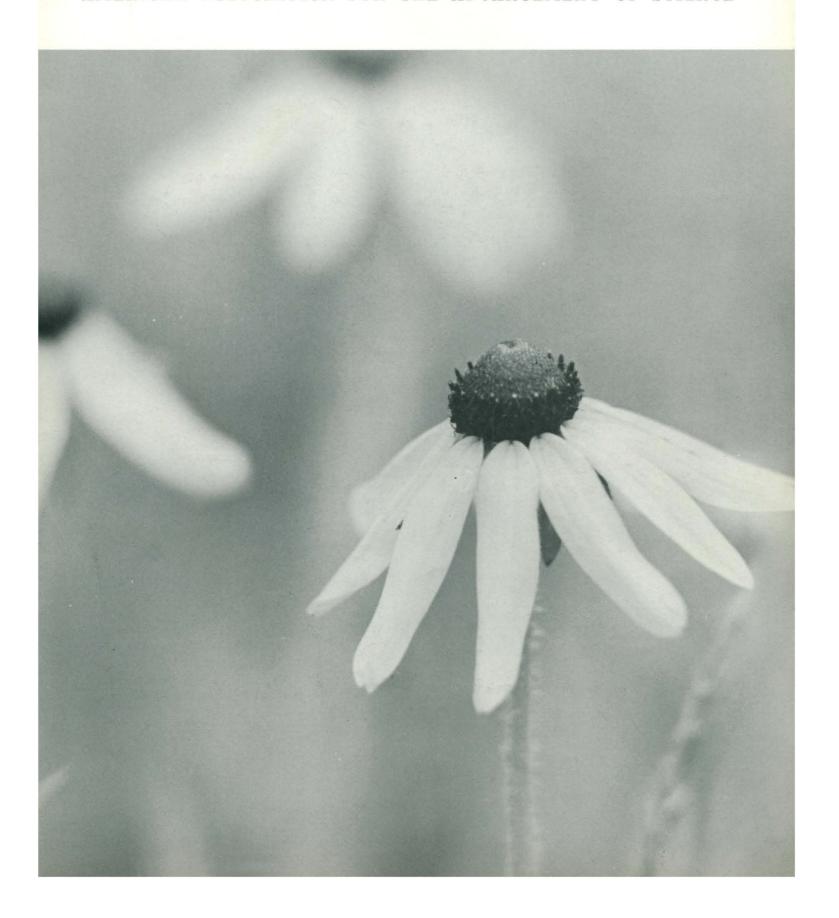
SCIENCE

11 August 1972

Vol. 177, No. 4048

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



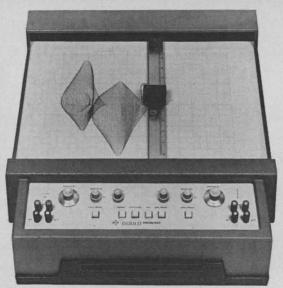
Complete reproducibility in sub-microliter volumes

Would you like to inject samples at 0.1 μ l with high repeatability? You can ... with our new Sub-Microliter Liquid Injector. With this all-metal injector there is no liquid hold-up or dead volume because the carrier gas completely flushes the sample from a capillary needle. Repeatability of delivery is better than 1%. It's as near perfection as a hand-held injector will get for some time to come. \Box If you need to make perfect 0.1 μ l, 0.2 μ l, or 0.5 μ l injections, try our Sub-Microliter Liquid Injector. It's described in our catalog ... let us send you a copy. Write to Hamilton Company, Post Office Box 7500, Reno, Nevada 89502.

HAMILITEN

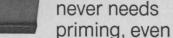
Circle No. 6 on Readers' Service Card

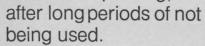
Why we think the Brush 500 is your best choice in an XY recorder.



RELIABILITY. It's guaranteed by our exclusive Metrisite® non-contact servo-loop feedback system. You get 99.85% linearity. But you don't get noise, slide wire troubles, dirty pots, wear and the maintenance problems of potentiometric feedback systems.

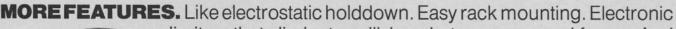
CRISP TRACES. We don't believe in smear tactics. But we must say others don't give you traces as crisp as ours. Reason: we have pressurized inking that forces ink into the paper, instead of simply laying it on the surface. Our pen





SPEED. The 500 does a fast 40 inches a second. Which makes it 50% or 100% faster than most anyone else's. And it

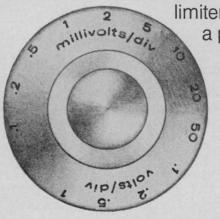
accelerates at 1650 in/sec². It's a mover.



limiters that eliminate collisions between pen and frame. And a price we think will please you.

For information on this excellent XY recorder with builtin preamps with a sensitivity range of $100\mu\text{V/div.}$ to 1.0 V/div., write Gould Inc., Instrument Systems Division, 3631 Perkins Avenue, Cleveland, Ohio 44114. Or Rue Van Boeckel 38, Brussels 1140, Belgium.

Circle No. 12 on Readers' Service Card



11 August 1972

Vol. 177, No. 4048

SCIENCE

LETTERS	Information Services: S. D. Ripley; D. Hersey; E. B. Staats; S. Adams; Federal Statistics: J. Shiskin; Equal Opportunity at NIH: C. M. Berg; Flood Damage: R. D. Acheson; One Part per Million: W. W. Porter II; Statement on Termination of Pregnancy: W. W. Doane et al	473
EDITORIAL	The New Physics Report	479
ARTICLES	Surface Composition Determined by Analysis of Impact Radiation: C. W. White, D. L. Simms, N. H. Tolk	481
	Human Costs of Nuclear Power: L. A. Sagan	487
	The Response of Graduate Enrollment to Placement Opportunities: L. E. Moses	494
NEWS AND COMMENT	FDA General Counsel Hutt: A Man Trying to Serve Two Masters	498
	Russians Reserve Doubts: Is Fort Detrick Really De-tricked?	500
	Methadone: New FDA Guidelines Would Tighten Discrimination	502
	McGovern: Conversion Plans Spell Upheavals for Scientists	504
RESEARCH NEWS	Gravity Waves: Are They Real and What Do They Mean?	506
BOOK REVIEWS	Dynamics of Populations, reviewed by H. S. Horn; The History of British Geology, R. H. Dott, Jr.; Trends in General Systems Theory, R. Rosen; Steroid Protein Interactions, D. R. Idler; Structure and Function of Chloroplasts, H. Lyman; Cytoplasmic Genes and Organelles, N. W. Gillham;	
	Plant Lipid Biochemistry, J. B. Mudd; Books Received	507

-			200			-
-	~11	2.5	6328.2		CTC	
Same?	 and the second of	5.3 (4.40)	March Street	استنادات المالية	Decide Control	and the second

MINA REES Retiring President, Chairman

GLENN T. SEABORG President

LEONARD M. RIESER President-Elect

VICE PRESIDENTS AND

PHYSICS (B) Herbert Friedman Rolf M. Sinclair

CHEMISTRY (C) Martin Paul Leo Schubert

ASTRONOMY (D) George B. Field Arlo U. Landolt

SECTION SECRETARIES

MATHEMATICS (A) John W. Tukey F. A. Ficken PSYCHOLOGY (I) Dale B. Harris William D. Garvey

SOCIAL AND ECONOMIC SCIENCES (K) James S. Coleman Harvey Sapolsky

INDUSTRIAL SCIENCE (P) Jacob E. Goldman Jordan D. Lewis

HISTORY AND PHILOSOPHY OF SCIENCE (L) Everett Mendelsohn Raymond J. Seeger EDUCATION (Q) Lloyd K. Johnson Phillip R. Fordyce

DIVISIONS

ALASKA DIVISION Gordon Harrison 1rma Duncan
President Executive Secretary

PHARMACEUTICAL SCIENCES (Np) Linwood F. Tice John Autian

PACIFIC DIVISION

AGRICULTURE (0) Roy L. Lovvorn Michael A. Farrell

Roy A. Young Robert C. Miller President Secretary

SOUTHWESTERN AND ROCKY MOUNTAIN DIVISION J. Linton Gardner Marlowe G. Anderson
President Executive Secretary

SCIENCE is published weekly, except the last week in December, but with an extra issue on the third Tuesday in November, by the American Association for the Advancement of Science, 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Now combined with The Scientific Monthly®. Second-class postage paid at Washington, D.C. Copyright © 1972 by the American Association for the Advancement of Science. Annual subscription \$20; foreign postage: Americas \$3; overseas \$5; air freight to Europe, North Africa, Near East \$16 single copies \$1 (back issues, \$2) except Guide to Scientific Instruments which is \$4. School year subscription: 9 months, \$15; 10 months, \$16.75. Provide 4 weeks notice for change of address, giving new and old address and zip codes. Send a recent address label. SCIENCE is indexed in the Reader's Guide to Periodical Literature.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

REPORTS	Mercury Vapor Concentrations inside Buildings: R. S. Foote	513
	Atmospheric Sulfur: Its Effect on the Chemical Weathering of New England: N. M. Johnson, R. C. Reynolds, G. E. Likens	514
	World Dynamics: A Note: R. Boyd	516
•	Double Moldavites in Southern Bohemia: V. Bouška and R. Rost	519
	Air Lead: Relation to Lead in Blood of Black School Children Deficient in Glucose-6-Phosphate Dehydrogenase: M. S. McIntire and C. R. Angle	520
	Protein Absorption by the Intestine of the Fetal Rat in Utero: R. Lev and D. Orlic	52 2
•	Rapid Immunological Induction of Murine Lymphomas: Evidence for a Viral Etiology: E. A. Cornelius	524
	Concanavalin A Agglutination of Intestinal Cells from the Human Fetus: M. M. Weiser	525
	Fabry's Disease: Differentiation between Two Forms of α-Galactosidase by Myoinositol: J. C. Crawhall and M. Banfalvi	527
	Flavonols: Pigments Responsible for Ultraviolet Absorption in Nectar Guide of Flower: W. R. Thompson et al	528
	Evolutionary Clock: Nonconstancy of Rate in Different Species: T. H. Jukes and R. Holmquist	530
	Rapid Light-Induced Decrease in Pineal Serotonin N-Acetyltransferase Activity: D. C. Klein and J. L. Weller	532
	Facilitation of Recovery by α-Methyl-p-Tyrosine after Lateral Hypothalamic Damage: S. D. Glick, S. Greenstein, B. Zimmerberg	534
	Technical Comments: Reflection Spectra of Lunar Dust Grains with Amorphous Coatings: B. Hapke; Mercury and Lead in the Greenland Ice Sheet: A Reexamination of the Data: E. M. Dickson; C. C. Patterson et al	5 3 5
MEETINGS	Progress in Luminescence Dosimetry: K. Becker; Forthcoming Events	539

WARD H. GOODENOUGH DANIEL P. MOYNIHAN Treasurer Executive Officer

GEOLOGY AND GEOGRAPHY (E) BIOLOGICAL SCIENCES (FG) ANTHROPOLOGY (H) Frank C. Whitmore Ian Sussex Richard J. Goss Anthony Leeds
William E. Benson Richard J. Goss Anthony Leeds
ENGINEERING (M) MEDICAL SCIENCES (N) DENTISTRY (Nd)
Newman A. Hall Robert W. Berliner Joseph L. Henry
Raynor L. Duncombe F. Douglas Lawrason Sholom Pearlman
INFORMATION AND STATISTICS (U) ATMOSPHERIC AND HYDROSPHERIC
COMMUNICATION (T) W. Duane Evans John A. Knauss
Scott Adams

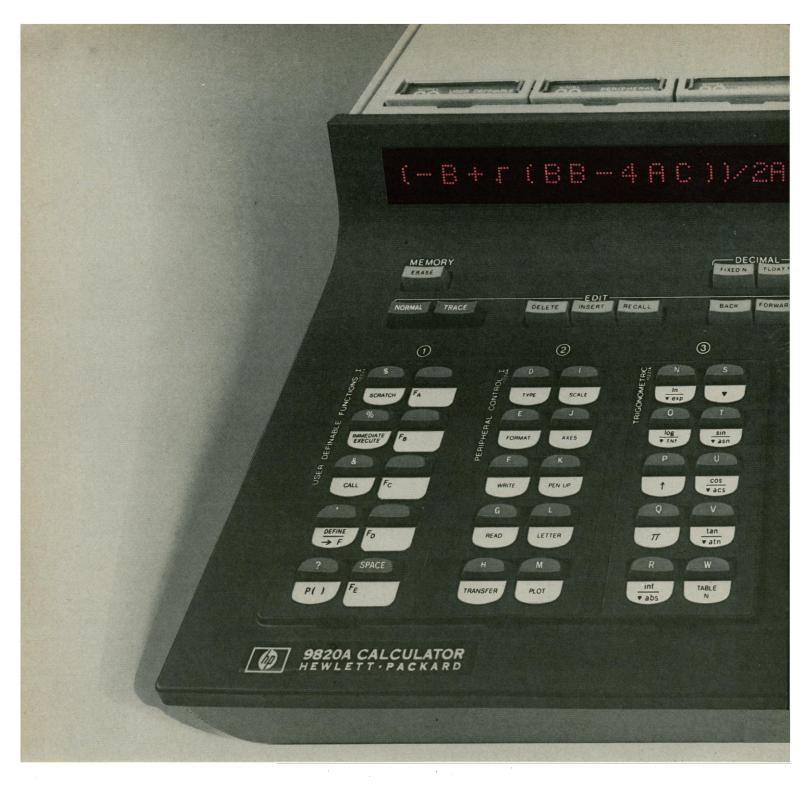
WILIAM T. GOLDEN WILLIAM BEVAN
Executive Officer

Richard N. Adams
Anthropology (H)
Figure 1 Anthropology (H)
Formation Suspensive 1 Anthropology

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

COVER

The black-eyed susan (Rudbeckia hirta), like many flowers, has an ultraviolet pattern. The pattern is visible to pollinating insects, but invisible to humans. The chemical basis of this ultraviolet pattern has now been explained. See page 527. [W. R. Thompson et al., Cornell University, Ithaca, New York]



Our New Model 20 Programmable Calculator. Latest In the Series 9800.

It speaks and understands English. It speaks and understands Algebra. It really understands your problems. It was designed for instant programming right at your desk. The Model 20 will take you from concept to final solution of your problems

faster than any other system on the market.

Incredibly Natural Language.

You'll quickly grasp the operating concepts of the Model 20, because it uses a natural but powerful language that lets you work with algebraic symbols, formulas, and English language instructions. And, if you already know how to program, you'll

appreciate features that once were exclusive to languages like FOR-TRAN or BASIC: Enter and Format statements, function subroutines, and callable subroutines with parameter passing.

Talk out a problem with your Model 20. Key in your problem exactly as you would write it on paper. Press EXECUTE and there's your answer. It's deceptively simple.

With the Model 20 you always know where you stand. Its alphanumeric display and printer give you operating instructions, show your formula as you key it in, and



completely label your input and output data.

Easy To Get Along With.

One of the nicest things about the Model 20 is that it doesn't bite. If you make a mistake, your display not only tells you there's an error—but precisely what and where the error is. Then it's a simple matter to insert, delete, or replace anything from one symbol to an entire line with just a few quick strokes on the editing keys. It adds up to this: You don't have to be an expert to operate the Model 20. Because of its error detecting and correcting techniques,

the Model 20 is the fastest and easiest programmable calculator available.

A Word About Power.

What really counts is not that our calculator will solve up to 36 simultaneous equations, but what you can do with that power. With the Model 20 you'll spend less time getting answers and more time building ideas. Another thing. Our keyboard is modular. So if you don't like our setup, you can build your own.

ate The Model 20 can be plugged for into our hardworking Series 9800 les, Peripherals: X-Y Plotter, Type-Circle No. 25 on Reoders' Service Card for Information writer, and Card Reader, to name a few. An added plus – it interfaces with test instruments. The basic unit, including our built-in alphanumeric display and printer is \$5,475, with immediate delivery.

For more information or a "handson" demonstration, write: Hewlett-Packard, P.O. Box 301, Loveland, Colorado 80537. In Europe: 1217 Meyrin-Geneva, Switzerland.

HEWLETT PACKARD

tter, Type- CALCULATOR PRODUCTS
Information Circle No. 26 on Readers' Service Card for Demonstration

Universal REPIPET

dispenses <u>any</u> reagent from <u>any</u> bottle.

Simple operation. Lift plunger to fill, press to deliver. Accuracy 1%: Reproducibility 0.1%.

Fit any container. Assortment of screw caps (supplied) fits the Universal REPIPET to the bottle you have on hand. Uncommon screw caps or adaptors for glass joints are supplied by L/I at no charge upon request.

Leak-proof coupling. Unique Teflon coupling can't slip or leak, provides secure connection for any length of Teflon tubing.

Cut to fit. Just slice off Tellon tubing to reach the bottom corner of any container for emptying contents completely. Magnifying indicator

L/I REPIPET that will dispense from any screw cap or ground glass joint container commonly found in the lab. Just trim the Teflon® inlet tube to reach the bottom corner of your container. Because only glass and Teflon come in contact with reagent, you can safely dispense any liquid except HF through this odorless and transparent instrument. Concentrated acids, concentrated alkalies, and chlor-

inated hydrocarbons pose no problems for

Now there's a

the REPIPET.
Universal REPIPETS are stocked in 1, 5, 10, 20, and 50 ml sizes. Price \$75, including 5 screw cap adaptors and magnifying indicator. Our old standby REPIPETS (all PYREX® instruments) are stocked in the same sizes

starting at \$55.

Order from Labindustries or your distributor.



The same REPIPET fits all containers.

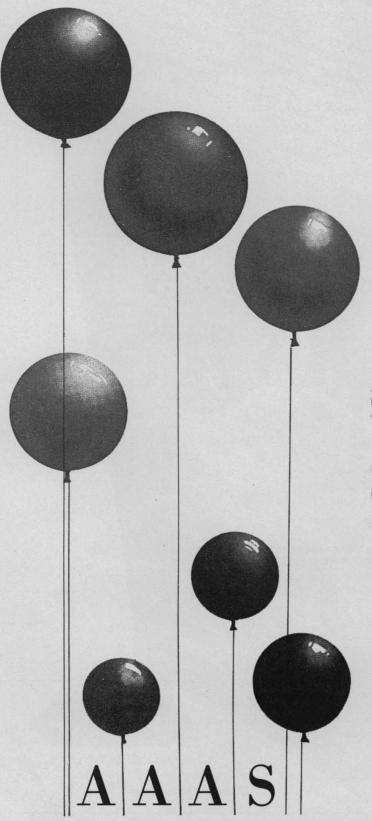
REPIPETS products of KLABINDUSTRIES

1802 M Second Street/Berkeley, California 94710/Phone (415) 843-0220/Cable LABIND

Circle No. 10 on Readers' Service Card



Now Available



The AAAS

Science Book List

for Children

(THIRD EDITION)

A selected and annotated list of science and mathematics books for children in elementary schools, and for children's collections in school, private and public libraries.

Price: \$8.95

Member Price: (when payment accompanies order) \$7.95

(Address your orders to Department H.D.)

Compiled by

Hilary J. Deason

AMERICAN ASSOCIATION for the ADVANCEMENT of SCIENCE 1515 Massachusetts Avenue, N.W. Washington, D.C. 20005

To keep your research projects from turning into remorse projects, insist on the Sorvall RC2-B Automatic Superspeed Refrigerated Centrifuge.

Year after year, the RC2-B has proven itself in performance. A fact to remember, if you want flaw-free separations. And, oddly enough, the RC2-B is newer in various ways than some latecomers. Because we set out to build the best—and then kept on making it even better, in feature after feature. Nearly all Sorvall improvements, particularly new rotors, are designed to fit all appropriate earlier models.

Sorvall's exclusive Gyro-Action Direct Drive gives you unmatched smoothness in acceleration, runs, and deceleration. Speeds? Up to 20,000 rpm and forces to 48,200 x g with a 400 ml rotor—and

without a vacuum pump.

Depend on low-speed reliability as well. Our electronic speed control works at 750 rpm, provides rapid acceleration when you wish, and maintains pre-set speeds despite line voltage fluctuations.

The RC2-B's improved temperature control makes it almost impossible for unstable temperatures to wreck your samples. And you don't have to re-set the temperature control every time you change rotors.

Other advantages worth comparing: Automatic programming. A big, smooth-walled, stainless steel chamber. Compatibility with 8 angle and horizontal rotors, plus our SZ-14 Reorienting Density Gradient Zonal Rotor. No rotating or complex seal assemblies. GK continuous flow inserts in the SZ-14 can process up to 1400 ml per minute (84 liters per hour) and can collect up to 800 ml sediment.

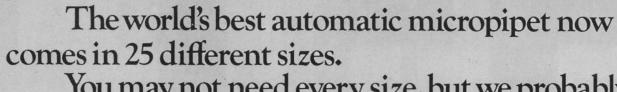
The motor can be removed and reinstalled in 5 minutes. Repairs are

remarkably infrequent—and remarkably easy. Maintenance is almost as simple as replacing a light bulb.

Around the world thousands of units are in continuous use in research projects—far more than any other high-speed centrifuge. So if you prefer unspoiled separations, why not get together all the facts about the RC2-B—Simply write to Ivan Sorvall, Inc., Norwalk, Connecticut 06856.

Circle No. 4 on Readers' Service Card





You may not need every size, but we probably have every size you'll need.

We've just made the Eppendorf Microliter Pipet more useful and more versatile than ever before.

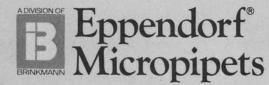
We haven't done it by changing its phenomenal accuracy and precision (99% sample recovery with aqueous solutions; standard deviation under 1% at 10 μ l).

We haven't done it by changing its completely automatic, pushbutton operation, or by changing the convenience of disposable polypropylene tips which keep liquid separate from the pipet mechanism, thereby eliminating cleaning and contamination problems and the potential hazards of mouth pipetting.

We've done it simply by making more Eppendorfs in more sizes. To be exact, 25 different Eppendorf models are now available, dispensing exact liquid quantities in volumes of $5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 120, 150, 200, 250, 300, 400, 500, 600, 700, 750 and 1,000 <math>\mu$ l. No other micropipet system offers such a wide selection of volumes.

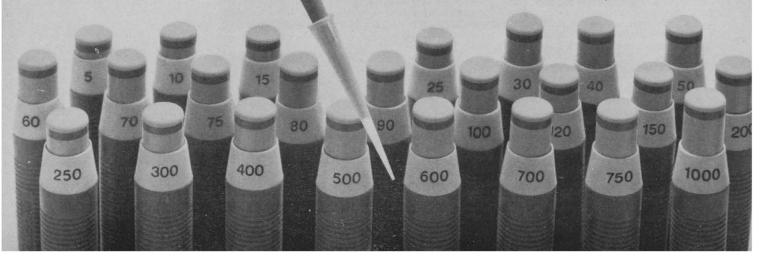
Why so many Eppendorf models? To make pipetting easier. You may not need every size we make, but think of the multiple pipetting you can avoid (and the accompanying likelihood of error) with several Eppendorf pipets on hand in the volumes you require most frequently.

The complete range of Eppendorf models and accessories are fully described in our new brochure. For your free copy, write: Eppendorf Division, Brinkmann Instruments, Cantiague Road, Westbury, N.Y. 11590. In Canada, write: Brinkmann Instruments (Canada) Ltd., 50 Galaxy Boulevard, Rexdale (Toronto), Ontario.



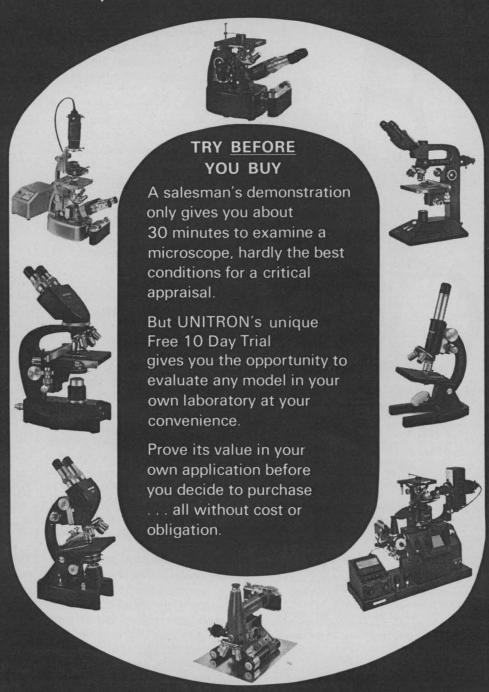
Circle No. 7 on Readers' Service Card

Order from: Ace Scientific/Curtin Scientific/Matheson Scientific
Phipps & Bird/Preiser Scientific/Sargent-Welch
SGA Scientific/Scientific Products/Arthur H. Thomas/VWR Scientific



ACCEPT A FREE 10 DAY TRIAL OF ANY UNITRON MICROSCOPE





ASK FOR YOUR FREE MICROSCOPE CATALOG

Choose from a complete line of budgetpriced microscopes for Research, Industry and Education including metallurgical, biological, stereoscopic, polarizing, measuring, and student models. See for yourself, as have thousands of other buyers, why . . . UNITRON means MORE MICROSCOPE FOR THE MONEY.



MICROSCOPES
A COMPLET BANGE OF MODELS AND ACCESSORES FOR RESEARCH + INDUSTRY + EDUCATION

Please send UNITRON's Microscope Catalog No. U-4

lame

Company_

Address_ City____

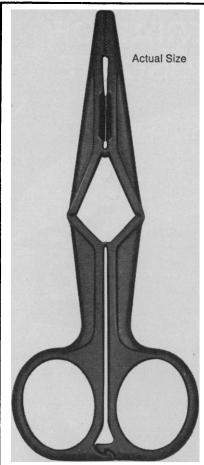
State____

__Zip_

UNITRON INSTRUMENT COMPANY

MICROSCOPE SALES DIV. 66 NEEDHAM STREET NEWTON HIGHLANDS MASSACHUSETTS 02161

Circle No. 9 on Readers' Service Card



NALGENE®FORCEPS. THE GRIPPER. THE GRABBER. THE PINCHER. THE HOLDER.

You get a powerful grip on tiniest, tissue-thin objects . . . a positive clamp on vinyl or rubber tubing. Use with hot or corrosive materials. May be autoclaved or gas-sterilized for re-use, yet low enough in cost to be disposable. This is the unique multi-purpose, all-plastic Nalgene forceps . . . remarkably efficient and inexpensive.

Convenient ratchet on scissors-type handle locks jaws securely. Sturdy, one-piece, double-action "living hinges" have cantilever construction for extra leverage. Serrated jaws equipped with tight-fitting teeth, open to 3/4". Only 43/4" long.

A great little pickup. Carry a pair in your pocket—weighs less than one ounce. Forceps also available pre-sterilized, individually packaged in peel-back pouch, ready for instant use in hospitals and clinics by physicians, veterinarians, nurses. Order from your labware dealer. Cat. No. 6320-0010, 12 per pkg., 72 per case. Cat. No. 6321-0010, Nalgene sterile forceps in individual pouch, 12 pouches per pkg., 72 per case.

FREE SAMPLEI Sterilized forceps in individual peel-back pouch. Write Nalgene Labware Division, Dept. 4220A, Rochester, N. Y. 14602.

NALGENE LABWARE DIVISION



Nalgenet Labware...the permanent replacements

tional origin, or sex will remain outside well into the next century. The very fact that NIH advisory positions are predominantly held by white males puts the lie to Gross's statement that these positions are not plums. Despite poor direct compensation, they pay off in terms of prestige and inside contacts in the Washington establishment; if not, they, like truly low-status, low-paying jobs, would be overrun with women and nonwhites.

Some of us who are interested in equal opportunities for the socially disadvantaged are not concerned about "repairing a building foundation with mucilage." We want to change the foundation so that merit, finally, can become the sole criterion which decides a person's position. To accomplish this change we must overcome current discriminatory practices. I look forward to the day when affirmative action will no longer be needed, when merit can be judged objectively.

CLAIRE M. BERG Biological Sciences Group, University of Connecticut, Storrs 06268

Flood Damage

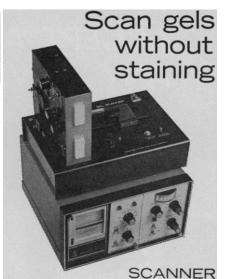
The Wilkes-Barre, Pennsylvania, region was recently inundated by the flood of June 1972. Wilkes College, located in Wilkes-Barre, was especially devastated, damage now conservatively being estimated at \$10 million. One of the major losses was the library building and its complete undergraduate and graduate holdings in biological sciences, chemistry, mathematics, and physics.

We are making every effort to rebuild our library inventory. We appeal to all of our colleagues at sister institutions to contribute whatever they can from their personal or departmental libraries. Any, and all, donations will be highly appreciated.

REED D. ACHESON
Department of Biological Sciences,
Wilkes College,
Wilkes-Barre, Pennsylvania 18703

One Part per Million

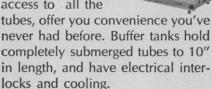
Dale W. Jenkins, director of the ecology program in the Smithsonian's Office of Environmental Sciences, has made an outstanding contribution to environmental communication. Writing on toxic metals (1), he is concerned



The ISCO Gel Scanner gives you a UV absorbance profile of an electrophoresed gel without removing it from the running tube for staining. Gels are polymerized and electrophoresed in a UV-transparent quartz tube, and transported at intervals during and after migration through an ISCO absorbance monitor for scanning at 254 or 280 nm. Sensitivity and resolution is comparable to conventional instruments costing five times as much. The absorbance monitor can also be used for chromatographic columns and centrifuged density gradients.

ELECTROPHORESIS APPARATUS

The linear alignment of gel tubes, and a bottom tank which can be easily lowered for access to all the



ISCO makes additional instruments for electrophoresis, column chromatography, and other biochemical laboratory techniques. Everything is described in our catalog: a copy is waiting for you.



INSTRUMENTATION SPECIALTIES COMPANY

4700 SUPERIOR LINCOLN, NEBRASKA 68504 PHONE (402) 434-0231 TELEX 48-6453 with numerous measurements expressed in parts per million (ppm).

Surmising correctly that all the people who know what the words mean don't quite visualize the magnitude of a part per million, Jenkins makes it unmistakably clear to all: "The world's driest martini: one ppm of vermouth would be the equivalent of one ounce of vermouth in 7,800 gallons of gin."

WILLIAM W. PORTER II 35401 Cheseboro Road, Palmdale, California 93550

Reference

1. D. W. Jenkins, Smithsonian 3, 64 (1972).

Statement on

Termination of Pregnancy

The following statement was signed by 271 professional biologists who attended the annual symposium meeting of the Society for Developmental Biology. The symposium was held at Wesleyan University, Middletown, Connecticut, from 7 to 10 June 1972.

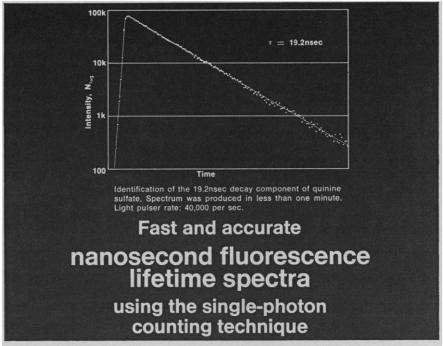
As developmental biologists, one of our major social concerns is to identify and promote those conditions that favor normal development of the human embryo and fetus, and that culminate in the physical health and well-being of the child, mother and family. These conditions include a legal framework within which a woman, in consultation with her physician, can elect to terminate an undesirable pregnancy.

We the undersigned, attending the 31st Symposium Meeting of the Society for Developmental Biology, commend the stand taken by the Federal District Court of Connecticut in the recent case of "Women vs. Connecticut." In that case, Judge J. Edward Lumbard concluded "... that the state's interests are insufficient to take from the woman the decision after conception whether she will bear a child, and that she as the appropriate decision maker, must be free to choose." We feel that this decision is a definitive statement that deserves national attention.

The signatures are available upon request from the Society for Developmental Biology. They include the officers of the society, as well as prominent developmental biologists from colleges, universities, and professional institutions throughout the country.

WINIFRED W. DOANE
ROBERT L. DEHAAN
JAMES A. WESTON, FOTIS KAFOTIS
JUDITH S. WEIS

Society for Developmental Biology, Post Office Box 502, Kalamazoo, Michigan 49005



A digital approach

Single-photon counting, a highly sensitive technique which actually samples individual quanta of light, is generally acknowledged to be the best method of measuring very low light levels. Now Ortec has applied this technique to the field of nanosecond fluorescence spectroscopy. The Ortec Model 9200 Nanosecond Fluorescence Spectrometer uses a short duration optical light pulse to excite the sample and measures the decaying fluorescence intensity as a function of time over several decades.

Our system offers sensitivity and accuracy increased by orders of magnitude compared to existing analytical techniques. This new system is already producing outstanding results in studies of chemical reaction rates, molecular structure, and molecular conformation changes.

Improved data reduction

A multichannel analyzer records each detected fluorescence photon against a time base for immediate CRT display or Teletype printout of the spectrum. Data is manipulated and stored in a digital,

computer-compatible mode. A computer interface can thus be incorporated to facilitate reduction of complex data.

The 9200 system will measure both single and multiple decay components. Multiple components are clearly represented on the spectrum and easily read. (The spectrum above shows the straight line response of a sample having a single lifetime.)

Sensitivity is better than 1 ppb quinine sulfate in sulfuric acid. Linearity is typically better than 1%.

System components

The exact system configuration will depend on the user's particular requirements, but the basic system consists of a nanosecond light pulser, sample chamber including photomultiplier, multichannel analyzer, and associated electronics. The entire system is designed around NIM-standard modules for enhanced flexibility, reliability, and ease of servicing.

Data sheet on request

If you'd like more information on the Ortec Model 9200 Nanosecond Fluorescence Spectrometer, we'd be happy to send you a data sheet that tells all about it. Just write or call Ortec Incorporated, 110 Midland Road, Oak Ridge, Tenn. 37830. Phone: (615) 482-4411.







New Clark-type electrode assembly can be used with Gilson Model KM or Model K Oxygraphs without modification. The Clark-type electrode eliminates the problems which occur when using a bare platinum electrode with high protein concentrations and particle suspensions such as whole blood and bacteria, and permits the use of the polarographic method in nonconductive solutions. The response time is only slightly greater than that of the bare platinum electrode.

- SENSITIVITY
- RESPONSIVENESS
- STABILITY

A recording oscillating oxygen cathode, the OXYGRAPH is a specific application of polarographic analysis. A single polarizable micro platinum cathode is coupled by a saturated KCI salt bridge to a nonpolarizable saturated calomel reference anode. Instead of recording a complete current-potential curve, only the limiting current (that current which is limited by the concentration of oxygen in solution) is recorded at an applied constant polarizing voltage, of about -0.6 volts with respect to the anode, across the indicator polarizable cathode.

- A micro platinum cathode for recording rapid changes of oxygen concentration in solution
- Large 20-cm span along the y-axis for a high degree of accuracy
- ullet Sensitivity from ten- to a thousandfold greater than that of conventional gasometric methods for O_2 determinations
- Rapidity of measurements and ease of continuous recording permit accurate determinations of very rapid reactions involving molecular oxygen in solution

GILSON

Developed in collaboration with Dr. S. Kuby of the Enzyme

Institute, University of Wisconsin, Madison.

EUROPEAN Manufacturing Branch: Gilson Medical Electronics (FRANCE) 69, Rue Gambetta • 95 — Villiers-Le-Bel, France WRITE!

GILSON MEDICAL ELECTRONICS

Middleton, Wisconsin 53562 Telephone 608/836-1551

Model KM



AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in Science—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Editorial Board

1972

ALFRED BROWN
JAMES F. CROW
THOMAS KUHN
ELLIOTT W. MONTROLL

FRANK PRESS
FRANK W. PUTNAM
WALTER O. ROBERTS

1973

H. S. GUTOWSKY ARTHUR D. HASLER RUDOLF KOMPFNER DANIEL E. KOSHLAND, JR. GARDNER LINDZEY
RAYMOND H. THOMPSON
EDWARD O. WILSON

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher WILLIAM BEVAN Business Manager
HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

Assistant Editors: Ellen E. Murphy, John E. Ringle

Assistant to the Editor: NANCY TEIMOURIAN

News and Comment: John Walsh, Deborah Shapley, Robert Gillette, Nicholas Wade, Constance Holden, Barbara J. Culliton, Scherraine Mack

Research News: Allen L. Hammond, William D. Metz, Thomas H. Maugh II

Book Reviews: Sylvia Eberhart, Katherine Livingston, Kathryn Mouton

Cover Editor: GRAYCE FINGER

Editorial Assistants: Margaret Allen, Isabella Bouldin, Blair Burns, Eleanore Butz, Annette Diamante, Mary Dorfman, Judith Givelber, Marlene Glaser, Corrine Harris, Oliver Heatwole, Christine Karlik, Marshall Kathan, Margaret Lloyd, Jean Rockwood, Daniel Rabovsky, Patricia Rowe, Leah Ryan, John Schauer, Lois Schmitt, Ya Li Swigart, Alice Theile

Guide to Scientific Instruments: RICHARD SOMMER

Membership Recruitment: LEONARD WRAY; Subscriptions: BETTE SEEMUND; Addressing: THOMAS BAZAN

Advertising Staff

Director EARL J. SCHERAGO Production Manager Bonnie Semel

Advertising Sales Manager: RICHARD L. CHARLES

Sales: NEW YORK, N.Y. 10036: Herbert L. Burklund, 11 W. 42 St. (212-PE-6-1858); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHICAGO, ILL. 60611: John P. Cahill, Room 2107, 919 N. Michigan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772)

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phones: (Area code 202) Central office: 467-4350; Book Reviews: 467-4367; Business Office: 467-4411; Circulation: 467-4417; Guide to Scientific Instruments: 467-4480; News and Comment: 467-4430; Reprints and Permissions: 467-4440. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page xv, Science, 30 June 1972. ADVERTISING CORRESPONDENCE: Room 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

The New Physics Report*

During the past several years, the National Academy of Sciences has issued reports on the status and needs of various branches of science. A voluminous report on physics has just been released. Some of the best resources that the academy can bring to bear have been mustered in support of these efforts. A substantial fraction of the most competent and distinguished scientists in various fields have labored diligently on committees and panels preparing the materials. Drafts have been reviewed by the prestigious Committee on Science and Public Policy. Typically, in a foreword, the president of the academy has bestowed his blessing.

The reports have shared many features. They have portrayed opportunities (often interestingly and imaginatively), decried the limited level of support for the particular science, predicted diaster if present trends were continued, and offered the wisdom that most problems would be solved if more money were made available.

Since the reports have been so obviously self-serving, it is not surprising that the prodigious efforts devoted to them have come to little, and it is unlikely that the latest edition will fare much better. This is regrettable, because an excellent case could be made for maintaining the vitality of physics. Within its pages, the report contains interesting and persuasive material. Chapters devoted to the "Nature of Physics" and "Physics in Perspective" are particularly worthwhile. The latter chapter provides an especially good survey of the status of various branches of physics. Some of the potential impact of this material is lost in the excessive length and scope of the remainder of the report. Credibility is also strained by occasional unconvincing arguments and statements. The committee seemed unable to be completely objective in its treatment of high energy physics. After more than 20 years and the expenditure of more than a billion dollars, high energy physics has had limited direct impact on other areas of science and, indeed, on the rest of physics. In contrast, low energy nuclear physics and the physics of energies of 100 volts and less has had very great impact. This impact has taken the form of interaction within physics, usefulness to other disciplines, and many technological applications. Examples of recent contributions of enormous value are laser developments and microelectronics.

Experimental technics and equipment developed by physicists have often been applied in other fields. Indeed, new instrumentation is one of the most important factors in the vitality of the natural sciences. Another major kind of contribution has come from the migration of physicists into such fields as astrophysics, geophysics, and biophysics. A substantial fraction of the nation's best geophysicists received their basic training in physics. High energy physicists have been among the migrants, but their training has not equipped them so well to be creative in other fields.

Although the committee report fuzzes over the situation, the reality is that there are two quite disparate kinds of physics and only one is highly relevant. Both types should be supported, but in a crunch, high energy physics should defend itself on its own merits.

The procedure of asking representatives of a discipline to prepare material on their own field has some merit. But the experience of many years and many reports bears out the bromide of not asking the fox to guard the henhouse. Surely the academy can improve on that procedure.—Philip H. Abelson

^{*} A. Bromley, Ed., *Physics in Perspective*, Publ. No. 2037 (National Academy of Sciences, Washington, D.C., 15 August 1972), 1088 pp., \$25.

See all the microscopic world the eye can see through Nikon's L-Ke. And if you want photographs: black and white or color, still or cine, it's still the ideal photomicroscope.

The L-Ke system brings it all into focus for you through an array of incomparable Nikon optics and acces-

sories, interchangeable and securely mounted in seconds.

Koehler illumination provides you with sharp contrast and a clear crisp image throughout a broad magnification range.

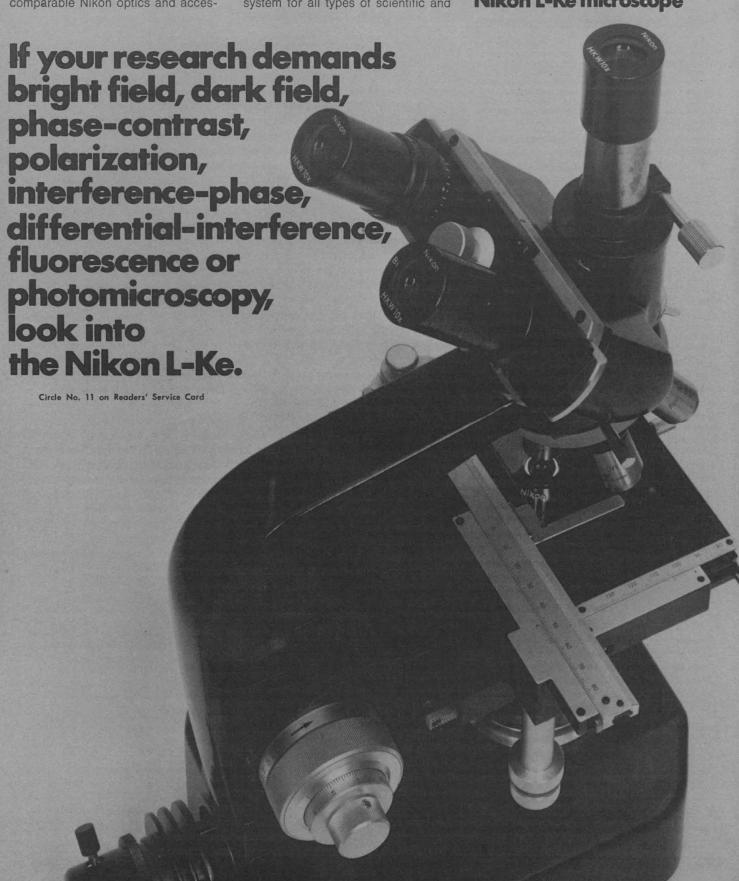
The L-Ke is the ideal microscope system for all types of scientific and

industrial research. Look into it now.

Call or write: Nikon Inc., Instrument Division, Ehrenreich Photo-Optical Industries, Inc., Garden City, N. Y. 11530.

516-248-5200. (In Canada: Anglophoto, Ltd., Ont.)

Nikon L-Ke microscope



BIOLOGY AND RADIOBIOLOGY OF ANUCLEATE SYSTEMS

edited by SILVANO BONOTTO, ROLAND GOU-TIER, RENE KIRCHMANN, and JEAN-RENE MAI-SIN, all at Département de Radiobiologie, Centre d' Etude de l'Energie Nucleaire, Mol, Belgium

Anucleate systems are particularly suitable for the role of nuclear genes in cellular differentiation. More-over, these systems, which can be easily obtained from bacterial, animal or plant cells, enable the investigator to gain more mitochondria freed from the direct con-



trol of the nucleus. This two-volume work treats the main aspects of the biology and ra-diobiology of anucle-ate systems—i.e., mor-phogenesis, molecular biology, biochemistry, genetics, ultrastructure, photosynthesis, circa-dian rhythms, UV, and ionizing radiations ef-

Volume 1/BACTERIA AND ANIMAL CELLS 1972, 242pp., \$7.00 Volume 2/PLANT CELLS 1972, 384pp., \$11.00

INDUSTRIAL ENVIRONMENTAL HEALTH— The Worker and the Community

editor: LESTER V. CRALLEY, Environmental Health Services, Aluminum Co. of America, Pittsburgh, Pa. associate editors: LEWIS J. CRALLEY, GEORGE D. CLAYTON, and JOHN A. JURGIEL

Increasing public concern over environmental forces and hazards has led to awareness of the need for improved working conditions in all phases of industry. This book covers both basic research and field studies dealing with all aspects of environmental health, includng air and water pollution, as related to industry. It centers attention, however, on evaluating the specific health hazards covered by the Occupational Safety and Health Act of 1970.

1972, about 515pp., \$24.00

CHRONICALLY IMPLANTED CARDIOVASCULAR INSTRUMENTATION

edited by ERNEST P. McCUTCHEON, Univ. of Ky.

This book, based on a symposium held at the University of Kentucky, October 18-20, 1971, reports on the most significant recent advances in cardiovascular research in chronically implanted animals. It brings together previously scattered information on new technical statements of the control of the contro niques, as well as improvements in existing techniques. Subjects are discussed from a practical rather than a theoretical standpoint. The book is divided into five main sections—Significance of Chronically Implanted Cardiovascular Instrumentation, Transducer Selections and Properties, Implantation Techniques, Signal Processing, and Future Developments. 3Q1972, In preparation

ENVIRONMENTAL TOXICOLOGY OF PESTICIDES

edited by FUMIO MATSUMURA and G. MALLORY BOUSH, Department of Entomology, Univ. of Wisconsin, Madison, and TOMOMASA MISATO, Inst. of Physical and Chemical Research, Japan

CONTENTS: Introduction: Patterns of Pesticide Usage and Occurrence of Residues. Mercury Transformation in the Environment. Chlorinated Hydrocarbon Insecticides in the Environment. Fungicides, Herbicides, Organophosphates, and Carbamates. Microbial Influence on Pesticide Degradation. Photodecomposition of Pesticides. Toxic Effect of Pesticide Residues on Wildlife. Design of New Pesticides.

1972, 662pp., \$17.50

We've just opened your field of vision.

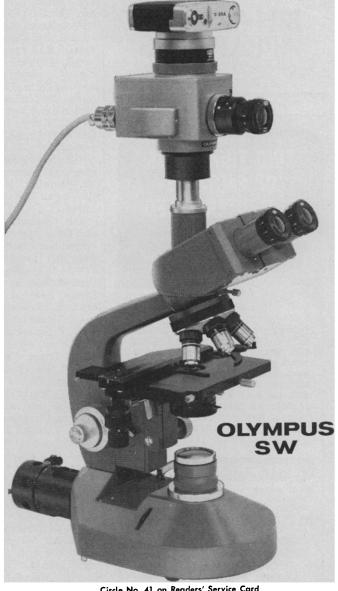
Now you can scan more than twice the area you could with ordinary, wide-field eyepieces. Olympus' new Super Widefield optical system gives you a clear, crisp view of five field diameters from 0.265mm at 1000x (oil) to 6.63mm at 40x. Scanning time is reduced, and with it, eyestrain and lost motion. Now you see 217% more of the flat field for which Olympus is known.

And, as usual with Olympus, you can add this new capability to your present Olympus EH, FH, EHA or FHA. It takes but a few minutes to install the Super Widefield Eyepieces, binocular or trinocular SW observation tube, SW Condenser and SW Plan Achromat objectives (4x, 10x, 20x, 40x and 100x oil-immersion).

After all, modular versatility is one of the features that opened people's eyes to Olympus in the first place. Send for literature. Write: Olympus Corporation of America, Two Nevada Drive, New Hyde Park, New York 11040.

In Canada: W. Carsen Co. Ltd., 31 Scarsdale Road, Don Mills, Ontario.

LYMPUS Super Widefield: it's an eye-opener.



Circle No. 41 on Readers' Service Card



30 DAY MONEY BACK GUARANTEE

POSTPAID

Additional cards: 1000 for \$44.50 postpaid.

PROFESSIONAL AIDS CO. 1 N. Wacker Drive D-2 Chicago, III. 6060

Circle No. 103 on Readers' Service Card

PHONE: (312) 263-7622

Information Retrieval System, Div. of

FREE

LITERATURE

ON REQUEST

Basic package

(200 cards, hand notcher,

Forthcoming Events

September

- I-8. American Psychological Assoc., Honolulu, Hawaii. (K. B. Little, APA, 1200 17th St., NW, Washington, D.C.)
- 1-8. Psychometric Soc., Honolulu, Hawaii. (W. B. Schrader, Educational Testing Service, Princeton, N.J. 08540)
- 1-13. Participation of Less Industrialized Countries in World-Wide Documentation Activities and Information Exchange, 36th conf., Intern. Congr. of the International Federation for Documentation, Budapest, Hungary. (FID-IDLA Congr. Bureau, Budapest 8, POB 12, or Office of Documentation, Natl. Acad. of Sciences, 2101 Constitution Ave., NW, Washington, D.C. 20418)
- 2-9. History of Medicine, 23rd intern. congr., London, England. (Intern. Congr. Office, Wellcome Inst. of the History of Medicine, 183 Fuston Rd. London N.W. 1)
- Medicine, 183 Euston Rd., London N.W. 1) 3-5. Parapsychological Assoc., 15th annual, Edinburgh, Scotland. (J. G. Pratt, P.O. Box 152, Univ. of Virginia Hospital, Charlottesville 22901)
- 3-9. International Union of Nutritional Sciences Congr., Mexico City, Mexico. (A. Chavez, IUNSC, Viaducto Tlalpan Y San Fernando, Mexico 22, D.F.)
- 4-8. Health Conf., 4th intern., Dublin, Ireland. (K. Huppert, 90 Buckingham Palace Rd., London, S.W.1, England)
- 4-8. Physical Organic Chemistry, 1st conf., Union of Pure and Applied Chemistry and Swiss Chemical Soc., Crans sur Sierre, Switzerland. (H. Zollinger, Dept. of Industrial and Engineering Chemistry, Swiss Federal Inst. of Technology, 6 Universitätstrasse, CH-8006 Zurich, Switzerland)
- 4-8. International Committee on Rheology, 6th intern. congr., Lyon, France. (C. Smadja, VI° Congr. Intern. de Rheologie, Boite Postalen 1, 69 Lyon-Mouche)
- 4-9. International Council on Alcohol and Drug Addictions, 30th intern. congr., Amsterdam, Netherlands. (Case postale 140, 1001 Lausanne, Switzerland)
- 4-9. International Congr. of Pharmacuetical Sciences, 24th general assembly, Lisbon, Portugal. (Organizing Committee, Sindicato National dos Farmaceuticos, 18 rua da Sociedade Farmaceutica, Lisbon 1)
- 4-10. European Soc. of Hematologists, 11th intern. symp., Reading, England. (N. G. M. Hague, Univ. of Reading, Bldg. 1, Spur J, Earley Gate, Whiteknights Rd., Reading RG6, 2AR)
- 4-10. World Future Research Conf., 3rd, Bucharest, Romania. (Romanian Organizing Commission of the Third World Future Research Conf., Bucharest I, Calea Victoriei 125)
- 5-7. Occupational Safety and Health of Young Workers, intern. symp., Belgrade, Yugoslavia. (L. Parmeggiani, Occupational Safety and Health Branch, International Labour Office, CH 1211, Geneva 22, Switzerland)
- 5-8. Conference on In Situ Composites, Naval Air Systems Command, Office of Naval Research and Natl. Materials Advisory Board, Lakeville, Conn. (F. D. Lemkey, United Aircraft Research Labs., East Hartford, Conn. 06108)

- 5-8. International Soc. of Internal Medicine, 12th intern. congr., Boston, Mass. (H. Ludwig, Burgenspital, Basle, Switzerland)
- 5-8. Metrology, Intern. Measurement Confederation, intern. symp., Bratislava, Czechoslovakia. (Insymet '72, Organizing Committee, Dom techniky SVTS, Kocel'-ova 17, Bratislava)
- 5-8. New Developments in Reactor Physics, Kiamesha Lake, N.Y. (N. C. Francis, 2311 Plum St., Schenectady, N.Y. 12309)
- 5-8. American Political Science Assoc., Washington, D.C. (E. M. Kirkpatrick, APSA, 1527 New Hampshire Ave., NW, Washington, D.C. 20036)
- 5-9. Earthquake Protection of Underground Utility Structures, Engineering Foundation, Pacific Grove, Calif. (EF Conf., United Engineering Center, 345 E. 47 St., New York 10017)
- 5-12. European Congr. on Electron Microscopy, jointly by Inst. of Physics and Physical Soc. and Royal Microscopical Soc., Manchester, England. (L. Lawrence, EMCON 72, Inst. of Physics and Physical Soc., 47 Belgrave Sq., London S.W.1)
- 5-12. Nuclear Structure Studies with Neutrons, intern. conf., Intern. Union of Pure and Applied Physics, Balatonfured, Hungary. (D. Kiss, Dept. of Nuclear Physics, Central Research Inst. of Physics, P.O Box 49, Budapest 114, Hungary)
- 6-7. Phthalate Esters: Chemicals, Analytical Methodology, Environmental Aspects, Toxicology, Biochemical Actions, Natl. Inst. of Environmental Health Sciences, Pinehurst, N.C. (D. P. Rall, NIEHS, Natl. Insts. of Health, Research Triangle Park, N.C. 27709)
- 6-8. Catalytic Hydrogenation and Analogous Pressure Reactions, 4th conf., New York Acad. of Sciences, New York, N.Y. (W. Likely, NYAS, 2 E. 63 St., New York 10021)
- 6-8. Canadian Medical and Biological Engineering Soc., 4th conf., Winnipeg, (J. S. Townsend, 510A Engineering Bldg., Univ. of Manitoba, Winnpeg 19)
- 6-8. Tunable Lasers, Edinburgh, Scotland. (Meetings Officer, Inst. of Physics, 47 Belgrave Sq., London SW1X 8QX)
- 6-9. Society of General Physiologists, Woods Hole, Mass. (C. Edwards, Dept. of Biological Sciences, State Univ. of New York, Albany 12203)
- 6-9. Synaptic Transmission and Interneuronal Communication, Soc. of General Physiologists, Woods Hole, Mass. (C. Edwards, Dept. of Biological Sciences, State Univ. of New York at Albany, Albany 12222)
- 6-13. High Energy Physics, 16th intern. conf., Batavia and Chicago, Ill. (R. G. Sachs, Dept. of Physics, Univ. of Chicago, Chicago)
- 6-20. International Symp. on the Role of Snow and Ice in Hydrology, Banff, Alta., Canada. (I. C. Brown, Dept. of Environment, Room G-31, No. 8 Bldg., 870 Carling Ave., Ottawa, Ont., Canada K1A OE4)
- 7-9. American Assoc. of Obstetricians and Gynecology, Hot Springs, Va. (C. A. Hunter, Jr., Indiana Univ. Medical Center, 1100 W. Michigan St., Indianapolis, Ind. 46202)

COLORADO SERUM COMPANY

providing the finest:

- Animal Blood Products
- * Plasma
- * Tissue Culture Media
- * Cells
- * Normal Serums
- * Antisera

and other Diagnostic Reagent Products

send for catalog



since 1923

COLORADO SERUM COMPANY, Laboratories. 4950 York St., Denver, Colorado 80216 U. S. Veterinary License 188

Circle No. 85 on Readers' Service Card



HEAT **PRESSURE** and STRONG ACIDS

can be combined in the PARR® Acid Digestion Bomb to provide a rapid and safe method for dissolving glass, rocks, silicates and other refractory materials in HF, HCI, HNO₃ and other strong mineral acids.

Samples are held in a 25 ml, thick walled Teflon* cup which is not attacked by the acid charge. This cup is confined within a sturdy stainless steel bomb from which it is easily removed for sample recovery and washing. No wrenches or clamps are needed to produce a tight seal.

Ask for PARR Data Sheet 4745 describing this rapid method for dissolving difficult samples. *duPont TFE flurocarbon resin.





PARR INSTRUMENT COMPANY

211 Fifty-Third St.

Moline, III. 61265

(309) 762-7716

Circle No. 83 on Reader's Service Card

Your Lab is More Efficient with

TIME PHOTO-LAB LABELS



Pressure-sensitive Time Photo-Lab Labels provide you with a convenient way to record and store your photo's and slides. METRIC SCALE LABELS. A calibrated scale label of 3cm or 6cm relates size of specimen or subject at a glance. Supplied in convenient rolls with removable adhesive, these convenient labels stick tightly yet won't mar surface when removed.

TIME INCH SCALE LABELS. Calibrated scale of 6 inches is

imprinted on pre-cut self-sticking labels.

TIME PHOTO SLIDE LABELS. Printed with a red dot to assure proper placement in projector or carriage. Available in two sizes for either 2" x 2" mounts or lantern slides.

Write us for free samples and literature on these and other Time Products for the laboratory. We will also send the name of your nearest dealer.

NOTE: NEW ADDRESS. We have recently moved into new facilities; enlarged and automated to serve you better.



PROFESSIONAL TAPE COMPANY, INC.
DEPARTMENT 12
144 TOWER DR. BURR RIDGE (HINSDALE), ILL. 60521 Circle No. 84 on Readers' Service Card

Whose copy are you reading?



Why not order y	our own subs	cription?	
☐ I apply for AAAS mem ☐ \$16 USA ☐ \$18 C	811 \$19 Foreign		
Name			
Address	<u> </u>		
City	State	Zip	
☐ Bill me	☐ Check enclosed		
Signature	<u> </u>		
AAAS AME	RICAN ASSOCIANCEMENT (Avenue, N.W.	

 $|^{2}$ $|^{2}$ $|^{2}$ $|^{2}$ Washington, D. C. 20005



Circle No. 63 on Readers' Service Card

Automatically improve your Lab Staff Productivity

The Shandon Elliott 23-station automatic slide staining machine gives you high reproducibility and uniform quality in preparing Pap stains, blood films, bone marrow spreads and tissue sections. Skilled technicians are released for other important work, improving overall productivity.

This slide stainer—holding up to 50 slides—is actually three machines in the control of the con

This slide stainer—holding up to 50 slides—is actually three machines in one: two separate machines operating simultaneously on different cycles, two separate units operating on the same staining cycle at the same time, or as one machine operating on all 23 staining positions. Also available are an 8-station model and a 12-station model.

For more information on these slide staining machines and other scientific instruments contact Shandon Southern Instruments, Inc., 515 Broad Street, Sewickley, Pa. 15143 (Pittsburgh District).



- 7-10. Association for **Humanistic Psychology**, Squaw Valley, Calif. (AHP, 416 Hoffman Ave., San Francisco, Calif. 94114)
- 7-11. American Soc. of **Photogram-metry**, San Francisco, Calif. (L. P. Jacobs, 105 N. Virginia Ave., Falls Church, Va. 22046)
- 10-13. American Fisheries Soc., Hot Springs, Ark. (R. F. Hutton, AFS, 1040 Washington Bldg., Washington, D.C. 20005)
- 10-14. Solid Electrolytes, Ion Transport in Insulating Layers, and Their Applications, Intern. Soc. of Electrochemistry, Eindhoven, Netherlands. (H. Tannenberger, Battelle Centre de Recherche de Genève, 7 route de Drize, CH-1227 Carouge-Genève, Genève, Switzerland)
- 10-16. International Union for Conservation of Nature and Natural Resources, Banff, Canada. (R. I. Standish, IUCN, 1110 Morges, Switzerland)
- 11-12. American Astronautical Soc., Palo Alto, Calif. (Miss A. Mitchell, AAS, Suite 700, 1629 K St., NW, Washington, D.C. 20036)
- 11-12. Occupational Health, 32nd annual, American Medical Assoc., Chicago, Ill. (H. F. Howe, AMA, 535 N. Dearborn St., Chicago 60610)

 11-13. Atmospheric Flight Mechanics,
- 11-13. Atmospheric Flight Mechanics, 2nd conf., American Inst. of Aeronautics and Astronautics, Palo Alto, Calif. (AIAA, 1290 Ave. of the Americas, New York 10019)
- 11-13. Marine Technology Soc., Washington, D.C. (R. W. Niblock, MTS, 1730 M St., NW, Washington, D.C. 20036)
- 11-15. Accident and Traffic Medicine, 4th intern. congr., Paris, France. (M. Helpern, 520 First Ave., New York 10016)
- 11-15. General Principles of Rheology, Prague, Czechoslovakia. (Rheology Group, Czechoslovak Chemical Soc., Hradčanské nám. 12, Prague)
- 11-15. Power Generation Conf., Inst. of Electrical and Electronics Engineers, Boston, Mass. (G. O. Buffington, Stone & Webster, 225 Franklin St., Boston, Mass. 02107)
- 11-15. Sarcoidosis, 6th intern. conf., Tokyo, Japan. (Secretariat, Japan Sarcoidosis Committee, c/o J.N.R. Central Health Inst., Yoyogi 2-1, Shibuya, Tokyo 151)
- 11-15. Stress Problems in Tunneling, intern. symp., International Soc. for Rock Mechanics, Lucerne, Switzerland. (Schweizerische Gesellschaft fur Bodenmechanik und Fundationstechnik, Postfach 8022, Zurich, Switzerland)
- 11-16. Clinical Toxicology, 3rd intern., Paris, France. (Prof. Gervais, Clinique Toxicologique, Hôpital Fernand-Widal, 200, rue du Faubourg, Saint Denis, 75 Paris)
- 11-16. Drug Abuse and Addiction, 2nd intern. congr., Paris, France. (M. Helpern, 520 First Ave., New York 10016)
- 11-17. Otolaryngological Soc. of Australia, Perth. (D. H. Bromfield, 254 St. George's Terrace, Perth)
- 12-14. Elementary Particle Physics, Southampton, England. (Meetings Officer, Inst. of Physics, 47 Belgrave Square, London SW1X, 8QX, England)

12-15. Collegium Internationale Allergologicum, London, England. (J. L. Turk, Dept. of Pathology, Royal College of Surgeons of England, Lincoln's Inn Fields, London, WC2A, 3PN)

12-15. Computer Applications in Radiology, 3rd conf., Columbia, Mo. (A. Oestreich, Dept. of Radiology, Univ. of

Missouri, Columbia 65201)

12-15. Solid State Device Research Conf., 2nd European, Lancaster, England. (D. Hilsum, Royal Radar Establishment, St. Andrews Rd., Great Malvern, Worces-

tershire, England)

12-16. International Commission of Agricultural Engineering, Florence, Italy. (Comité d'Organisation: Instituto di Idronomia montana dell'Universita, Piazzale Cascine 18, 50 144 Florence)

12-16. Anatomic and Clinical Pathology, 8th intern. congr., and World Assoc. of Anatomic and Clinical Pathology Socs., 25th, Munich, Germany. (H. Lommel, Secretary-General, WAPS 8th World Congr., 509 Leverkusen, West Germany Postfach 37)

12-16. Lysosomes in Cell Pathology, 3rd intern. conf., European Group for the Study of Lysosomes, Louvain, Belgium. (P. J. Jacques, Dekenstraat, 6, B-3000, Louvain)

13-15. Aerodynamic Testing, 7th conf., American Inst. of Aeronautics and Astronautics, Palo Alto, Calif. (AIAA, 1290 Ave. of the Americas, New York, N.Y.

13-15. Engineering in the Ocean Environment, Inst. of Electrical and Electronics Engineers, Newport, R.I., 02840. (J. J. Greichin, Naval Underwater Systems Center, Newport 02840)

13-15. Operational Research Soc., annual conf., Birmingham, England. (ORS, 62-64 Cannon St., London, England)

14-15. High Performance Fibers Symp., Boston, Mass. (L. Rebenfield, Fiber Soc., P.O. Box 625, Princeton, N.J. 08540)

14-15. Testing of High-Performance Fibers, Fiber Soc., Boston, Mass. (L. Rebenfeld, FS, P.O. Box 625, Princeton, N.J. 08540)

16-23. International Soc. for Research on Civilization Diseases and Vital Substances, 18th, Berlin, Germany. (3000 Hannover-Kirchrode/Bundesrepublik Deut-

schland, Bemeroder Strase 61, Germany)
17-20. American Mining Congr., San Francisco Calif. (AMC, 1100 Ring Bldg.,

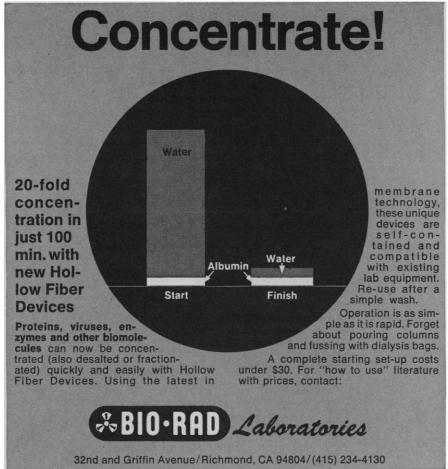
Washington, D.C. 20036)

17-20. Storage and Flow of Solids, 2nd conf., American Soc. of Mechanical Engineers, Chicago, Ill. (T. Ferdinand, ASME, 345 E. 47 St., New York 10017)

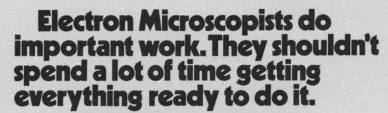
17-23. International Congr. of Occupational Health, 7th, Buenos Aires, Argentina. (R. A. Penalver, Office of International Medical Education., Univ. of Miami School of Medicine, 1120 Anastasia, Coral Gables, Fla. 33134)

18-20. Canadian Soc. of Chemical Engineering, 22nd conf., Toronto, Ont. (CSCE, Suite 906, 151 Slater St., Ottawa, Ont., Canada K1P 5H3)

18-21. Congress of Aviation Medicine, Nice, France. (Medicin General Raboutet, Ministere des Travaux publices et des Transports, 155, rue de la Croix-Nivert, Paris, France)
18-21. World Medical Assoc., 26th as-



Circle No. 62 on Readers' Service Card



Our vacuum evaporators give you precision specimen preparation and replication for electron

microscopy.
With very little time and effort

on your part. We have both automatic and manual versions. And all the accessories you need for complete vacuum deposition.

Like rotary coaters and shadowers. Filament and boat evaporators. Carbon rods and sharpeners. Instrumentation feed throughs. And

freeze-fracture devices.
They all help you with your important work by doing more of it

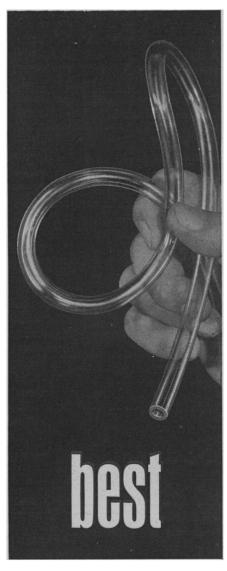
for you. We've been making more kinds of vacuum pumping equipment than anyone else for over 64 years.

And we'd like to tell you in detail about our high vacuum

evaporators. Just send for Booklet #3102.
Kinney Vacuum Co., 3529 Washington Street, Boston, Massachusetts 02130. Tel. (617) 522-7100.



We spend a lot of time thinking about our vacuum products. So you won't have to.



Day in and day out, the reliability, long life and versatility of Tygon flexible plastic Tubing proves over and over that it's your best laboratory tubing investment.

TYGON° TUBING

Crystal-clear
Flexible
Chemically inert
Non-oxidizing
74 standard sizes

At laboratory supply houses everywhere, or write Norton Plastics and Synthetics Division, Akron, Ohio 44309.

NORTON

PLASTICS & SYNTHETICS DIV.

FORMERLY U.S. STONEWARE INC. AKRON. OHIO 44309

Circle No. 60 on Readers' Service Card

sembly, Amsterdam, Netherlands. (WMA, 10 Columbus Circle, New York 10019)

18-22. Chemistry of the Organic Solid State, 3rd intern. symp., Glasgow, Scotland. (J. N. Sherwood, Dept. of Pure and Applied Chemistry, Univ. of Strathclyde, Thomas Graham Bldg., Cathredral St., Glasgow C1)

18-22. International Union for **Electro-Heat**, 7th intern. congr., Warsaw, Poland. (IUE-H, 25, rue de la Pepiniere 75, Paris 8°, France)

18-22. International Conf. on Applications of New Concepts of Physical-Chemical Treatment Process Design, Intern. Assoc. of Water Pollution Research and American Inst. of Chemical Engineers, Nashville, Tenn. (W. W. Eckenfelder, Box 6222, Station B, Vanderbilt Univ., Nashville 37235)

18-29. Technology Assessment, NATO Advanced Study Inst., Lake Garda, Italy. (R. A. Carpenter, Environmental Policy Div., Congressional Research Service, Library of Congress, Washington, D.C. 20540)

19-21. Gregory Mendel and Contemporary Genetics, conf. on the 150th anniversary of Mendel's birth, Brno, Czechoslovakia. (V. Orel, Mendelianum, Brno)

19-21. Laboratory Animal in Drug Testing, Hannover, Germany. (W. Heine, Zentralinstitut fur Versuchstierzucht, 3 Hannover-Linden, Lettow-Vorbeck-Allee 57)

20-22. Automation of Testing, Staffordshire, England. (Manager, Conf. Dept., Inst. of Electrical Engineers, Savoy Pl., London WCL2R, OBL, England)

London WCL2R, OBL, England)

20-23. Percolation through Fissured
Rocks, intern. symp., Stuttgart, Germany.
(Deutsche Gesellschaft fur Erdund Grundbau E.V., 43 Essen Kronprinzenstrasse
35a, Deutschland)

20-23. American Thyroid Assoc., Chicago, Ill. (A. B. Hayles, Mayo Clinic, Rochester, Minn. 55901)

20-24. American Medical Writers Assoc., Dallas, Tex. (C. B. Slack, AMWA, 6900 Grove Rd., Thorofare, N.J. 08086)

21-22. Electronic Prosthetics. Computer Soc., Control System Soc., Engineering in Medicine and Biology Technical Group of IEEE, Lexington, Ky. (J. S. Jackson, Electrical Engineering Dept., Univ. of Kentucky, Lexington 40506)

21-22. International Soc. for Experimental Hematology, Milwaukee, Wis. (M. M. Bortin, Winter Research Lab., Mount Sinai Medical Center, 948 N. 12 St., Milwaukee 53233)

21-23. American Assoc. for Cancer Education, Rochester, N.Y. (B. F. Rush, Jr., Martland Hospital, 65 Bergen St., Newark, N.J. 07107)

21-26. International Assoc. of Forensic Toxicologists, 6th, Belfast, Ireland. (A. S. Curry, Home Officer Central Research Establishment, Aldermaston, Reading, Berks., England)

21-26. Forensic Sciences, intern. conf., Edinburgh, Scotland. (M. Helpern, 520 First Ave., New York 10016)

22-28. American Acad. of Family Physicians, New York, N.Y. (M. F. Cahal, AAFP, Volker Blvd. at Brookside, Kansas City, Mo. 64112)

23-25. North American Mycological Assoc., Priest Lake, Ohio. (NAMA, 4245 Redinger Rd., Portsmouth, Ohio 45622)

24-27. National Environment Information Symp., Cincinnati, Ohio. (G. M. Gigliotti, Public Affairs Office, Natl. Environmental Research Center, U.S. Environmental Protection Agency, Cincinnati 45268)

24-28. Liquefied Natural Gas, 3rd intern. conf., American Gas Assoc., Washington, D.C. (AGA, 1515 Wilson Blvd., Arlington, Va. 22209)

24-28. American Oil Chemists' Soc., Ottawa, Ont., Canada. (J. Lyon, AOCS, 508 S. 6 St., Champaign, Ill. 61820)

24-29. American Soc. of **Plastic and Reconstructive Surgeons**, Palm Spring, Calif. (D. F. Whaley, ASPRS, 29 E. Madison St., Chicago, Ill. 60602)

24-30. International Soc. of Cardiology, 6th congr., Madrid, Spain. (F. V. Diaz, Sagasta 7, Madrid 4, Spain)

Sagasta 7, Madrid 4, Spain)
24-30. Zoology, 17th intern. congr.,
Monte Carlo, Monaco. (Comité d'Organisation, XVII Congrès International de
Zoologie, Musée Océanographique, Monte
Carlo)

25-26. Electro-Optic Systems in Flow Measurement, Southampton, England. (T. S. Durrani, Dept. of Electronics, Univ. of Southampton, Southampton, Hampshire) 25-27. Repetitive DNA, Chromosome

25-27. Repetitive DNA, Chromosome Defects and Neoplasia, Minneapolis, Minn. (J. J. Yunis or E. S. Benson, Box 198 Mayo, Univ. of Minnesota Medical School, Minneapolis 55455)

25-28. International Conf. on **Prostaglandins**, Vienna, Austria. (S. Bernhard, Scientific Relations, Schering AG, Nullerstr. 170/172, 1 Berlin 65, Germany)

25-29. American Academy of **Ophthal-mology and Otolaryngology**, Dallas, Tex. (C. N. Kos, 15 Second St., SW, Rochester, Minn. 55901)

26-29. American Roentgen Ray Soc., Washington, D.C. (T. F. Leigh, Emory Univ. Clinic, Atlanta, Ga. 30322)

26-30. International Soc. of Audiology, 11th intern. congr., Budapest, Hungary. (L. Surjan, Szaboles u. 35, Budapest 8)

27-29. American Cancer Soc., and Natl. Cancer Inst., 7th conf., Los Angeles, Calif. (S. L. Arje, ACS, 219 E. 42 St., New York 10017)

27-29. Forensic Activation Analysis, 2nd intern. conf., Glasgow, Scotland. (J. M. A. Lenihan, Dept. of Clinical Physics and Bio-Engineering, Western Regional Hospital Board, 11 W. Graham St., Glasgow C.4)

28-2. International Forum of **Psycho-analysis**, New York, N.Y. (G. Chrzanowski, 20 W. 74 St., New York 10023)

29-30. Coastal Geomorphology Symp., Binghamton, N.Y. (D. R. Coates, Dept. of Geology, State Univ. of New York, Binghamton 13901)

29-30. Wisconsin Acad. of Sciences, Arts and Letters, Prairie du Chien. (J. R. Batt, WASAL, 5001 University Ave., Madison 53705)

30-4. American Soc. of Anesthesiologists, Boston, Mass. (J. W. Andes, 515 Busse Highway, Park Ridge, Ill. 60068)

October

1-4. National Agricultural Chemical Assoc., 39th annual, White Sulphur Springs, W.Va. (D. Hayley, NACA, Madison Bldg., 1155 15th St., NW, Washington, D.C. 20005)



Hellma—the largest assortment of highest precision glass and quartz cells.

Standard · Flow-through · Constant-temperature Anaerobic · Special Designs

Also available—ULTRAVIOLET LIGHT SOURCES Deuterium Lamps · Mercury Vapor Lamps

Hollow Cathode Lamps · Power Supplies



Write for literature Box 544 Borough Hall Station Jamaica, New York 11424 Phone (212) 544-9534

Circle No. 82 on Readers' Service Card





Handy helpers

Time-It®



Time any program, process or procedure with ease. You can't beat Time-It for accuracy, durability, economy. Second and minute models.

Big Jack®/Little Jack®



Sturdy, adjustable platform for flasks, hot plates, etc. Precisely controlled lifting up to 100 lbs. Little Jack for micro and semi-micro work.

Handi-Hot Plate



Fully adjustable, thermostatically controlled 110° to 600°F temperature range. Lightweight, portable, and built to last.

Mag-Mix®



Great versatility in stirring and agitation of a wide temperature/viscosity range of liquids using choice of encapsulated Alnico magnets.

Get the complete story on these handy helpers. Ask your Precision Scientific Dealer or write us. Precision Scientific Company, 3737 W. Cortland St., Chicago, III. 60647.

Circle No. 87 on Readers' Service Card

If you haven't joined the MC/B.



MC/B supplies over 10,000 of the best chemicals around. But MC/B also supplies some of the best **literature** around. Books, booklets, brochures, leaflets, charts. On general subjects, like lab safety. On abstruse subjects, like electrophoresis. Some of them relate to our products; some to your problems.

We'd like you to decide which you'd like; we'll send them to you, FREE. No obligation.

Because we think it's time you started reading us.

Manufacturing Chemists

Company_

If your local MC/B distributor isn't listed in the Yellow Pages, write us for his name.

2909 Highland Avenue, Norwood, Ohio 45212

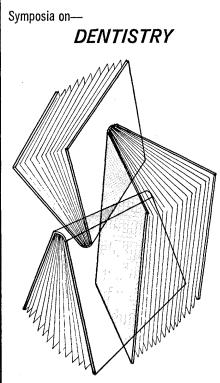
- ☐ Please send me FREE list of your literature so that I can make selections.
- ☐ Please send me your latest laboratory chemical catalog.

Name_____Title____

Address_____

City_____State ____ Zip____

My chemical distributor is _________MCB6/8S



BIOLOGY OF THE MOUTH

A collection of comprehensive, multi-disciplinary articles dealing with problems of the biology of the mouth and of oral diseases and also the borderlands where fundamental approaches and investigations in physics and chemistry relate to, and can be brought to bear on such problems.

Edited by Philip Person. 320 pages. Electron micrographs and other illustrations. Bibliography. Index. Retail price: \$10. ISBN 087168-089-0.

ENVIRONMENTAL VARIABLES IN ORAL DISEASE

Twenty-four distinguished scientists present the findings of their research on the role of environmental factors in oral disease. Geographical and clinical considerations; the oral environment-nutrition and dental caries; experimental considerations in oral soft lesions; prenatally occurring influences.

Edited by S. H. Kreshover and F. J. McClure. 328 pages. Illustrations. Bibliography. Index. Retail price: \$8.75. ISBN 087168-081-5.

MECHANISMS OF HARD TISSUE DESTRUCTION

Forty-nine outstanding scientists in the fields of dentistry, medicine and zoology participate in a multidisciplinary symposium on the destruction of mineralized structures by organisms and physical and chemical agents.

Edited by Reidar F. Sognnaes. 776 pages. 430 illustrations. Bibliography. Indexes. Retail price: **\$8.75.** ISBN 087168-075-0.

Special price offer

All three volumes: \$24.95 When payment is sent with order: \$21.95

AAAS

AMERICAN ASSOCIATION for the ADVANCEMENT OF SCIENCE 1515 Massachusetts Avenue, N.W. Washington, D. C. 20005 1-5. Society of American Foresters, Hot Springs, Ark. (H. R. Glascock, Jr., SAF, 1010 16th St., NW, Washington, D.C. 20036)

1-14. International Assoc. of **Theoretical and Applied Limnology**, jubilee symp., Plon, West Germany. (W. Ohle, Max-Planck Inst. für Limnologie, Postfach-165, 232 Plon)

2-3. Air Pollution Medical Research Conf., American Medical Assoc., Chicago, Ill. (F. W. Barton, Council on Environmental and Public Health, AMA, 535 N. Dearborn St., Chicago 60610)

2-4. Distribution and Partition of Trace Elements and Origin of Volcanic Rocks, intern. conf., sponsored by American Geophysical Union, Univ. of Rhode Island, Intern. Assoc. of Volcanology and Chemistry of the Earth's Interior, Newport, R.I. (American Geophysical Union, 1707 L St., NW, Washington, D.C. 20036)

2-4. Soil Microcommunities, 2nd conf., Syracuse, N.Y. (D. L. Dindal, Dept. of Forest Zoology, State Univ. College of Forestry, Syracuse, 13210)

Forestry, Syracuse 13210)
2-5. American Vacuum Soc., Chicago, Ill. (J. H. Singleton, Westinghouse Research Labs., Beulah Rd., Pittsburgh, Pa. 15235)

2-5. Yeast Protoplasts, 3rd intern. symp., sponsored by Spanish Biochemical Soc., Spanish Biological Soc., and Spanish Research Council, Salamanca. (Secretariat, Third Intern. Symp. on Yeast Protoplasts, Departamento de Microbiologia, Facultad de Ciencias, Universidad de Salamanca, Salamanca)

2-6. Modern Trends in Activation Analysis, 4th intern. conf., Sacly, France. (American Nuclear Soc., 244 E. Ogden Ave., Hinsdale, Ill. 60521)

2-6. Environmental Health Aspects of Lead, Commission of the European Communities and U.S. Environmental Protection Agency, Amsterdam, Netherlands. (Secretariat, Direction Protection Sanitaire, Commission des Communautés Européennes, 29, rue Aldringen, Luxembourg)

2-6. International Congr. on Marine Corrosion and Fouling, 3rd, Gaithersburg, Md. (H. C. Burnett, Room B264, Materials Bldg., Natl. Bureau of Standards, Washington, D.C. 20234)

2-6. Remote Sensing of Environment, 8th intern. symp., Ann Arbor, Mich. (Conference Dept., Extension Service, Univ. of Michigan, Ann Arbor 48104)

3-5. Dietary Lipids and Postnatal Development, intern. symp., Milan, Italy. (Miss H. J. Prain, Inst. of Pharmacology and Pharmacognosy, Univ. of Milan, Via A. Del Sarto, 21, 20129 Milan)

3-5. Plastics, Electrical Properties and Applications, Plastics Inst. of America, Rensselaer, N.Y. (R. K. MacCrone, Materials Div., School of Engineering, Rensselaer Polytechnic Inst., Troy, N.Y. 12181)

selaer Polytechnic Inst., Troy, N.Y. 12181)
3-5. USA-Japan Computer Conf.,
American Federation of Informational
Processing Socs. and Information Processing Soc. of Japan, Tokyo, Japan. (R. W.
Rector, University Extension, Continuing
Education in Engineering and Science,
6115 Mathematical Sciences Bldg., Univ.
of California, Los Angeles 90024)

3-6. American Roentgen Ray Soc., Washington, D.C. (T. F. Leigh, Emory Univ. Clinic, Atlanta, Ga. 30322)

3-9. Intern. Soc. of Biometeorology,

6th intern. congr., Stresa, Italy. (S. W. Tromp, Hofbrouckerlaan 54, Cegstgeest., Leiden, Netherlands)

4-6. Food Plants and Their Diets in Relation to Environmental Factors, Intern. Assoc. for Quality Research on Food Plants and German Soc. for Quality Research, Berlin, West Germany. (W. Schuphan, DeutscheGesellschaft für Qualitätsforschung, Heidelstrasse 9, 6222 Geisenheim/RHG)

4-6. Populations by Microorganisms, New York Acad. of Sciences, New York, N.Y. (W. Likely, NYAS, 2 E. 63 St., New York 11021)

4-6. Thrombosis and the Molecular Biology of the Platelet and Other Interacting Cells, 2nd intern. symp., Chicago, Ill. (R. M. Booyse, Dept. of Biochemistry, Rush Medical College, 1753 W. Congress Pkwy., Chicago 60612)

4-18. Forests and Social-Economic Development, 7th World Forestry Congr., Buenos Aires, Argentina. (M. B. Dickerman, U.S. Natl. Committee, U.S. Dept. of Agriculture, Forest Service, Washington, D.C. 20250)

5-6. The Military and Society, 5th symp., U.S. Air Force Acad., Colo. (R. Fogleman, Dept. of History, USAF Academy 80840)

5-6. Toward a Unified Concept of Biological Waste Treatment Design, Intern. Assoc. on Water Pollution Research, Atlanta, Ga. (F. G. Pohland, Civil Engineering Dept., Georgia Inst. of Technology, Atlanta)

5-7. Culture of Invertebrate Animals, Greenport, N.Y. (W. L. Smith, Dept. of Marine Science and Technology, Suffolk County Community College, Selden, N.Y. 11784)

5-7. National Gaming Council, 11th annual symp., Baltimore, Md. (S. J. Kidder, Center for Social Organization of Schools, Johns Hopkins Univ., 3505 N. Charles St., Baltimore 21218)

5-8. Alcoholism and Addiction, intern, conf., Dun Laoghaire, Ireland. (Mrs. O. Thompson, Irish Natl. Council on Alcoholism, 19/20 Fleet St., Dublin 2, Ireland)

5-8. American Soc. of **Bariatrics**, Las Vegas, Nev. (W. L. Asher, 3195 S. Broadway, Englewood, Colo. 80110)

6-7. Atmospheric Physics, American Physical Soc., New York State section, Rochester. (F. K. Elder, Jr., Rochester Inst. of Technology, 1 Lamb Memorial Dr., Rochester 14623)

6-7. Endocrinology and Metabolism, 8th Midwest conf., Columbia, Mo. (A. D. Kenny, Space Sciences Research Center, Univ. of Missouri-Columbia, Research Park, Columbia 65201)

8. International Soc. for Developmental Psychobiology, Houston, Tex. (W. A. Himwich, Thudichum Psychiatric Research Lab., Galesburg State Research Hospital, Galesburg, Ill. 61401)

8-11. Society of Research Administrators, 6th annual, Seattle, Wash. (D. V. Baker, Dept. of Pathology, Univ. of Washington, Seattle 98195)

8-13. Chemistry and Physics of Compound Semiconductor Surfaces and Molecular Beam Epitaxy, Electronics Div., Electrochemical Soc., Miami Beach, Fla. (H. R. Huff, Texas Instruments Inc., P.O. Box 5936, M/S 144, Dallas 75222)