GEL FILTRATION with

Sephadex

A technique for separation of substances of different molecular sizes.

Typical applications:

Desalting of protein solutions
Fractionation of polymers
Group separation of biological extracts

Now extended possibilities with SIEVE FRACTIONS

The Sephadex types G25 G50 G75 are available as:

Coarse: industrial uses and when high flow rates are important
Medium: standard laboratory uses
Fine: experiments where higher resolution is essential

Lower limit for complete exclusion:

<table>
<thead>
<tr>
<th>Sephadex Type</th>
<th>Mw Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>G25</td>
<td>3,500—4,500</td>
</tr>
<tr>
<td>G50</td>
<td>8,000—10,000</td>
</tr>
<tr>
<td>G75</td>
<td>40,000—50,000</td>
</tr>
</tbody>
</table>

Representatives

Put this Polaroid® Land 4 x 5 Film Holder...

Get photomicrographs faster than ever before, the famous Polaroid “ten second” picture way. The high resolution and contrast of Polaroid Land films assure the critical image quality you want.

...on this Bausch & Lomb Model L Camera

Here’s new speed and versatility in photomicrography. Now the Model L Camera is available with the new B&L DynaZoom Laboratory Microscope—zoom up, zoom down in the range you select...from 17.5× to 1940×. Photograph any specimen—transparent or opaque—at any power from the highest to the lowest—the ultra-fast way with Polaroid Land Film!

...get sharp photomicrographs in just 10 seconds!

Save the time of developing ordinary film. Free the camera for other work. Be sure you get the shots you need, in both print and negative form. Picture the big savings of time and money in your own lab.

Made in America, to the world’s highest standards.

I'd like a demonstration of B&L Model L Camera and Polaroid Land Film Holder.

Please send Catalogs E-21, E-22.
Scientists in the News

Loren C. Eiseley, anthropologist and provost of the University of Pennsylvania, has resigned his administrative post to accept a fellowship at Stanford's Center for Advanced Study in the Behavioral Sciences. He will return to the university in the fall of 1962 as professor of anthropology and the history of science. Eiseley is succeeded as provost by David R. Goddard, Keummerle professor of botany and director of the university's division of biology.

Paul Rosbaud, European editor for Interscience Publishers, is the first recipient of the American Institute of Physics' John T. Tate international medal, presented for "distinguished service to the profession of physics."

Jens C. Clausen, plant geneticist in the Carnegie Institution of Washington's plant biology department at Stanford, California, has been knighted by King Frederik IX of Denmark for "his outstanding contributions to science."

Guy M. Pound, professor of metallurgical engineering at Carnegie Institute of Technology, has been named Aluminum Company of America professor of light metals. He succeeds Frederick Rhines, who held the position from 1945 until 1959.

Leroy G. Augenstine, of Brookhaven National Laboratory, and Barnett Rosenberg, of New York University, have been appointed professor and associate professor of biophysics, respectively, at Michigan State University.

Recent awards of the Franklin Institute:
Josiah L. Merrill, Jr., of Bell Telephone Laboratories, will receive the Edward Longstrehth medal for his research on telephone transmission.
Rudolf L. Mossbauer, of California Institute of Technology, will receive an Elliott Cresson medal for his discovery of recoilless emission of gamma radiation.
Detlev W. Bronk, president of the Rockefeller Institute and of the National Academy of Sciences-National Research Council, has won the Franklin medal, the institute's highest award, for "his scientific leadership in biophysics."

William Vogt, national director of the Planned Parenthood Federation of America for the past 10 years, has resigned. He will continue as a member of the federation's board of directors.

The Public Health Service has announced the appointment of the following new members of the advisory committee on the U.S. National Health Survey—a continuing program established by the PHS to determine the amount and type of illness in the population, and to gather information on related health topics.

J. Douglas Colman, of the Associated Hospital Service of New York.
Harry Hineman, director of the actuarial division of Indianapolis (Ind.) Blue Cross–Blue Shield.
John P. Lee, member of the board of national missions of the United Presbyterian Church in New York.
Daniel W. Pettingill, chief actuary for Aetna Life Insurance Company in Hartford, Conn.
Russell B. Roth, member of the American Medical Association's council on medical services.
Mary Weaver, former consultant on medical assistance standards in the Social Security Administration.
Donald Young, president of the Russell Sage Foundation in New York.
Roland W. Force, curator of oceanic archeology and ethnology at Chicago Natural History Museum, has been appointed director of the Bernice P. Bishop Museum in Honolulu, Hawaii.

John B. Rogerson, senior research associate and lecturer at the Princeton University Observatory, has been appointed executive director of the observatory's space telescope program, aimed at spectroscopic observations of stars from sounding rockets and satellites.

Isaac Schour, dean of the University of Illinois college of dentistry, has received the 1961 Henry Spenadel award for "outstanding contributions to the advancement of dentistry or the dental profession."

H. Clark Dalton, former associate professor of biology at New York University's college of arts and sciences, has been appointed professor and chairman of the biology department at the university.

Clifford S. Sato, biochemist formerly associated with the U.S. Department of Defense's Division of Biochemistry in Japan, and with Argonne National Laboratory, has been named head of Cal-Atomic, a division of the California Corporation for Biochemical Research, in Los Angeles.

Aden B. Meinel, former associate director of the Kitt Peak National Observatory, has been appointed professor of astronomy in the University of Arizona's Steward Observatory and research professor at the university's Lunar and Planetary Laboratory.

Crawford H. Greenewalt, president of E. I. du Pont de Nemours & Company, is the 1962 recipient of the John Fritz medal, the highest honor of the engineering profession.

Max S. Peters, head of the division of chemical engineering at the University of Illinois, has been named dean of the University of Colorado College of Engineering.

Recent Deaths

G. C. J. Dalton, 45; director of the Australian Atomic Energy Research Establishment; 17 July.
Howard J. Daly, 64; vice president and director of Norton Company, Worcester, Mass.; 7 Oct.
George C. Engerrand, 84; emeritus professor of anthropology at the University of Texas; 2 Sept.
Walter R. Fallon; specialist in obstetrics and gynecology; attending physician at St. Joseph and Cook County (Illinois) hospitals for 29 years; 31 July.
William R. Larkin; former chief of the medical staff at the University of Illinois Hospital, and retired staff member of the Columbus Hospital in Illinois; 16 July.
George B. Rigg, 89; emeritus professor of botany at the University of Washington; 10 July.
Morton Scharriff, 34; physicist at the Copenhagen Institute for Theoretical Physics, Denmark; 15 Apr.
E. Allan Williams, 53; professor of physics at the University of California, Santa Barbara; 11 July.
J. Edmund Woods, 66; faculty member of Queens College department of physics for 23 years; 12 Aug.
even ludicrous, and you have an unsavory concoction hardly to be recommended.

This rather mannered tome is one of a rash of amateurish and adulatory "popular" books on archeology and related subjects, published since the Second World War, which tend to fill the specialist, whose handiwork they exploit, with chagrin and dismay. For these specious works are not designed to inform and enlighten but to edify, inspire, and enthrall. In the case of the ancient Near East, for example, the intent is often to "prove" the Bible, or to glamorize the ancients as knowers and purveyors of profound mysteries, or to take advantage in one way or another of the current yearning to "escape" to the past from a bitter present and an ominous future.

It needs no stressing that effective "vulgarization" of the findings and results of archeological research is highly desirable for its educational and humanistic value, and should be encouraged on every hand. Fortunately the specialists themselves are now devoting part of their time and energy to this end. Thus, to return to writing and decipherment, the themes of the book under review, the adult reader will find succinct, lucid, and informative accounts in the works of two distinguished scholars: I. J. Gelb's A Study of Writing (University of Chicago Press, Chicago, Ill., 1952) and Johannes Friedrich's Extinct Languages (Philosophical Library, New York, 1957).

SAMUEL NOAH KRAMER
University Museum,
University of Pennsylvania

Russian Numerical Analysis


The recent advent of high-speed computers has brought about a tremendous increase of activity in the field of numerical analysis. Most of the work is centered around the search for new, computer-oriented numerical methods to replace the classical methods developed with the hand computer in mind. However there are many results in classical numerical analysis which were never popular among workers in the field because they were ill-suited for hand calculation but which are very suitable for use in a computer installation. It behoves the seeker of new methods to study the works of the old masters before embarking on any time-consuming research project.

One source for such classical results is this book by Kantorovich and Krylov, originally titled Methods for the Approximate Solution of Partial Differential Equations, which has been expanded to include material on integral equations and conformal mapping. The volume contains much material not available elsewhere, especially results of the Russian school of numerical analysis. It also contains many numerical examples, which unfortunately do not indicate the scope of the methods illustrated since they are intended to illustrate hand calculations. Of course, some of the text has been rendered obsolete by recent investigations. However, the richness of the book will provide many new ideas for the interested reader. The translator is to be congratulated for making this classic available to the English-speaking public.

PHILIP RABINOWITZ
Department of Applied Mathematics,
Weizmann Institute of Science,
Rehovot, Israel

New Books

Biological and Medical Sciences


Mathematics, Physical Sciences, and Engineering


Program Summary

Chemistry

Program chairman: Essie White Cohn, University of Denver. Program arranged with the assistance of the American Chemical Society, Colorado section, and the Colorado-Wyoming Academy of Science.

Wednesday 27 December


Extraterrestrial Biochemistry and Biology: Concurrent symposium, see page 1375 for description.

Chemists’ mixer arranged by Walter H. Dumke.

Thursday 28 December

Interdisciplinary Symposium in the Earth Sciences: Geochemical Evolution —The First 5 Billion Years, cosponsored by the sections on Geology and Geography (E), Zoological Sciences (F), and Botanical Sciences (G), by the American Geophysical Union, and by the Geological Society of America. Arranged by T. S. Lovering, U.S. Geological Survey.


Friday 29 December

Submitted papers I: Organic and biochemistry, arranged by Essie White Cohn.

Submitted papers II: Analytical and physical chemistry, also arranged by Cohn. Walter H. Dumke will preside. These are concurrent day-long sessions.

Mathematics and Related Programs

Thursday 28 December

Man and the Computer: Invited papers, program cosponsored by the Mathematics Section (A) and the Association for Computing Machinery, arranged by W. F. Cahill, Goddard Space Flight Center, who will preside.

Friday 29 December

Some Educational Implications of the Computer Revolution, by George E. Forsythe, director of the computation center, Stanford University. Speech cosponsored by the Mathematics Section and the Association for Computing Machinery. Wallace Givens will preside.

Teaching Machines and Mathematics Programs: Interaction of Content and Programming Specialists in Developing Self-Instructional Programs. Symposium cosponsored by the AAAS Cooperative Committee on the Teaching of Science and Mathematics and by the sections on Mathematics (A) and Psychology (I). Arranged by Joseph Hammock, Bell Telephone Laboratories, and John R. Mayor, AAAS. Participants: Lewis D. Eigen, John A. Barlow, Norman A. Crowder, Lloyd E. Homme, Jack E. Forbes, Max Beberman, R. Credington Buck, Robert M. Gagné.

Biology and Mathematics: Symposium cosponsored by the Mathematics Section and the Society for Industrial
NO lost experiments
with
MICROSCOPIC
SLIDE LABELING

Eliminate guesswork ... greasemark mistakes. Get posi-
tive identification. Simply pull tab and a fresh, clean label
“pops” out. Fast, self-sticking labels dispensed one at a
time. Available in standard or "tissue-high" thickness. They
accept pen, pencil, ball point pen or typewriter marking.
1000 labels per carton.

Write for detailed information and the
name of your nearest TIME distributor.

PROFESSIONAL TAPE CO., INC.
360 Burlington Ave. • Riverside, Ill.

GLASS ABSORPTION
CELLS made by KLETT

A worthwhile description of the many new design
features of the new Norelco EM-200 Electron
Microscope is not possible in this limited space.
Many years of effort and design experience has
been devoted to elimination of instrumental limits
on electron microscope performance and to details
which assure reliable operation as well as to provide
maximum flexibility for special research techniques.
While it would be both presumptuous and naive to
assume that the EM-200 is the ultimate in design,
the instrument represents a pronounced advance in
the development of electron microscopy—a step
which passes a new challenge to the microscopist
and theorist: a challenge which requires new
methods of specimen preparation or a new basis in
theory before any further advance beyond this
maxima is possible.

Of course you want to know more about this. So
write today to Philips Electronic Instruments,
750 South Fulton Avenue, Mt. Vernon, N. Y., for
your copy of a technical brochure which is chock
full of abbreviated specs about the wonderment
of this instrument.

Klett Manufacturing Co.
179 East 87 Street, New York, New York

27 OCTOBER 1961
Orders should be accompanied by checks made payable to The American Museum of Natural History. Direct all correspondence and orders to:

General Accounting, Dept. S
The American Museum of Natural History
Central Park West at 79th Street
New York 24, New York


Saturday 30 December

Invited papers: Program arranged by Burton W. Jones, University of Colorado, who will preside.

Recommendations on the Training of Teachers of Mathematics: Symposium cosponsored by the Mathematics Section and the Committee on the Undergraduate Program in Mathematics of the Mathematical Association of America. Arranged by Robert J. Wisner, Michigan State University.

Forthcoming Events

November


12–17. Bahamas Conf. on Medical and Biological Problems in Space Flight, Nassau, Bahamas. (I. M. Wechsler, P.O. Box 1454, Nassau)


13–17. Gulf and Caribbean Fisheries Inst., 14th annual, Miami Beach, Fla. (J. B. Higman, Marine Laboratory, Univ. of Miami, 1 Rickenbacker Causeway, Virginia Key, Miami 49)

13–18. European Conf. on the Control of Communicable Eye Diseases, Istanbul, Turkey. (World Health Organization, Palais des Nations, Geneva, Switzerland)

14–16. American Meteorological Soc., Tallahassee, Fla. (Executive Secretary, AMS, 45 Beacon St., Boston, Mass.)


14–18. Puerto Rico Medical Assoc., San Juan. (J. A. Sanchez, P.O. Box 9111, San Juan)


15–18. Action for Mental Health, 11th annual, Miami Beach, Fla. (H. Mitt, Natl. Assoc. for Mental Health, 10 Columbus Circle, New York 19)


16–18. American Psychiatric Assoc., Milwaukee, Wis. (J. D. McGeucken, 756 N. Milwaukee St., Milwaukee 2)

16–18. Etiology of Myocardial Infarction, intern. symp. (by invitation), Detroit, Mich. (T. N. James, Section on Cardiovascular Research, Henry Ford Hospital, Detroit)

16–18. Southern Thoracic Surgical Assoc., Memphis, Tenn. (H. H. Seiler, 517 Bayshore Blvd., Tampa 6, Fla.)


17–18. Southern Soc. for Pediatric Research, Atlanta, Ga. (W. G. Thurman, Dept. of Pediatrics, Emory Univ. School of Medicine, Atlanta)

17–31. National Soc. for Crippled Children and Adults, annual conv., Denver, Colo. (NSCCA, 2023 W. Ogden Ave., Chicago 12, Ill.)

19–22. International College of Surgeons, Western regional, San Francisco, Calif. (W. F. James, 1516 Lake Shore Drive, Chicago 10, Ill.)

22–27. Automation and Instrumentation, 5th conf., Milan, Italy. (Federazione delle Società Scientifiche e Tecniche di Milano via S. Tomaso 1 Milano)


23–25. Central Assoc. of Science and Mathematics Teachers, Chicago, Ill. (C. Kennedy, Indiana State Teachers College, Terre Haute)


26–1. Radiological Soc. of North America, annual, Chicago, Ill. (R. P. Barden, 713 E. Genesee St., Syracuse 2, N.Y.)


27–29. American Soc. of Hematology, annual, Los Angeles, Calif. (J. W. Rebuck, ASH, Henry Ford Hospital, Detroit 2, Mich.)

27–30. American Soc. of Agronomy, jointly with Crop Soc. of America, Council on Fertilizer Application, and Soil Science Soc. of America, St. Louis, Mo. (ASA, 3201 14th St., Madison, Wis.)

27–30. Entomological Soc. of America, Miami, Fla. (R. H. Nelson, 4603 Calvert Rd., College Park, Md.)


29–1. Western Surgical Assoc., San Francisco, Calif. (W. W. Carroll, 700 N. Michigan Ave., Chicago 11, Ill.)


30–1. Conference on Graduate Medical Education, Philadelphia, Pa. (P. Nemir, Jr., Dean, Graduate School of Medicine, Univ. of Pennsylvania, Philadelphia)

30–1. Vehicular Communications, Minneapolis, Minn. (J. Kahnke, Minneapolis-Honeywell, Aero Div., 1541 Edgewater Ave., St. Paul 13, Minn.)

30–2. Purest Substances in Science and Technology, intern. symp., Dresden, Germany. (Sekretariat, Chemische Gesellschaft in der Deutschen Demokratischen Republik, Unter den Linden 68/70, Berlin W.8, Germany)

December


2. International College of Surgeons, intern. executive council, Chicago, Ill. (H. E. Turner, 1516 Lake Shore Dr., Chicago 11)

2. New York State Registry of Medical Technologists, annual seminar, New York, N.Y. (S. H. Keeling, 1719 Midland Ave., Syracuse, N.Y.)

2–7. American Acad. of Dermatology and Syphilology, annual, Chicago, Ill. (R. R. Kierland, Mayo Clinic, Rochester, Minn.)


4–6. Institute of the Aerospace Sciences, Aerospace Support and Operations, ntl., Orlando, Fla. (R. J. Kotowski, 318 Virginia Dr., Melbourne, Fla.)

4–8. International Colloquium on Ionic Bombardment, Bellevue, France. (Nat. Scientific Research Center, 15 Quai Anatole France, Paris 7', France)


(See issue of 20 October for comprehensive list)

---

BURRELL

"For Scientists Everywhere"

LABORATORY SHAKERS

amazingly realistic wrist action®

You control procedures from gentle to violent shaking and repeat any operation, exactly, at another time. Side clamps take bottles and Erlenmeyer flasks. Loads need not be balanced.

Heavy-Duty Model

Exclusive Build-Up® Design

This rugged flat-top unit shakes up to 40 Erlenmeyer flasks or bottles.

One basic unit adapts to any combination. You build-up with an 8 place flat-top and with side arms for 4, 12 or 16 flasks.

©Trademark Registered U.S. Patent Office

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Shaker Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-765</td>
<td>Build-Up Wrist-Action Shaker, Size BT for 8 top and 8 side flasks</td>
<td>259.50</td>
</tr>
<tr>
<td>75-750</td>
<td>Burrell Heavy-Duty Shaker, Size 40 for 40 flasks—flat-top only</td>
<td>400.00</td>
</tr>
<tr>
<td>75-765</td>
<td>Build-Up Wrist-Action Shaker, Size T for 8 top flasks</td>
<td>230.00</td>
</tr>
<tr>
<td>75-775</td>
<td>Build-Up Wrist-Action Shaker, Size BB for 8 side flasks</td>
<td>229.50</td>
</tr>
</tbody>
</table>

For 115 volts, 60 cycle, one phase. Other voltages to order. Prices listed are F.O.B. Pittsburgh, Pa.

Ask for Bulletin No. 307

BURRELL CORPORATION
Scientific Instruments and Laboratory Supplies
2223 FIFTH AVENUE, PITTSBURGH 19, PA.
This is an electron microscope whose only equine relationship is its ability to handle great quantities of work, month-in, month-out and yet remain relatively service free. The EM-75 is an unmatched instrument in the 30 Angstrom area for general service and screening use, process control, clinical procedures and as a teaching tool—primarily because it does not have to be pampered. It also has an interesting dual function. With few hours and a few parts it can be readily converted into a Projection X-ray Microscope providing morphological studies of opaque materials.

The Norelco line of microscopes is extensive. There's the EM-100 which can be seen wherever discriminating microscopists gather and also the EM-200 whose new features require pages to cover. Detailed information is available on any or all of these electron optical devices. Simply write Philips Electronic Instruments, Electron Optics Department, Mount Vernon, New York.
New Products

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither Science nor the writer assumes responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to the manufacturer. Include the department number in your inquiry.

Electron spin resonance spectrometer

is designed especially for experimental use in the physics laboratories of schools. The instrument consists of a magnet power supply; a magnetic field unit; a unit containing an oscillator, detector, and amplifier; a sample holder; and an oscilloscope display unit. Operating frequency is variable from approximately 35 to 70 Mcy/sec; a calibration chart is supplied. Both the d-c magnetic field strength and the a-c sweep are controlled. The sweep may be varied from 0 to approximately 50 gauss (peak to peak) at 60 cy/sec. The sample holder accepts samples approximately 1 cm long by 4 mm in diameter. Larger samples require special holders. Sensitivity is sufficient to provide a signal suitable for lecture demonstrations. (Alpha Scientific Laboratories, Inc., Dept. Sci415, P.O. Box 333, Berkeley 1, Calif.)

Remote-handling system includes a vehicle with a telescoping mast, a model 150 mechanical arm, and an associated cable-linked control system. Optional equipment includes a remotely controlled hoist winch, dual television cameras, and a space microphone or intercom system. The handler can move through restricted openings and can work in confined areas. Minimum and maximum operational speeds are rated at approximately 8 and 100 ft/min, respectively. The vehicle travels up a 25-deg slope at 58 ft/min and surmounts minor irregularities or obstacles. Vehicle length and width are 30 and 24 in., respectively, and retracted height is 45 in. Vertical reach is 96 in., and horizontal reach is 41.5 in. in all directions. (General Mills, Inc., Dept. Sci441, 419 N. 5 St., Minneapolis 1, Minn.)

Neutron generator systems are available in various models. A standard system consists of a small mobile accelerator, a 150-kv power supply, and a remote-control console. A more sophisticated system offers pulsed operation. A radio-frequency type ion source with an atomic-molecular ratio of 90 percent is used to deliver currents greater than 1 ma. Controllable yields of 4 x 10^9 fast neutrons per second are said to be obtainable. A getter-type pumping assembly provides a vacuum of 10^-7 mm-Hg. With a suitable moderator, a thermal neutron flux of 5 x 10^8 neutrons per square centimeter per second may be obtained. Neutrons are generated by the reaction D^2 + T^3 = He' + n' + 17.577 Mev. (Nuclear-Chicago Corp., Dept. Sci431, 359 E. Howard Ave., Des Plaines, Ill.)

JOSHUA STERN
National Bureau of Standards, Washington, D.C.

4-SHEET, BENCH-TOP

CHROMATOGRAPHY DRYING OVEN: $360

Holds Four 18½" x 22½" Sheets.
Provides Full View of Color Development.
Assures Fast, Uniform Drying Action.

Develop 4 chromatograms simultaneously in this compact drying oven. It is fully insulated and thermostatically controlled to quickly reach pre-set temperatures up to 110° C. Uniform drying action is assured by the continuous circulation of air from room through vents in the base. Air and solvent vapors are efficiently evacuated by connecting the oven to a water or motor aspirator accessory. The heating element is concealed in the base and protected from droplets of combustible solvent. Safety glass readily permits temperature reading, and observation of color development without repeated opening of the heavy, metal-reinforced door. The stainless steel oven chamber is corrosion resistant.

OVERALL DIMENSIONS:
26" Wide x 35½" High x 15½" Deep.

UNCONDITIONAL ONE YEAR WARRANTY

WRITE FOR CATALOG COS/10271

NEW BRUNSWICK SCIENTIFIC CO., INC.
PRECISION LABORATORY APPARATUS
P.O. BOX 606, NEW BRUNSWICK, NEW JERSEY

27 OCTOBER 1961