

be related to the real world only through pertinent data on those physical parameters of geologic materials which influence fluid flow. Much of the material in these two chapters is covered in earlier texts by the authors: *Geohydrology* (1965) by De Wiest and *Hydrogeology* (1966) by Davis and De Wiest. Nevertheless, their inclusion is welcomed, for they serve as an introductory and unifying background for ensuing chapters.

Rumer discusses the hydrodynamics of resistance in chapter 3, developing a macroscopic force-balance equation which is shown to transform to Darcy's law for low velocities. A truncated version of the series expression for resistance coefficient is comparable to the "Forchheimer equation." The special problem of upward flow and fluidization is also analyzed. In each case resistance is related to permeability, Reynolds number, and parameters dependent upon the geometry of pore systems or on physical properties of fluids and particles.

Bear presents in chapter 4 a clear, concise summary of hydrodynamic dispersion, followed by comparative description of the principal theories of dispersion, discussion of dispersion parameters (dispersivity, coefficient of dispersion, relation of permeability to dispersion), and solution of the differential equation of dispersion for various initial and boundary conditions. Decay and adsorption of transported chemical species are considered. Solved problems illustrate application of developed theory. Simpson (chapter 5) follows with a shorter discussion of the role of molecular diffusivity of chemical species in longitudinal dispersion as a function of flow velocity.

Chapters 6 (Swartzendruber) and 7 (Dicker) deal with unsaturated flow and transient free-surface flow through porous media. Dicker introduces a revision of classical theory which removes a heretofore undiscovered mathematical anomaly in the derivation. Chapter 8 (Verruijt) discusses elastic storage properties of aquifers in terms of the Biot theory that geologic materials act as perfectly elastic materials which may undergo three-dimensional consolidation. Biot's theory is shown to reduce to Jacob's theory, assuming only vertical deformations.

Chapters 9 and 10 deal with mathematical concepts for the description of fluid flow through porous media. De Josselin de Jong discusses generating functions for the specific discharge vec-

tor for incompressible homogeneous fluids that obey Laplace equations of the type $\nabla^2 \mathbf{f} = 0$ and for inhomogeneous situations that fit equations of the type $\nabla^2 \mathbf{f} = \mathbf{G}$. De Wiest expounds the role of Green's functions in solving partial differential equations for given boundary and initial conditions. The final chapter (Morel-Seytoux) introduces the groundwater hydrologist to subsurface two-phase flow, primarily in terms of the immiscible liquids water and oil.

Although important to groundwater hydrology, the topics covered for the most part do not warrant full volumes, and existing advanced texts do not deal with them in the depth and breadth of this volume. Consequently, the book seems well suited to be a reference or text for an advanced graduate course in groundwater hydrology, particularly if the course approach is to consider individual problems. It is recommended reading for practicing groundwater hydrologists and will find use as a standard reference work for some years to come. Some might consider the volume to be worthwhile for Bear's discussion alone, which fills a long-felt need for a comprehensive discussion of hydrodynamic dispersion.

GILBERT F. COCHRAN
JOHN V. A. SHARP

*Center for Water Resources Research,
Desert Research Institute,
University of Nevada, Reno*

Books Received

Abortion in a Changing World. Vol. 2. Proceedings of an international conference, Hot Springs, Va., November 1968. Robert E. Hall, Ed. Columbia University Press, New York, 1970. x, 220 pp., illus. \$10.

Acoustical Holography. Vol. 2. Proceedings of an international symposium, Huntington Beach, Calif., March 1969. A. F. Metherell and Lewis Larmore, Eds. Plenum, New York, 1970. xvi, 376 pp., illus. \$22.50.

Advances in Human Genetics. Vol. 1. Harry Harris and Kurt Hirschhorn, Eds. Plenum, New York, 1970. xii, 340 pp., illus. \$19.50.

Annual Review of Fluid Mechanics. Vol. 2. Milton Van Dyke, Walter G. Vincenti and J. V. Wehausen, Eds. Annual Reviews, Palo Alto, Calif., 1970. viii, 462 pp., illus. \$10.

Antarctic Ecology. Vol. 2. M. W. Holdgate, Ed. Published for the Scientific Committee on Antarctic Research by Academic Press, New York, 1970. x, pp. 605-998, illus. \$14.

Applied Spectroscopy. Selected Reprints and Review Articles. Vol. 1, 1970.

John R. Ferraro, Donald L. Horrocks, and Bruce B. Murray, Eds. Society for Applied Spectroscopy, P.O. Box 306, Lewiston, N.Y. ii, 138 pp., illus. Paper. Free to members of the Society.

Archaeology as Anthropology. A Case Study. William A. Longacre. University of Arizona Press, Tucson, 1970. vi, 58 pp., illus. Paper, \$4. University of Arizona Anthropological Papers, No. 17.

Aristotle's Physics. Books 1 and 2. Translated with introduction and notes by W. Charlton. Oxford University Press, New York, 1970. xx, 152 pp. Cloth, \$5.50; paper, \$2.85. Clarendon Aristotle Series.

Aspekte der chemischen und toxi-kologischen Beschaffenheit der Umwelt. Chemical and Toxicological Aspects of Environmental Quality. An international symposium, Munich, July 1969. Thieme, Stuttgart, 1970 (U.S. distributor, Intercontinental Medical Book Corp.). 160 pp., illus. Paper, DM 38.

The Assessment of Biological Age in Man. F. Bourlière. World Health Organization, Geneva, 1970 (available from American Public Health Association, New York). 68 pp., illus. Paper, \$1.75. Public Health Papers, No. 37.

Before Nature Dies. Jean Dorst. Translated from the French edition (Neuchâtel, Switzerland, 1965) by Constance D. Sherman. Mifflin, Boston, 1970. 352 pp., illus. + plates. \$8.95.

Between Two Ages. America's Role in the Technetronic Era. Zbigniew Brzezinski. Viking, New York, 1970. xviii, 334 pp., illus. \$7.95.

A Bibliography for the Continuing Dialogue. Convocation Honoring Dr. Ernst Weber. Polytechnic Institute of Brooklyn and Society of Sigma Xi, Polytechnic Chapter, Brooklyn, N.Y., 1970. ii, 48 pp. Paper, \$3. Polytechnic Institute of Brooklyn Libraries Publication No. 28.

The Bisected Brain. Michael S. Gazzaniga. Appleton-Century-Crofts (Meredith), New York, 1970. xiv, 172 pp., illus. \$10. Neuroscience Series, vol. 2.

Boundary Value Problems of Mathematical Physics and Related Aspects of Function Theory. Part 2. O. A. Ladyzhenskaya, Ed. Translated from the Russian edition (Leningrad, 1968). Consultants Bureau, New York, 1970. viii, 100 pp. Paper, \$15. Seminars in Mathematics, vol. 7.

Brunelleschi. Studies of His Technology and Inventions. Frank D. Prager and Gustina Scaglia. M.I.T. Press, Cambridge, Mass., 1970. xvi, 152 pp., illus. \$10.

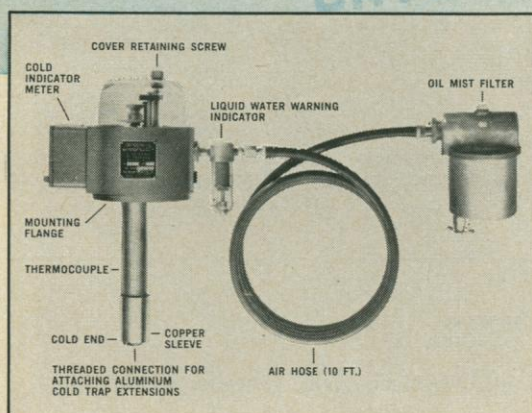
Camera in the Works. A Miscellany of Pictures from the Vickers Archives. Selected by Leslie Sansom. Elsevier, New York, 1970. viii, 148 pp. \$21.50.

The Carbohydrates. Chemistry and Biochemistry. Vol. 2A. Ward Pigman, Derek Horton, and Anthony Herp, Eds. Academic Press, New York, ed. 2, 1970. xx, 522 pp., illus. \$26.50.

Carbonate Sedimentation and Environments, Shark Bay, Western Australia. Brian W. Logan, Graham R. Davies, James F. Read, and Donald E. Cebulski. American Association of Petroleum Geologists, Tulsa, Okla., 1970. x, 224 pp., illus. \$16. AAPG Memoir 13.

Catalytic Processes and Proven Cata-
(Continued on page 662)

**Help us Find a New Name for our
Cryogenic Refrigerator, and We'll
Give One to the Person who Supplies It!**



including the choice of cold trap extension or any other cataloged accessory (complete description upon request) . . . or, a compact, office style refrigerator.

scribes all models. ALL ENTRIES MUST BE POSTMARKED BEFORE FEBRUARY 15, 1971. In case of duplicate winners, that one bearing the earliest postmark will win. In case of duplicate postmark date, both entries will be winners. Each entry must be mailed separately — there is no limit to the number of times you may enter. NOTE: Each person entering a "name" suggestion will be awarded a Welch Duo-Seal Vacuum Pump SelecTorr (circular slide rule type selector). All entries become the property of Sargent-Welch Scientific Company.

WELCH
VACUUM PRODUCTS

Elements of Linear Algebra. Anthony J. Pettofrezzo. Prentice-Hall, Englewood Cliffs, N.J., 1970. xii, 292 pp., illus. \$7.95.

The Engineering Uses of Holography. Proceedings of a symposium, Glasgow, Scotland, September 1968. Elliot R. Robertson and James M. Harvey, Eds. Cambridge University Press, New York, 1970. xxxii, 590 pp., illus. + plates. \$39.50.

Evaluation of Novel Protein Products. Proceedings of an international symposium, Stockholm, September 1968. A. E. Bender, R. Kihlberg, B. Löfqvist, and L. Munck, Eds. Pergamon, New York, 1970. x, 340 pp., illus. \$18.50.

The Executive's Guide to Successful Speechmaking. Ewan Mitchell. Vertex, Princeton, N.J., 1970. viii, 168 pp. \$6.95.

Flora of Turkey and East Aegean Islands. Vol. 3. P. H. Davis, Ed. Edinburgh University Press, Edinburgh; Aldine, Chicago, 1970. xx, 628 pp., illus. \$33.50.

Fodder Plants in the Sahel Zone of Africa. Reinhold Bartha. Weltforum Verlag, Munich; Humanities Press, New York, 1970. xxvi, 306 pp., illus. \$22.50. Afrika-Studien.

Fortschritte auf dem Gebiet der Neurochirurgie. A symposium, Göttingen, June 1968. K. A. Bushe, Ed. Hippokrates, Stuttgart, 1970. 332 pp., illus.

Freezing Point. Cold as a Matter of Life and Death. Lucy Kavalier. Day, New York, 1970. 416 pp. \$8.95.

Functional Analysis. Proceedings of a symposium, Monterey, Calif., October 1969. Carroll O. Wilde, Ed. Academic Press, New York, 1970. x, 162 pp. \$8.

The Functions of Life. A Laboratory Guide for Animal Physiology. James D. Witherspoon. Addison-Wesley, Reading, Mass., 1970. x, 210 pp., illus. Paper, \$4.50. Addison-Wesley Series in Life Science.

Fundamentals of Behavior Pathology. Richard M. Suinn. Wiley, New York, 1970. x, 518 pp., illus. \$9.95. Series in Psychology.

Fundamentals of Clinical Chemistry. Norbert W. Tietz, Ed. Saunders, Philadelphia, 1970. xxiv, 984 pp., illus. \$26.

Fundamentals of Physics. David Halliday, Robert Resnick, Farrell Edwards, and John Merrill. Wiley, New York, 1970. xx, 828 pp., illus. \$13.95.

Gonado-Thyroidal Relationship in the Rat. Vlasta Zbuzková-Kmentová. Translated from the Czech manuscript by Margaret Schierlová. Universita Karlova, Prague, 1969. 144 pp., illus. Paper, 20 koruna. Acta Universitatis Carolinae Medica, Monographia 38.

Guide to Fluorescence Literature. Vol. 2. Richard A. Passwater. IFI/Plenum, New York, 1970. viii, 370 pp. \$22.50.

Guide to the Literature of the Sugar Industry. An Annotated Bibliographical Guide to the Literature on Sugar and Its Manufacture from Beet and Cane. Compiled by Michael Schalit. Elsevier, New York, 1970. xii, 178 pp. \$10.

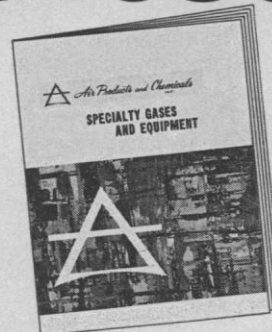
High Temperature Oxides. Part 1, Magnesia, Lime and Chrome Refractories. Allen M. Alper, Ed. Academic Press, New York, 1970. xvi, 358 pp., illus. \$17. Refractory Materials, vol. 5.

Human Chromosomes DNA Synthesis. F. Giannelli. Karger, Basel, 1970 (U.S. distributor, Phiebig, White Plains, N.Y.).

6 NOVEMBER 1970

If you use any of these gases

SEND FOR NEW
SPECIALTY GASES
& EQUIPMENT CATALOG
FROM AIR PRODUCTS



Acetylene	Deuterium	Iodine Pentafluoride	1,3 Pentadiene
Air	Dimethylamine	Isobutane	Perfluorobutene-2
Allene	Dimethyl Ether	Isobutylene	Perfluoropropane
Ammonia	2,2-Dimethylpropane	Krypton	Phosgene
Argon	Doping Gases		Phosphine
			Phosphorus Pentafluoride
Boron Trichloride	Ethane	Methane	Propane
Boron Trifluoride	Ethyl Acetylene	Methyl Acetylene	Propylene
Bromine Pentafluoride	Ethyl Chloride	Methyl Bromide	
Bromine Trifluoride	Ethyl Fluoride	2-Methylbutene-1	Research Grade Gases
Bromotrifluoroethylene	Ethylene	2-Methylbutene-2	
1,3 Butadiene	Ethylene Oxide	3-Methylbutene-1	Silane
Butane		Methyl Chloride	Silicon Tetrafluoride
1-Butene	Fluorine	Methyl Fluoride	Sulfur Dioxide
cis-2-Butene		Methyl Mercaptan	Sulfur Hexafluoride
trans-2-Butene	Halocarbon—	Monoethylamine	Sulfur Tetrafluoride
	11, 12, 13, 13B1,	Monomethylamine	Sulfuryl Fluoride
cis- and trans-2-Butene	14, 21, 22, 23, 113,		
Carbon Dioxide	114, 114B2, 115,	Neon	Tetrafluorohydrazine
Carbon Monoxide	116, 142B, 152A,	Nickel Carbonyl	Trifluoromethyl iodide
Carbonyl Fluoride	C-318, 1132A	Nitric Oxide	Trimethylamine
Carbonyl Sulfide	Helium	Nitrogen	Vinyl Bromide
Carrier Gases	Hexafluoropropene	Nitrogen Dioxide	Vinyl Chloride
Chlorine	Hydrogen	Nitrogen Trifluoride	Vinyl Fluoride
Chlorine Trifluoride	Hydrogen Bromide	Nitrogen Trioxide	Vinyl Methyl Ether
Chlorotrifluoroethylene	Hydrogen Chloride	Nitrosyl Chloride	
Cyanogen	Hydrogen Fluoride	Nitrous Oxide	Xenon
Cyclopropane	Hydrogen Iodide	Oxygen	Zero Gases
	Hydrogen Sulfide		

... Plus customer specified gas mixtures and a complete line of regulators, valves, flowmeters and other accessory equipment.

(Detach and mail this convenient order form today)

S-110

Air Products and Chemicals, Inc.
Specialty Gas Department
733 W. Broad Street, Emmaus, Pennsylvania 18049

Please send new 104-page Specialty Gases and Equipment Catalog No. 5068 listing the industry's largest selection of specialty gases, gas mixtures, and gas handling equipment . . . available nationally from convenient stock points and 65 district offices.

Name/Title _____
Company _____
Address _____
City/State _____ Zip _____



Air Products and Chemicals
INC.

Total Capability and Product Integrity

Circle No. 27 on Readers' Service Card

663

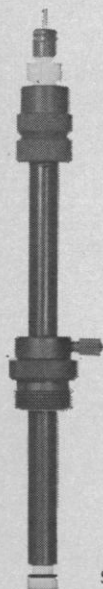


Liquid Chromatography COLUMNS

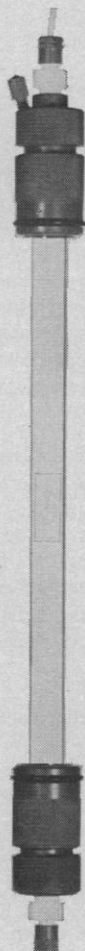
- Diameters: 6mm, 9mm, 15mm, 20mm, 25mm, 50mm, 75mm, 100mm
- Lengths: 15cm to 300cm
- Aqueous and solvent resistant
- Gravity or Pump operation
- No mixing volumes
- Borosilicate glass
- PVC or Teflon end plates
- Ascending or descending flow
- Flareless tubing connectors

• Optional accessories for all sizes:

adjustable plungers
water jackets
sample baskets
column extenders
packing reservoirs
three-way sample valves
flow control valves
eluant reservoirs
gradient elution apparatus
pumps



seal



Write for free bulletin.



GLENCO SCIENTIFIC, INC.

3121 White Oak Drive
Houston, Texas 77007
(713) 864-1212

Circle No. 77 on Readers' Service Card

viii, 156 pp., illus. \$9.50. Monographs in Human Genetics, vol. 5.

International Dictionary of Metallurgy, Mineralogy, and Geology. Mining and Oil Industries. In four languages—English, French, German, and Italian. Compiled by Angelo Cagnacci Schwicker. Technoprint International, Milan; McGraw-Hill, New York, 1968. xvi, 1530 pp. \$38.50. McGraw-Hill Library of International Dictionaries.

Introduction to Evolution. Paul Amos Moody. Harper and Row, New York, ed. 3, 1970. xiv, 528 pp., illus. \$11.95.

Investigation of Porphyry Copper Type Mineralization in the Provinces of Mendoza, Neuquén and San Juan, Argentina. United Nations, New York, 1970. 336 pp., illus. Paper. United Nations Development Programme.

Jean d'Alembert. Science and the Enlightenment. Thomas L. Hankins. Clarendon (Oxford University Press), New York, 1970. xii, 260 pp., illus. \$11.25.

John Dalton and the Atomic Theory. The Biography of a Natural Philosopher. Elizabeth C. Patterson. Anchor, New York, 1970. xii, 348 pp. + plates. Paper, \$1.95. Science Study Series.

Key Issues in Infant Mortality. Report of a conference, Washington, D.C., April 1969. Frank Falkner, Ed. National Institute of Child Health and Human Development, Bethesda, Md. (available from the Superintendent of Documents, Washington, D.C.). xii, 84 pp. Paper, \$1.

Kohlen-Wasserstoffe. Part 3. U. Bahr, H. von Brachel, and H. Wollweber, Eds. Thieme, Stuttgart, 1970 (U.S. distributor, Intercontinental Medical Book Corp., New York). xl, 1296 pp., illus. DM 458. Methoden der Organischen Chemie (ed. 4), vol. 5/1c, part 3.

Languages and Cultures of Western North America. Essays in Honor of Sven S. Liljebäck. Earl H. Swanson, Jr., Ed. Idaho State University Press, Pocatello, 1970. xii, 288 pp., illus. Paper, \$5.

Laser Physics. A. Maitland and M. H. Dunn. North-Holland, Amsterdam; Elsevier, New York, 1969. xii, 414 pp., illus. \$21.

Learning: Theories. Melvin H. Marx, Ed. Macmillan, New York, 1970. x, 340 pp., illus. \$9.95.

Lebesgue's Theory of Integration. Its Origins and Development. Thomas Hawkins. University of Wisconsin Press, Madison, 1970. xvi, 228 pp., illus. \$12.50.

Linear Accelerators. Pierre M. Lapostolle and Albert L. Septier, Eds. North-Holland, Amsterdam; Elsevier, New York, 1970. xxii, 1204 pp., illus. \$61.

Linear Energy Transfer. International Commission on Radiation Units and Measurements, Washington, D.C., 1970. viii, 52 pp., illus. Paper, \$3. ICRU Report 16.

Magnetic Neutron Diffraction. Yurii A. Izyumov and Ruslan P. Ozerov. Translated from the Russian edition (Moscow, 1966). Plenum, New York, 1970. xviii, 598 pp., illus. \$37.50.

Mathematical Psychology. An Elementary Introduction. Clyde H. Coombs, Robyn M. Dawes, and Amos Tversky. Prentice-Hall, Englewood Cliffs, N.J., 1970. xii, 420 pp., illus. \$10.95. Prentice-Hall Series in Mathematical Psychology.

The Measurement of Sensation. A Cri-

tique of Perceptual Psychophysics. C. Wade Savage. University of California Press, Berkeley, 1970. xiv, 578 pp., illus. \$15.

Medical Radionuclides: Radiation Dose and Effects. Proceedings of symposium, Oak Ridge, Tenn., December 1969. Roger J. Cloutier, C. Lowell Edwards, Walter S. Snyder, and Elizabeth B. Anderson, Eds. U.S. Atomic Energy Commission, Oak Ridge, 1970 (available as CONF-691212 from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). x, 530 pp., illus. Paper, \$3. AEC Symposium Series, No. 20.

La Mémoire. Proceedings of a symposium, Geneva, 1968. Presses Universitaires de France, Paris, 1970. 304 pp., illus. Paper, 40 F. Bibliothèque Scientifique Internationale.

Metallorganische Verbindungen. Al, Ga, In, Tl. B. Bähr, P. Burba, H. Lehmkuhl, and K. Ziegler, Eds. Thieme, Stuttgart, 1970. xxviii, 432 pp., illus. DM 155. Methoden der Organischen Chemie (ed. 4), vol. 13, part 4.

Modern Analytical Techniques for Metals and Alloys. Parts 1 and 2. R. F. Bunshah, Ed. Interscience (Wiley), New York, 1970. Part 1, xii, 440 pp., illus. \$22; part 2, xii, pp. 419-928, illus. \$27. Techniques of Metals Research, vol. 3, parts 1 and 2.

Molecular Beams and Reaction Kinetics. Course 44. Proceedings of an international school of physics, Varenna, Italy, 1968. Ch. Schlier, Ed. Academic Press, New York, 1970. xviii, 440 pp., illus. \$20.

Molecular Mechanisms in Memory and Learning. Georges Ungar, Ed. Plenum, New York, 1970. xiv, 296 pp., illus. \$15.

Motivation and Personality. Abraham H. Maslow. Harper and Row, New York, ed. 2, 1970. xxx, 370 pp. Paper, \$5.95.

Nebraska Symposium on Motivation 1969. William J. S. Arnold and David Levine, Eds. University of Nebraska, Lincoln, 1969. xii, 334 pp., illus. Cloth, \$6.95; paper, \$3.25. Current Theory and Research in Motivation, vol. 17.

Nous Irons Travailler sur la Lune. Francis Gérard. Denoël, Paris, 1970. 224 pp. Paper, 24 F.

Planning and Analysis of Clinical Studies. Walter J. Burdette and Edmund A. Gehan. Thomas, Springfield, Ill., 1970. xii, 104 pp., illus. \$11.75.

The Population Problem. Arthur McCormack. Crowell, New York, 1970. viii, 264 pp., illus. \$7.95.

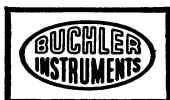
Prenatal Respiration. Heinz Bartels. North-Holland, Amsterdam; Elsevier, New York, 1970. xii, 188 pp., illus. \$11.95. Frontiers of Biology, vol. 17.

Principles of Business Data Processing. Science Research Associates, Chicago, Ill., 1970. vi, 310 pp., illus. \$8.95. Workbook, iv, 154 pp., illus. Paper, \$3.96. Instructor's Guide, iv, 128 pp., illus. Paper, \$2.

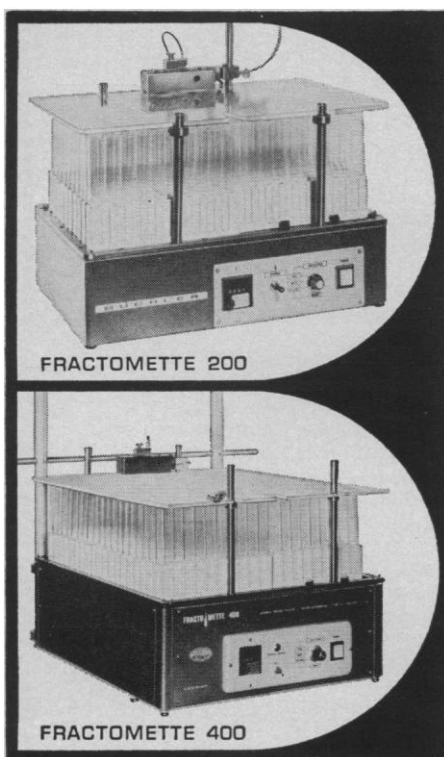
Progress in Mathematics. Vol. 6, Topology and Geometry. R. V. Gamkrelidze, Ed. Translated from the Russian edition (Moscow, 1967) by N. H. Choksy. Plenum, New York, 1970. x, 270 pp. \$19.50.

Project Control Standards. Dick H. Brandon and Max Gray. Brandon/Systems, Princeton, N.J., 1970. viii, 204 pp., illus. \$10.

Collect the **LARGEST**
Number of Samples
in the **LEAST**
Amount of Space



LINEAR FRACTION COLLECTORS



Here are two compact, versatile fraction collectors designed to do a big job in a small space. The "Fractometre 200" uses 200 18 mm O.D. test tubes while the "Fractometre 400" has a capacity of 400 tubes. Both fraction collectors provide drop, time and volume methods of collection. Fractions dispense directly into the tubes preventing cross-contamination. The "Fractometre 200" measures only 11½" x 17½"; the "Fractometre 400" is 17½" x 24½".

BUCHLER INSTRUMENTS DIVISION NUCLEAR-CHICAGO CORP.

A SUBSIDIARY OF G. D. SEARLE & CO.
1327 SIXTEENTH ST., FORT LEE, N. J. 07024

Circle No. 80 on Readers' Service Card

Protein Metabolism of the Nervous System. Abel Lajtha, Ed. Plenum, New York, 1970. xxii, 732 pp., illus. \$45.

The Proteins. Composition, Structure, and Function. Hans Neurath, Ed. Vol. 5, Metalloproteins. Bert L. Vallee and Warren E. C. Wacker, Academic Press, New York, ed. 2, 1970. xx, 192 pp., illus. \$10.

Psychoanalytic Interpretations. The Selected Papers of Thomas M. French. Quadrangle Books, Chicago, Ill., 1970. xii, 560 pp. \$20.

Radar Cross Section Handbook. George T. Ruck, Donald E. Barrick, William D. Stuart, and Clarence K. Krichbaum. George T. Ruck, Ed. Plenum, New York, 1970. Two volumes, xlii, 950 pp., illus. \$75.

Radiation Dosimetry: X Rays Generated at Potentials of 5 to 150 kV. International Commission on Radiation Units and Measurements, Washington, D.C., 1970. xii, 40 pp., illus. Paper, \$2.50. ICRU Report 17.

Radioactive Nuclides in Medicine and Biology. Basic Physics and Instrumentation. Edith H. Quimby, Sergei Feitelberg, and William Gross. Lea and Febiger, Philadelphia, ed. 3, 1970. xii, 390 pp., illus. \$12.50.

Random Counts in Scientific Work. Vol. 1, Random Counts in Models and Structures. G. P. Patil, Ed. Pennsylvania State University Press, University Park, 1970. viii, 268 pp., illus. \$9.50. Penn State Statistics Series.

Red Cell Metabolism and Function. Proceedings of an international conference, Ann Arbor, Mich., October 1969. George J. Brewer, Ed. Plenum, New York, 1970. xx, 390 pp., illus. \$17.50. Advances in Experimental Medicine and Biology, vol. 6.

Regional Urban Communications. A Special Staff Project by the Citizen Information Division of Metropolitan Fund, Inc., Donn Shelton, Director. Metropolitan Fund, Detroit, Mich., 1970. xviii, 182 pp., illus. Paper, \$8.50.

Review of Plasma Physics. Vol. 5. M. A. Leontovich, Ed. Translated from the Russian edition (Moscow, 1967) by Herbert Lashinsky. Consultants Bureau, New York, 1970. xiv, 625 pp., illus. \$25.

Sensory Evaluation of Food. Annotated Bibliography. Birger Drake and Birgit Johansson. Vol. 1, Introduction; part 1, Physiology; part 2, Psychology. Vol. 2, part 3, Methods; part 4, Applications; index. xvi, 418 pp. Svenska Institutet för Konserveringsforskning, Göteborg, 1969. SIK-Rapport No. 255.

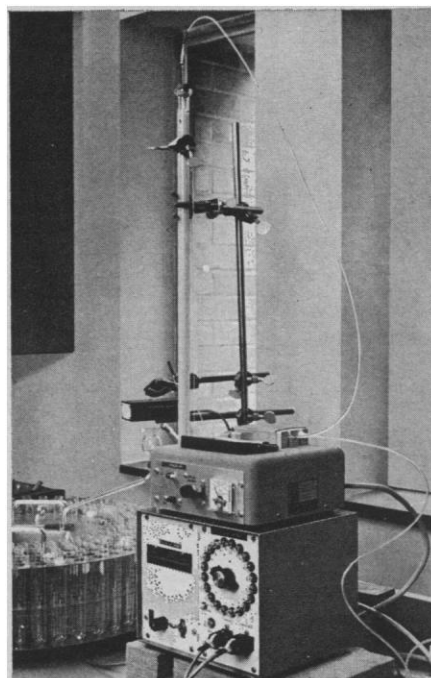
The Sexes. Donald E. Carr. Doubleday, Garden City, N.Y., 1970. xii, 252 pp. \$6.95.

Silicon Carbide. I. N. Frantsevich, Ed. Translated from the Russian edition (1966) by Simon Lyse. Consultants Bureau, New York, 1970. viii, 276 pp., illus. Paper, \$35.

Sleep and Dreaming. Ernest Hartmann, Ed. Little, Brown, Boston, 1970. xx, 444 pp., illus. \$12.50. International Psychiatry Clinics, vol. 7, No. 2.

The Solid State Maser. Solid State Physics Division, Mullard Research Laboratories. Pergamon, New York, 1970. x, 284 pp., illus. + plates. Cloth, \$7; paper, \$5.50. Selected Readings in Physics.

Accurate Within $\pm 1\%$



HOLTER™ Precision Roller Pumps

Designed for versatility and accurate flow rates, the Holter RL175 Roller Pump offers virtually non-pulsatile performance and a wide range of flow rates—all in one compact unit.

Flow rates can be varied from .2–2500 cc/hr, with rates adjusted precisely and easily—and maintained within $\pm 1\%$. Two separate channels permit pumping of two dissimilar fluids simultaneously, at the same or different flow rates, depending on pumping chamber selection.

Unique design features include: silicone pumping chambers which maintain accuracy and elasticity for their full pumping life of up to 2,000 hours; no fluid flow when pump is turned off; solid state circuitry for reliability. Pump may be operated in refrigerated areas and is gas sterilizable.

Typical uses include:

- ☐ Liquid Chromatography
- ☐ Bio-medical Applications
- ☐ Organ Perfusion
- ☐ Pharmacological Research
- ☐ Precipitation Analysis
- ☐ Solubility Determination
- ☐ Food and Chemical Processing
- ☐ Water Pollution Monitoring

For further information, call or write:

EXTRACORPOREAL MEDICAL SPECIALTIES, INC.
Church Road, Mt. Laurel Township, N.J. 08057 (609) 235-7530



Circle No. 78 on Readers' Service Card

JOHN R. PLATT

Perception and Change Projections for Survival

Humanism and science—in that order—are the wellsprings of these important and vigorous essays by the noted biophysicist John R. Platt. Ranging from a discussion of mystical experience to a timetable for the achievement of peace, a livable environment, and true community, the essays focus preeminently on the dignity and creativity of man. \$7.95

HOWARD E. EVANS and MARY JANE WEST EBERHARD The Wasps

A fascinating introduction to these extraordinary denizens of the insect world.

\$7.95 / paperbound \$3.45

STILLMAN DRAKE Galileo Studies

Personality, Tradition,
and Revolution

The distinguished scholar Stillman Drake here presents his famous subject in an insightful new light, by focusing on the individuality of Galileo's creative work. \$8.50

 The University
of Michigan Press
ANN ARBOR

Circle No. 127 on Readers' Service Card

Index of Advertisers

Air Products and Chemicals, Inc.	663
Bausch & Lomb, Scientific Instruments Div.	581
Beckman Instruments, Inc.	566
Brinkmann Instruments	576, 667
Buchler Instruments Div., Nuclear-Chicago Corp.	666
Dole Co., Chemical Div.	671
Electronic Navigation Industries	669
Esterline Angus	571
Extracorporeal Medical Specialties, Inc.	666
General Electric	584
Gilson Medical Electronics	586
Glenco Scientific, Inc.	664
Hyland	585
ISCO	580
Klett Manufacturing Co., Inc.	665
Lab Products, Inc.	578
LKB Instruments Inc.	575
Nalge Labware Div., Nalge Co., Div. of Sybron Corp.	582
New Brunswick Scientific Co., Inc.	570
Philips Electronic Instruments	574
La Recherche	579
Sargent-Welch Scientific Co.	662
Schwarz/Mann	583
Shandon Scientific Co., Inc.	669
Sherer-Gillett Co.	585
Siemens America Inc.	672
Sigma Chemical Co.	668
Sorvall, Ivan, Inc.	588
Technilab Instruments, Inc.	580
Thermolyne, Div. of Sybron Corp.	567
University of Calgary	668
University of Michigan Press	667
Wiley-Interscience	665
Zeiss, Carl, Inc.	572, 573

The State of American History. Herbert J. Bass, Ed. Quadrangle, Chicago, 1970. xiv, 426 pp. \$15.

Statistical Functions. A Source of Practical Derivations Based on Elementary Mathematics. Buddy L. Myers and Norbert L. Enrick. Kent State University Press, Kent, Ohio, 1970. Cloth, \$8; paper, \$4.25.

Stereotaxic Atlas of the Brain of Macaca fuscata. Toshio Kusama and Masako Mabuchi. University of Tokyo Press, Tokyo, Japan; University Park Press, Baltimore, Md., 1970. 80 pp., illus. \$24.50.

Stochastic Tools in Turbulence. John L. Lumley. Academic Press, New York, 1970. xiv, 194 pp., illus. \$12. Applied Mathematics and Mechanics, vol. 12.

Stoffwechsel des Neugeborenen. Metabolism of the Newborn. Proceedings of a symposium, Deidesheim/Weinstrabe, October 1968. G. Joppich and H. Wolf, Eds. Hippokrates, Stuttgart, 1970. 448 pp., illus.

Strength of Biological Materials. Hiroshi Yamada. F. Gaynor Evans, Ed. Williams and Wilkins, Baltimore, Md., 1970. x, 298 pp., illus. \$22.50.

Thermal Neutron Diffraction. B. T. M. Willis, Ed. Proceedings of an international summer school, Harwell, England, July 1968. Oxford University Press, New York, 1970. xiv, 230 pp., illus. Paper, \$10.40.

Thermodynamics. Joseph H. Keenan. M.I.T. Press, Cambridge, Mass., 1970. xii, 508 pp., illus. Cloth, \$12.50; paper, \$3.95. Reprint of the 1941 edition.

Thermophysics. Applications to Thermal Design of Spacecraft. Papers presented at conferences: New York, January 1969; San Francisco, Calif., June 1969. Jerry T. Bevans, Ed. Academic Press, New York, 1970. xviii, 580 pp., illus. \$19.50. Progress in Astronautics and Aeronautics, vol. 23.

Three Approaches to Electron Correlation in Atoms. Oktay Sinanoglu and Keith A. Brueckner. Yale University Press, New Haven, Conn., 1970. x, 388 pp., illus. \$12.50. Yale Series in the Sciences.

Topics in Organic Mass Spectrometry. A. L. Burlingame, Ed. Wiley-Interscience, New York, 1970. xii, 472 pp., illus. \$22.50. Advances in Analytical Chemistry and Instrumentation, vol. 8.

Tracer Diffusion Data for Metals, Alloys, and Simple Oxides. John Askill. IFI/Plenum, New York, 1970. viii, 108 pp., illus. \$12.50.

Vacancies and Interstitials in Metals. Proceedings of a conference, Jülich, Germany, September 1968. A. Seeger, D. Schumacher, W. Schilling, and J. Diehl, Eds. North-Holland, Amsterdam; Elsevier, New York, 1970. xiv, 1074 pp., illus. \$48.50.

Vanishing Air. The Ralph Nadar Study Group Report on Air Pollution. John C. Esposito, project director; Larry J. Silverman, associate director. Grossman, New York, 1970. xvi, 328 pp. Paper, 95¢.

Zelle und Gewebe. Eine Einführung für Mediziner und Naturwissenschaftler. Harold Sajonski, Alfred Smollich, and Dina Lindner. Illustrated by E. Rossa. Hirzel, Leipzig, 1969. viii, 256 pp., illus. DM 33.90.

The Polytron® homogenizer.

If it can be
done, we
can probably
do it.

The
Willems
Polytron®
homogen-
izer is
unlike

any mixer you've ever used. It works on a unique principle—kinetic plus ultrasonic energy. And it often succeeds where other instruments fail.

Homogenization by sound waves means that tissues are broken down quickly to sub-cellular level without destruction of enzyme activity. You'd be hard-pressed to do that with other kinds of mixers.

In the applications field, the Polytron has proved so effective in inducing physical and chemical change that it has already revolutionized many procedures. Whether it be for dispersing, homogenizing, emulsifying or disrupting, a Polytron is available in the size to meet your specific requirements.

Contact us if you have any questions. Both literature and a demonstration are available on request.



Brinkmann Instruments, Inc.
Cantiague Road,
Westbury, L. I., N.Y. 11590
Brinkmann Instruments
(Canada), Ltd.,
50 Galaxy Boulevard,
Rexdale (Toronto), Ontario.

Circle No. 85 on Readers' Service Card