.

Aero After Cooler

Independent of cooling water supply. Produces compressed air or gas with lower moisture content than is possible with average surface water cooling.

Write for bulletins describing the uses of these and other Niagara units and for physical and engineering data. Your inquiry is asked on matters involving equipment in the fields of heat transfer and air engineering and for laboratory air conditioning.

NIAGARA BLOWER COMPANY, Dept. SW, 405 Lexington Ave., New York 17, N. Y.
Field Engineers in Principal Cities of United States and Canada
INSTRUMENTS INDUSTRY NEEDS

Hycon engineering skill and design keep pace with ever-changing industry, producing instruments that anticipate need—designed to simplify and speed production. Depend on Hycon for electronic testing equipment.

MODEL 625 DIGITAL RATIOMETER

Measures ratio of two DC voltages where one is derived from the other. Ratio is displayed on a three digit servo-positioned counter. Provides a discreet indication of one part in a thousand. Slewing time is less than 4½ seconds full scale. The response is critically damped. $550.00

MODEL 615 DIGITAL VTVM

Ideal for production-line testing and the laboratory, this new VTVM gives direct readings, without interpolation. Features illuminated digital scale with decimal point and polarity sign ... 12 ranges (AC, DC, ohms) ... response with auxiliary probe to 280 mc ... accuracy: 1% on DC and ohms; 2% on AC. FIELD RUGGEDNESS ... LAB PRECISION $374.50

MODEL 617 3" OSCILLOSCOPE

Designed both for color TV servicing and laboratory requirements. Features high deflection sensitivity (0.1 v/in rms); 4.5 me vertical bandwidth, flat within 1.1 db; internal 5% calibrating voltage. Small, lightweight ... but accurate enough for the most exacting work. SPECIAL FLAT FACE 3" CRT PROVIDES UNDISTORTED TRACE EDGE TO EDGE $269.50

Write for catalog sheets and detailed specifications of any of the instruments shown above—or for complete list of Hycon field testing equipment.

Hycon ELECTRONICS, INC.
321 SOUTH ARROYO PARKWAY
PASADENA, CALIFORNIA
A SUBSIDIARY OF HYCON MFG. COMPANY

SAVE TIME, SAVE MONEY

Specify

PRECISION

All your laboratory needs can be taken care of quickly, at lowest cost when you buy Precision equipment. Over 1500 items are available from Precision to meet your every requirement.

And you can be sure of long, dependable service from Precision equipment because we make the items we sell. Quality control in our factory plus Precision manufacturing efficiency assure you of top performance. Write us for descriptive bulletins.

IMMEDIATE DELIVERY ON THESE ITEMS:

Hi-Speed Centrifuge
Rheostat controlled speeds 1800-5000 rpm suitable for micro and semi-micro analysis, and difficult chemical separations. Holds eight 15 ml straight or tapered tubes. Adapters for ½ to 5 ml tubes. Data sheet 204.

Heaters and Hot Plates

Mag-Mix Stirrers
Magnetically agitate liquids under pressure, in vacuum. Mix viscous liquids. Stir batches of test tubes simultaneously. Rheostat controlled speed ranges. Two electric models, one air model for safe use with flammable liquids. Bulletins 590-R and 595.

Micro-Set Thermo-Regulators
Control temperature within very narrow limits (models as sensitive as 0.005°F). Operate electrical relay which controls heating elements, etc. Temperature setting may be pre-set or changed. Range spans as wide as -35°F to +560°F. Bulletin 647A.

Write us for descriptive bulletins.
CONCLUSION:
"Meets the U.S.P. 14 requirements for distilled water, sterile distilled water and water for injection"

*INDEPENDENT LABORATORY
July 21, 1955

Precision Scientific Company
3737 West Cortland Street
Chicago 47, Illinois

Gentlemen:

REPORT

SUBJECT: Examination of water produced in our laboratories by distilling Chicago city water with your Precision "Streamliner" Laboratory Water Still.

Chemical Examination

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Parts per million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total solids</td>
<td>1.00</td>
</tr>
<tr>
<td>Silica - SiO2</td>
<td>0.066</td>
</tr>
<tr>
<td>Iron and alumina - Fe2O3·Al2O3</td>
<td>Trace</td>
</tr>
<tr>
<td>Calcium - Ca</td>
<td>0.07</td>
</tr>
<tr>
<td>Magnesium - Mg</td>
<td>No weighable trace</td>
</tr>
<tr>
<td>Sodium and Potassium</td>
<td>Less than 0.10</td>
</tr>
<tr>
<td>Sulfate</td>
<td>No weighable trace</td>
</tr>
<tr>
<td>Chloride</td>
<td>Less than 0.10</td>
</tr>
<tr>
<td>Alkalinity as carbonate</td>
<td>Less than 0.10</td>
</tr>
</tbody>
</table>

This water passes the following U.S.P. tests listed under Distilled Water and therefore meets this specification in its entirety:

- Appearance: Ammonia
- Color: Calcium
- Odor: Carbon Dioxide
- Taste: Heavy Metals
- Reaction: Total solids (see also above)
- Chloride: Pyrogen-free
- Sulfate: Conductivity Test: 3.5 Microhos

*NAME SUPPLIED UPON REQUEST

SINGLE DISTILLATION PRODUCES WATER FIT FOR INJECTION

This independent laboratory report on the distillate of a Precision "Streamliner" Water Still clearly shows the results to be expected from the entire line of Precision Water Stills.

PERFORMANCE OVER THE YEARS
Experience over the years has proved that water stills by Precision produce a purer distillate in more volume with less attention at lower cost. In operation, they meet all U.S.P. standards, produce pyrogen-free water and reduce total solids to 1 part per million!

FROM A TRICKLE TO A TORRENT
All Precision models are hard water stills. Your capacity requirements from 100 to ½ (gallons per hour) can be delivered from stock in most models.

A new brochure covering all models of Precision Water Stills, Storage Tanks and Accessories is available.

Why not write for it today?

Precision Scientific Company
3739 West Cortland Street • Chicago 47

21 OCTOBER 1955
Now — New accessories give the International PR-2 Refrigerated Centrifuge these increased speeds and capacities:

- 400 ml. at 10,000 rpm. at 0°C. or lower
- 100 ml. at 19,000 rpm. at 0°C. or lower
- 4000 ml. at 2,300 rpm. at 0°C. or lower
- 1800 ml. at 3,900 rpm. at 0°C. or lower

PLUS — 24 additional interchangeable angle and horizontal style heads and a wide variety of adapters, sealed accessories and carriers. No other cold centrifuge is so versatile.

SEND — for Bulletin P and information on the New High Capacity Attachment, the New 6-Place 250 ml. Angle Head and the New 4-Liter Head. If you already have an International PR-2, these new accessories will fit.

ALSO — the improved Model SR-3 Stationary Refrigerated Centrifuge will now swing 5200 ml. in the horizontal position at 3,000 rpm.

FOR — real versatility in the Refrigerated Centrifuge field — look to INTERNATIONAL.
Welch TRIPLE-BEAM BALANCE
LOW FORM

• Fast, Accurate Operation
• Rugged, Compact Construction
• Large Capacity-1610 Grams
• Sensitivity to 0.1 Gram

4048. TRIPLE-BEAM BALANCE, Low Form.
This modern general-purpose balance is particularly well suited for physics and general science laboratories.
It weighs to 1610 grams with a sensitivity of better than 0.1 gram.

One-piece Beam of Stainless Steel
By skillful design, the beam has been given excellent rigidity and low inertia—primary requirements for a good balance. It is formed of a single piece of stainless steel.
Each scale arm is somewhat higher than the one in front of it, making eye-level readings easier and making the center and rear poises, or sliding weights, more accessible. By etching the numerals and scale divisions directly onto the stainless steel, separate scale plates with their rivets and screws are eliminated. Calibrations on the arms are wide and deep to make incorrect poise settings quite unlikely. The lifting bar on the central poise does not obscure the rear scale and all poises are non-removable. And lastly, the design is such that the beam can be manufactured economically on a quantity basis, thereby providing a better balance at lower cost.

Durable Knife-edges and Bearings
Both pairs of knife-edges are of Cobalite, a special alloy having exceptionally good properties for this application. All four bearings are large, widely spaced, pre-aligned with precision fixtures, and made of agate. They are well covered to prevent contamination by spilled materials or damage by accidental blows.

Serviceable Finish
The useful life of most balances is limited by corrosion. This Welch balance has its pan, beam, and virtually all exposed moving parts constructed of stainless steel to provide maximum resistance to corrosion. The base and other parts are finished in silver-gray Hammerloid, a smooth, acid-resistant finish that resists chipping and cracking, can be wiped clean with a damp cloth, and retains its beautiful luster indefinitely. There are no corners in the base to collect dirt or spilled materials.

All Essential Features Plus Extras
To speed up weighing operations, a beam arrest is provided at the left end of the base. The oscillating beam damps down instantly when the button is pressed. It is spring released.
Zero adjustment is provided by double knurled nuts which lock where set. They are located below the pan where accidental disturbance of their adjustment is unlikely.
A hook is provided on the mechanism under the pan for suspending objects below the base, as in specific-gravity determinations. The entire balance may be supported on a vertical rod, a 13-mm hole being provided for this purpose on the under side of the base casting. This means of support is advantageous not only for specific-gravity work but for eye-level weighing in general, and wherever table surface is limited.

The balance is 5¾ inches high and 15¾ inches long. The pan is 5¾ inches in diameter. Two extra weights to give a capacity of 1610 grams are included.
Each, $21.00
4048C. PLASTIC COVER, For Nos. 4048, 4050.
Each, $0.90

W. M. WELCH SCIENTIFIC COMPANY
DIVISION OF W. M. WELCH MANUFACTURING COMPANY
ESTABLISHED 1880
1515 Sedgwick Street, Dept. E Chicago 10, Illinois, U. S. A.
Manufacturers of Scientific Instruments and Laboratory Apparatus
Complete in 3 volumes

Volume 1, October 1955

Physical Techniques in Biological Research

Edited by GERALD OSTER, Polytechnic Institute of Brooklyn
and ARTHUR W. POLLISTER, Columbia University

These volumes will provide biologists, biochemists, biophysicists, physical chemists, and physicists with up-to-date accounts of the theory and practice of physical techniques employed in biological research. Every specialist in one of these techniques is constantly called upon to help his fellow biologists to decide whether, or how, a particular method can serve a biological use.

In these volumes each author, an expert in his field, has written in such a way that a biologist can see whether he may start to employ the technique, or whether the application to his particular biological problem demands collaboration with a physicist or a physical chemist. The latter, on the other hand, should be able to assess in realistic terms the possibility of fruitful and exciting application of his special training to the baffling problems of biology.

Volume 1  Optical Techniques

An up-to-date treatment of modern optics . . .

October 1955, 564 pp., illus., $13.50

CONTENTS:
Photochemistry and Luminescence
By JEROME L. ROSENBERG
Light Scattering
By GERALD OSTER
Absorption Spectroscopy
By C. F. HISKEY
Ultraviolet Absorption Spectrophotometry
By JESSE F. SCOTT
Infrared Spectrophotometry
By CARL CLARK
The Light Microscope
By L. C. MARTIN
Phase and Interference Microscopy
By H. OSTERBERG
Birefringence and Dichroism
By GERALD OSTER
Electron Microscopy
By V. E. COSSELT
Author Index—Subject Index.

Volume 2  Physical Chemical Techniques—Ready March 1956

Volume 3  Cells and Tissues—Ready April 1956

Descriptive leaflet available upon request

ACADEMIC PRESS Inc., Publishers

125 East 23 Street, New York 10, New York
Only ALCOJET gives you the Big Difference

in lab machine detergents

Yes, we're bragging—and understandably so; because we back our claim with the unconditional guarantee that if ALCOJET is not the finest machine detergent you have ever used, please return the empty box for a full cash refund.

If you use a machine washer to clean laboratory glassware, Porcelain, Metal or Plastic equipment use ALCOJET, the detergent specifically designed to prevent streaking, spotting or film residues.

ALCOJET is made by the manufacturers of ALCONOX, the world's leading hospital and laboratory detergent for hand washing.

Order from your regular Alconox supplier or write direct to Department M for free sample and additional information.

AVAILABLE IN:

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOX 5 LB.</td>
<td>$ 3.00</td>
</tr>
<tr>
<td>CASE (6 x 5 LB.)</td>
<td>15.00</td>
</tr>
<tr>
<td>DRUM 25 LB.</td>
<td>.45 LB.</td>
</tr>
<tr>
<td>DRUM 50 LB.</td>
<td>.42 LB.</td>
</tr>
<tr>
<td>DRUM 100 LB.</td>
<td>.40 LB.</td>
</tr>
<tr>
<td>DRUM 300 LB.</td>
<td>.37 LB.</td>
</tr>
</tbody>
</table>

(Slightly Higher on Pacific Coast)

ALCONOX, Inc.
61-63 CORNELISON AVE., JERSEY CITY 4, N. J.
OFFERS OPTIMUM RESOLVING POWER
AND HIGHEST USEFUL MAGNIFICATION

NEW

Ortho-Illuminator B

Now, at a price within range of every user, the "Ortho-Illuminator B" converts any make or model microscope into an integrated unit with built-in illumination on the Koehler principle. Designed primarily for visual microscopy or use with existing photomicrography equipment, the new unit embodies the same precision, operating principles and performance found in standard Ortho-Illuminator and Orthophot models. It is instantly adaptable to widely different operational requirements—simply and quickly aligned with any microscope—adjusted, removed or repositioned without disturbing alignment. Unequaled versatility for instant command of brightfield, darkfield, phase contrast, polarized or fluorescent light. Constant color temperature is maintained while controlling full range of intensity for illumination of maximum numerical aperture obtainable with standard Abbe, Aplanatic or Achromatic condensers. This assures optimum resolution discernible by the human eye and on photographic film.

Built-in Features
Of the Ortho-Illuminator B

INTENSITY FINGERTIP CONTROL with constant color temperature
FILTERS—Daylight, green, red—plus light balanced at 3200° K color temperature
FIELD-OF-VIEW DIAPHRAGM focussed in plane of the object, adjustable and centerable with conveniently placed controls

Ideal for photomicrography, micro-projection, drawing, measuring or counting, and demonstrations to small groups.

For complete details on the "Ortho-Illuminator B" and accessories, request Bulletin No. 401-L and price list.

Write for descriptive data

Silge & Kuhne
16th & Carolina Streets
San Francisco 19, California

21 OCTOBER 1955
Interchangeable TISSUE GRINDERS
BY KONTES

Are These Features Built Into Your Present Grinders?

- **INTERCHANGEABILITY:** Glass, Teflon* or Kel-F° pestles will fit one tube—maintaining standard clearances.

- **FLEXIBILITY:** Operation by hand or motor. Other than standard clearances are available on special order.

- **DESIGN:** True hemispherical bottom—Pouring lip—Heavy wall construction of precision bore tubing—Made of Pyrex glass.

- **ECONOMY:** Low initial cost. If damage occurs to one part, re-order that part only. Your replacement will fit the original part within standard clearances.


FOR PROMPT SERVICE, RETURN COUPON TODAY

KONTES GLASS COMPANY
Vineland
New Jersey

Please send me literature on your Tissue Grinders
Name
Company
Street
City Zone State

21 OCTOBER 1955
For rapid evaporation of solvents of low volatility
Will speed evaporation rates from four to five times

Adaptable for volumes of 1 ml to 500 ml. Can be used in single or multiple units. It is especially advantageous with solvents such as water, dimethylformamide, etc.; e.g., at 20°C 30 ml of water will be evaporated in 30 minutes. Although especially useful with biological extracts or heat sensitive compounds, as no temperature increases are necessary, the instrument will, of course, operate satisfactorily at higher evaporation rates with increased temperature, where characteristics of sample permit. Consists of stainless steel shaft with a ST 19/38 at the lower end. Shaft rotates on oilite bronze bearings within a stainless steel housing having a ST 12/30 take-off leading to a pump. Although the instrument can be used with a standard aspirator, a standard pump and trap are recommended for superior results. Flasks held with the ST joint at end of shaft are rotated at 56 r.p.m. by means of a special motor. Provided with a ST 19/38 joint to accommodate smaller capacity flasks; e.g., 50 ml. With the addition of No. L80820D “Pyrex” brand adapter, the instrument will handle larger flasks having a ST 24/40 joint. For use on 110-115 volts, 60 cycle, A.C. Complete with motor, cord, ST 19/38 joint, but without No. L80820D, ST 20/40-19/38 adapter. Key to Sketch: (A) Stainless steel shaft with machined ST 19/38 joint at lower end. (B) Collar, with set screw. (C) Oilite bronze bearings. (D) ½-inch I.D. neoprene “O” ring(s). (E) Stainless steel housing equipped with ST 12/30 take-off for pump. (F) Flask.

L39474—Rinco Rotating Vacuum-type Evaporator, each $96.50
L80820D—Adapter—“Pyrex” Brand, for adapting ST 19/38 joint of Rinco Evaporator to larger flasks, each..............$ 1.70

ALOE SCIENTIFIC DIVISION OF A. S. ALOE COMPANY
5655 Kingsbury, St. Louis 12, Mo.

LOS ANGELES SAN FRANCISCO SEATTLE MINNEAPOLIS KANSAS CITY
DALLAS NEW ORLEANS ATLANTA WASHINGTON, D. C.
From analytical research to process stream analysis...

Cary Instruments provide greater versatility, accuracy, reliability

Versatility is accomplished through a wider choice of operating ranges, response speeds, sizes and types of samples, sensitivity, a variety of standard and special accessories and custom adaptations for special problems.

Accuracy is achieved by the use of advanced design principles which insure the maximum performance permitted by the present state of the art... developments which make available sensitivity, stability and reproducibility unattainable with other standard instruments.

Reliability is built into Cary Instruments, for example, by using sapphire and carboloy at points of critical wear... by employing kinematic principles wherever positions or motions must be precise and reproducible... by designing circuits so even large changes in characteristics of vacuum tubes and other components will not affect instrument performance.

For more comprehensive descriptions, including sample curves, of the complete line of Cary Instruments, write for Bulletin S-1.

APPLIED PHYSICS CORPORATION 362 W. Colorado, Pasadena 1, Calif.

INFRARED ANALYZERS
Cary Infrared Analyzers, for continuous analysis of flowing samples, utilize selective detection and a double beam optical system. They are more free from zero drift and have higher inherent discrimination against interfering sample components than other similar types of analyzers. This provides unusual adaptability to difficult analytical problems requiring high sensitivity and accuracy in complex mixtures.

ULTRAVIOLET ANALYZERS
Cary Ultraviolet Analyzers provide a simple, reliable means of continuously analyzing flowing samples for components which absorb UV or visible radiation or which can be converted to a suitable absorbing substance.

RECORDING SPECTROPHOTOMETERS
Cary Spectrophotometers are designed for the rapid recording of spectra with high resolving power and high photometric accuracy. In several years of field experience, these instruments have shown the ruggedness and reliability needed for routine laboratory service... plus the flexibility to handle a variety of problems in the research laboratory.

RAMAN SPECTROPHOTOMETER
The Cary Raman Spectrophotometer uses a unique optical system which offers at least 10 times the light gathering power of previous designs. This and other features provide an instrument that takes full advantage of raman spectroscopy with high speed and accuracy.

ELECTROMETERS
Cary Vibrating Reed Electrometers... for measuring very small currents (as little as 10^-17 amperes), charges and voltages... provide high sensitivity and accuracy with good stability and reliability. Several models are available for a variety of applications... carbon 14 determination, mass spectrometry, pH determinations and many similar applications.
Here's the famous Waring Blendor in a new large size designed for pilot or production batches. Its five operating speeds range from 8,000 to 16,000 rpm and are operated with push-button control. This new model has a stainless steel container and the zinc die-cast base, finished in gray and white enamel, is designed for fastening permanently to a working surface.

**Heavy duty motor.** Extra powerful . . . 1 1/2 HP . . . for high efficiency blending.

**Two section cover.** Made with easy-to-use snap-on latches and removable plexi-glass section for sampling and adding.

**Insto-matic speed control.** Quickly change from low to high speeds and reverse without stopping, with 6 push button control.

**Stainless steel container—easy-pour handle.** Made of durable stainless steel in patented clover leaf pattern with easy-pour handle.

**Removable blade assembly.** Easily assembled with hand-tightened nut for quick removal and cleaning.

**Self lubricating.** Never requires greasing or oiling. Sealed-in lubrication gives smooth lifetime operation.

This large capacity Blendor lends itself to almost unlimited applications in laboratory or plant. Order today or write for our Bulletin No. 1241 containing full details.
AN ENTIRELY NEW CONCEPT... the

MICRO-MOVIE EQUIPMENT

FOR NORMAL and TIME-LAPSE PHOTOGRAPHY, 16mm and 35mm FILM

A revolutionary new apparatus for automatically recording cine photomicrographic subjects on either 16mm or 35mm film interchangeably.

The unit can be adjusted to record from 24 frames per second to a single frame per hour... automatically. Also any sequence of frames and times at will.

Film magazines are instantly interchangeable; colored pilot lights act as indicators for the elementary functions of the equipment; observation of specimen simultaneously with exposure. Co-ordinated exposure meter assures proper exposure easily.

A 12-volt, 8-ampere filament lamp and a high-pressure mercury lamp are used for illumination, as desired. The Koehler principle of illumination is applicable.

The famed ZEISS WINKEL STANDARD MICROSCOPE, including bright-field phase-contrast and dark-field accessories, is furnished with this device. The complete outfit has all controls at fingertips. Engineered for functional utility and precision cine photomicrography within a single, easy-to-use, complete instrument.

MADE IN WEST GERMANY

Write for free detailed literature

CARL ZEISS, INC., 485 Fifth Avenue, New York 17, N. Y.

Guaranteed uninterrupted repair service
RESULTS: reproducible - rapid  
automatically recorded  
NEW SPINCO Model R PAPER ELECTROPHORESIS

For the first time, a complete paper electrophoresis system with coordinated features for simple routine analyses in the clinical laboratory. Every step is systematized from precision application of the specimen to final automatic recording of the relative concentrations. Ask for full details.

Spinco division  
BECKMAN INSTRUMENTS, INC.  
BELMONT 5, CALIFORNIA

Equipment and Supplies Stocked by Distributors in Principal Cities throughout U.S. and Canada