

Your Best Source FOR "Off-The-Shelf" OPTICS IN THE U.S.A.



ROLYN OPTICS

P.O. Box 148 • Arcadia, Calif. 91006

Circle No. 35 on Reader Service Card

adventures in experimental physics

A Selection of Innovative,
Unconventional and
Adventurous Experiments **1972**
bogdan maglich
editor

In consultation with foremost physicists
from the U.S.A., Western Europe &
U.S.S.R. With personal discovery stories,
explanatory physics notes for non-special-
ists, and subsequent developments.

First time discoverer tells why & how he did it.
A stimulating teaching tool. An authentic
source book of new ideas & recent develop-
ments. Published twice a year—January
& July.

For my personal use. I will not make it available
to any library, laboratory or other institution.

- ☐ One year (2 issue) personal sub. at \$8.90
- ☐ One issue at \$5.00 per issue
- ☐ Students check here (10% discount).
- ☐ Please send more information before I decide.

Name _____

Address _____

City _____ State _____ Zip _____

Check enclosed ☐ Mail to: World Science
Communications, Box 683,
Princeton, N.J. 08540

Bill me ☐

Libraries and Institutions! Please note institutional
prices are twice the above quoted. Above rates apply
to personal subscribers in U.S. and Canada. Overseas,
add 10%. All prices inclusive of postage.

Circle No. 36 on Reader Service Card

Physics for Society ought to be well
received as a text for nonscience majors.
Inclusion of additional historical and
cultural aspects of physics by the in-
structor should make a course that uses
the book even more interesting. The
success of the book in increasing the
enrollment of nonscience majors will
depend to a large degree on the expertise
of the instructor in the frontier aspects
as well as the cultural aspects of physics.

ROBERT L. DOUGH
Eastern Carolina University
Greenville, North Carolina

new books

CONFERENCE PROCEEDINGS

Afterloading in Radiotherapy (Conf. proc.
New York, 6-8 May 1971). N. Simon, ed.
504 pp. US Government Printing Office,
Washington, D. C., 1971. \$3.75

Electron Microscopy in Material Science
(Conf. proc. Ettore Majorana International
Centre for Scientific Culture, 1970 Inter-
national School of Electron Microscopy, a
NATO Advanced Study Institute, Erice,
Italy, 4-18 April 1970). U. Valdrè, ed. 757
pp. Academic, New York, 1972. \$35.00

Galactic Astronomy (Summer Institute for
Astronomy and Astrophysics, Stony Brook,
N. Y., Summer 1968), Vols. 1 and 2. H. Y.
Chiu, A. Muriel, eds. 334 pp., 330 pp. Gor-
don and Breach, New York, 1970. Vol. 1:
reference, \$22.50, prepaid, \$18.00; individ-
uals, \$12.50, prepaid, \$10.00; Vol. 2: re-
ference, \$21.00, prepaid, \$16.80; individuals,
\$10.50, prepaid, \$8.40

**International Journal of Quantum Chem-
istry: Symposium No. 5** (Conf. proc. Inter-
national Symposium on Atomic, Molecular
and Solid-State Theory and Quantum
Biology, Sanibel Island, Fla., 18-23 Jan.
1971). P. O. Löwdin. 792 pp. Interscience,
New York, 1972. \$29.95

New Techniques in Space Astronomy
(Conf. proc. IAU Symposium No. 41, Mu-
nich, Germany, 10-14 Aug. 1970). F. La-
buhn, R. Lüst, eds. 418 pp. Springer-
Verlag, New York, 1971. \$29.00

Phonons (Conf. proc. Rennes, France, 1971).
By M. A. Nusimovici. 502 pp. Flammarion
Sciences (International Scholarly Book
Services), Paris, France, 1971. \$20.00

**Proceedings of the Second International
Conference on Light Scattering in Solids**
(Conf. proc. Paris, France, 19-23 July 1971).
M. Balkanski, ed. 518 pp. Flammarion
(International Scholarly Book Services),
Paris, France, 1971. \$45.00

Statistical Models and Turbulence (Conf.
proc. Univ. of Calif., San Diego, 15-21 July
1972). M. Rosenblatt, C. Van Atta, eds. 492

IT'S HERE . . .



. . . the $^3\text{He}/^4\text{He}$ Dilution Refriger-
ator system by Cryogenic Associates
. . . tested, proven and licensed* . . .
a superior performer in the field.

The complete modular system de-
livers continuous externally meas-
ured sample temperatures as low as
 0.020°K . Heat extraction capability
(also measured externally) is as
large as 1000 erg/sec. at 0.1°K and
120 erg/sec. at 0.040°K .

There's more! The versatility of de-
sign allows individual components to
be matched to specific needs. Sev-
eral optional devices make it even
more interesting.

Complete specifications are yours on
request. One look and you'll easily
determine that Cryogenic Associ-
ates' Dilution Refrigerator is the
answer for Mossbauer Effect Spec-
troscopy/Polarized Targets for Nu-
clear and Elementary Particle
Physics/Quantum Liquids/Super-
conductivity/Thermal Transport
Properties of Solids/Kondo Effect/
Nuclear Demagnetization.

CRYOGENIC ASSOCIATES INC.



"... for the finest
in Cryogenic Systems".

1718 North Luett Avenue
Indianapolis, Indiana 46222
Phone: (317) 632-2515

*Licensed under U.S. Pat. No.
3,195,322

Circle No. 37 on Reader Service Card

New and Free.

Our 1973 Catalog.

Contains all the Ealing equipment, systems and related materials for teaching physics. Includes new equipment for mechanics; thermodynamics; electronics; optics; magnetism; nuclear, atomic and electron physics. A complete listing of Ealing air products is also included.

Drop us a line and we'll send you a copy.

The Ealing Corporation
Science Teaching Division
2225K Massachusetts Avenue
Cambridge, Mass. 02140



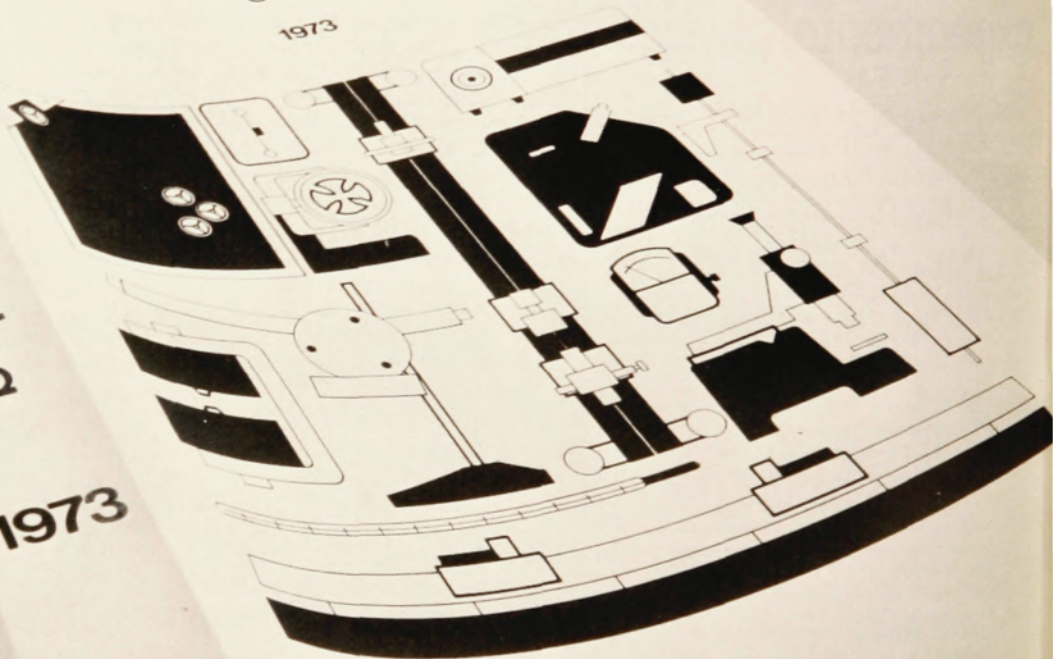
Ealing
Science Teaching

Ealing Science Teaching Catalog

1973

Ealing
Science Teaching
Catalog

1973



Hi-Voltage Power Supplies

MINIATURE 10W FLATPACK POWER SUPPLIES—"F" SERIES

- Only 6.4 cu. in. 2"x4"x0.8"
- Remotely Adjustable
- Output Floating
- Efficiency >60%
- Short Circuit & Reverse Polarity Protected
- -55°C to +100°C Temp Range



F-50	5000V to 2500V @ 2ma	\$285
F-25	2500V to 1250V @ 4ma	\$260
F-12	1200V to 600V @ 8 ma	\$235
F-6	600V to 300V @ 16ma	\$209

PRECISION MINIATURE CRT POWER SUPPLIES—"G" SERIES

- Miniature 15 cu. in.
- Remotely Adjustable
- Short Circuit & Reverse Polarity Protected
- MTBF 42,000 Hrs.
- Airborne Applications to 50,000 F



Model	Output Voltage Range	Reg L/L	Ripple P-P	Price
G-5	500V to 5000V	0.1%	0.15%	\$450
G-10	1000V to 10,000V	0.1%	0.15%	\$490
G-12	1200V to 12,000V	0.1%	0.15%	\$550

VSI manufactures a complete line of high voltage power supplies for Image Intensifiers, Photomultiplier & Cathode Ray Tubes. Send for our new catalog.

Venus Scientific Inc.

399 SMITH STREET
FARMINGDALE, N.Y. 11735
Telephone (516) 293-4100
TWX: 510-224-6492

Circle No. 39 on Reader Service Card

pp. Springer-Verlag, New York, 1972.

Stellar Rotation (Conf. proc. IAU Colloquium, Ohio State Univ., Columbus, Ohio, 8-11 Sept. 1969). A. Slettebak, ed. 355 pp. Gordon and Breach, New York, 1970. Reference, \$29.50; prepaid, \$23.60. Professional, \$14.95; prepaid, \$11.95

ELEMENTARY PARTICLES

Notes on Elementary Particle Physics. By H. Muirhead. 252 pp. Pergamon, New York, 1971. \$13.75

NUCLEI

Nuclear Radiation Physics. By R. E. Lapp, H. L. Andrews. 4th ed. 447 pp. Prentice-Hall, Englewood Cliffs, N. J., 1972. \$13.95

ATOMS AND MOLECULES

The Calculation of Atomic Collision Processes. By K. Smith. 218 pp. Interscience, New York, 1971. \$13.95

New Directions in Atomic Physics, Vol. 1: Theory, Vol. 2: Experiment. E. U. Condon, O. Sinanoglu, eds. 250 pp., 163 pp. Yale U. P., New Haven, Conn., 1972. Vol. 1, \$12.50; Vol. 2, \$7.50

OPTICS

Atlas of Optical Phenomena (supplement). By M. Cagnet, M. Françon, S. Mallick. 15 plates. Springer-Verlag, New York, 1971. \$25.50

Introduction to Classical and Modern Optics. By J. R. Meyer-Arendt. 588 pp. Prentice Hall, Englewood Cliffs, N. J., 1972. 1972.

FLUIDS, PLASMAS

Elements of Transport Phenomena. By L. E. Sissom, D. R. Pitts. 814 pp. McGraw-Hill, New York, 1972. \$18.50

Fluid Mechanics. By T. Allen Jr, R. L. Dittsworth. 415 pp. McGraw-Hill, New York, 1972. \$15.50

Methods in Nonlinear Plasma Theory. By R. C. Davidson. 356 pp. Academic, New York, 1972. \$18.50

Theory of Fully Ionized Plasmas. By G. Ecker. 344 pp. Academic, New York, 1972. \$19.50

SOLID STATE, METALS

Electronic Processes in Non-Crystalline Materials. By N. F. Mott, E. A. Davis. 437 pp. Oxford U. P., New York, 1971. \$24.00

The Fermi Surfaces of Metals: A Description of the Fermi Surfaces of the Metallic Elements. By A. P. Cracknell. 283 pp. Barnes and Noble (Taylor and Francis, UK), New York, 1971. \$11.25

Glass. By G. O. Jones. 128 pp. Harper and Row, New York, 1972. Cloth, \$5.00; paper, \$3.25

Piezoelectric Ceramics. By B. Jaffe, W. R. Cook Jr, H. Jaffe. 317 pp. Academic, New York, 1971. \$16.00

Plasma Effects in Metals: Helicon and Alfvén Waves. By E. A. Kaner, V. G. Skobov. 142 pp. Barnes and Noble (Taylor and Francis, UK), New York, 1971. \$8.00

Surface Self-Diffusion. By G. Neumann, G. M. Neumann. 129 pp. Diffusion Infor-

ELSCINT's Timing Discriminator



takes a little time to prove itself . . . just

440 psec.
in 1 : 100 dynamic range, to be exact*

Contact us . . .
in no time at all
we will answer all
your questions about the
ELSCINT "Snap-Off"
Timing Discriminator,
model STD-N-1

* with fast plastic scintillators

R. Reggev
Princeton Applied Research Corp.
P. O. Box 2565, Princeton,
New Jersey 08540
Tel.: (609) 452-2111

Circle No. 40 on Reader Service Card

mation Center, Bay Village, Ohio, 1972.

LOW TEMPERATURE

Mechanical Properties of Materials at Low Temperatures. By D. A. Wigley. 325 pp. Plenum, New York, 1971. \$19.50

SPACE, ASTRONOMY, GEOPHYSICS

Encyclopedia of Physics, XLIX/3: Geophysics III, Part 3. K. Rawer, ed. 536 pp. Springer-Verlag, New York, 1971. \$57.20

Neutron Stars and Pulsars (Fermi Lectures 1970, Scuola Normale Superiore Di Pisa, Italy). By F. J. Dyson. 85 pp. Accademia Nazionale dei Lincei, Rome, Italy, 1971. L. 1,200

The Optical Aurora. By A. Omholt. 198 pp. Springer-Verlag, New York, 1971. \$17.30

THEORY AND MATHEMATICAL PHYSICS

Lectures in Mathematical Physics, Vol. 2. By R. Hermann. 749 pp. Benjamin, New York, 1972. \$12.50

Lecture Notes in Physics, 11: Perturbation Expansions in Axiomatic Field Theory. By O. Steinmann. 124 pp. Springer-Verlag, New York, 1971. \$4.30

Mathematical Methods in Particle Transport Theory. By M. M. R. Williams. 429 pp. Interscience, New York, 1971. \$33.50

Statistical Physics. By A. Isihara. 437 pp. Academic, New York, 1971. \$18.50

Method of Fractional Steps: Solutions of

Problems of Mathematical Physics in Several Variables. By N. N. Yanenko. 160 pp. Springer-Verlag, New York, 1971. \$13.20

Perspectives in Quantum Theory: Essays in Honor of Alfred Landé. W. Yourgrau, A. van der Merwe, eds. 283 pp. MIT Press, 1971. \$8.95

The Special Theory of Relativity: A Critical Analysis. By L. Essen. 27 pp. Oxford U. P., New York, 1971. \$1.60, paper.

INSTRUMENTATION AND TECHNIQUES

Controlled Test Atmospheres: Principles and Techniques. By G. O. Nelson. 247 pp. Ann Arbor Science Publishers, Ann Arbor, Mich., 1971. \$17.50

Elementary Notes on the Unit Step Function: Theory and Electrical Applications including Problems with Solutions, Part 2. By F. D. Merrill. 181 pp. Star Publications, Chatham, N. J., 1972. \$5.90

Handbook of Laboratory Unit Operations for Chemists and Chemical Engineers. By J. Pinkava. J. Bryant, trans. 470 pp. Gordon and Breach, New York, 1970. \$29.50

Industrial Radiology Techniques, Vol. 3. By R. Hainshaw. 271 pp. Springer-Verlag, New York, 1971. \$10.80

Introduction to Electromagnetic Nondestructive Test Methods. By H. L. Libby. 364 pp. Interscience, New York, 1971. \$17.95

An Introduction to On-Line Computers. By W. W. Black. 447 pp. Gordon and Breach, New York, 1971. Reference, \$22.50,

prepaid, \$18.00. Individual, \$12.50; prepaid, \$10.00

Physical Electronics. By D. K. Ferry, R. Fannin. 287 pp. Addison-Wesley, Reading, Mass., 1971. \$11.95

Progress in Quantum Electronics, Vol. 1, Part 5: Laser Lines in Atomic Species. By C. S. Willett. 82 pp. Pergamon, New York, 1971. \$1.75

Theory of Experiments in Paramagnetic Resonance, Vol. 33 of International Series of Monographs in Natural Philosophy. By J. Talpe. 260 pp. Pergamon, New York, 1971. \$12.00

HEAT, THERMODYNAMICS, STATISTICAL PHYSICS

Analysis of Heat and Mass Transfer. By E. R. G. Eckert, R. M. Drake. 806 pp. McGraw-Hill, Reading, Mass., 1972. \$21.50

Dynamical Aspects of Critical Phenomena. J. I. Budnick, M. P. Kawatra, eds. 628 pp. Gordon and Breach, New York, 1972. \$32.00

Statistical Physics for Students of Science and Engineering. By R. D. Reed and R. R. Roy. 302 pp. Intext Educational Publishers, Scranton, Pa., 1971. \$10.95

Thermal Radiation Heat Transfer. By R. Siegel, J. R. Howell. 813 pp. McGraw-Hill, New York, 1971. \$18.50

Thermodynamic Tables in SI (Metric) Units With Conversion Factors to Other Metric and British Units and Enthalpy-Entropy Diagrams for Steam and Pressure-Enthalpy Diagram for Refrigerant-12. By R. W. Haywood. 42 pp. 2nd ed. Cambridge, U. P., New York, 1972. \$2.75.

New

FOR
MATERIALS
SCIENTISTS,
METALLURGISTS
AND PHYSICISTS

MATERIALS
INFORMATION
AT YOUR
FINGERTIPS



Free!

Over 300 pages covering a broad range of materials, including complete form and purity information for each item listed.

Ventron Corporation

Alfa Products, Dept. G,
8 Congress St., Beverly, Mass. 01915

Please send me a free copy of the Alfa Materials Catalog.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CIRCLE NO. 41 ON SERVICE CARD

GENERAL PHYSICS TEXTS

Atoms and Information Theory: An Introduction to Statistical Mechanics. By R. Baierlein. 486 pp. Freeman, San Francisco, Calif., 1971. \$13.75

Classical Theory of Particles and Fields, Vols. 1, 2. By K. H. Ruei. 359 pp. and 424 pp. University Press, Taiwan, China, 1971. \$8.00; \$10.00

Elementary Electromagnetic Theory, Vol. 1: Steady Electric Fields and Currents. By B. H. Chirgwin, C. Plumpton, C. W. Kilminster. 196 pp. Pergamon, New York, 1971. Cloth, \$6.00; paper, \$4.75

Fundamentals of Atomic Physics. By A. P. Arya. 653 pp. Allyn and Bacon, Boston, Mass., 1971. \$14.95

Interference of Electromagnetic Waves. By A. H. Cook. 253 pp. Oxford U. P., New York, 1971. \$16.00

Mathematical Techniques and Physical Applications. By J. Killinger, G. H. A. Cole. 715 pp. Academic, New York, 1971. \$17.00

Physics: The Behavior of Particles. By P. Stehle. 434 pp. Harper and Row, New York, 1971. \$10.95

The Plasma State. By J. L. Shohet. 333 pp. Academic, New York, 1971. \$13.50

Thermodynamics: Principles and Applications. By F. C. Andrews. 288 pp. Wiley, New York, 1971. \$9.95

Topics in Atomic and Nuclear Theory (Lectures given at the Univ. of Canterbury, New Zealand). By B. J. Judd, J. P. Elliot. 112 pp. International Scholarly Book Services, Portland, Ore., 1971. \$11.20

HISTORY AND PHILOSOPHY

The Construction of Modern Science: Mechanisms and Mechanics. By R. S. Westfall. 171 pp. Wiley, New York, 1971. \$7.50, cloth; \$3.95, paper

Elmer Sperry: Inventor and Engineer. By T. P. Hughes. 348 pp. Johns Hopkins Press, Baltimore, Md., 1971. \$15.00

The Ethereal Aether: A History of the Michelson-Morley-Miller Aether-Drift Experiments, 1880-1930. By L. S. Swenson Jr. 361 pp. University of Texas Press, Austin, Tex., 1972. \$10.00

Exploring the Universe. 2nd ed. L. B. Young, ed. 731 pp. Oxford U. P., New York, 1971. \$12.50, cloth; \$6.50, paper

Physical Science in the Middle Ages. By E. Grant. 128 pp. Wiley, New York, 1971. \$7.50

Faraday as a Natural Philosopher. By J. Agassi. 359 pp. Univ. of Chicago Press, Chicago, Ill., 1971. \$12.50

Nineteenth-Century Aether Theories. By K. F. Schaffner. 278 pp. Pergamon, New York, 1972. \$8.00

Sir Edward Appleton. By R. Clark. 240 pp. Pergamon, New York, 1971. \$10.75

Time in Science and Philosophy: An International Study of Some Current Problems. J. Zeman, Ed. 305 pp. American Elsevier, New York, 1972. \$17.75

PHYSICS AND SOCIETY

Science and Philosophy in the Soviet Union. By L. R. Graham. 584 pp. Knopf, New York, 1972. \$15.00

MISCELLANEOUS

Electron Paramagnetic Resonance—August 1967–July 1969. By D. H. Eargle Jr. 28 pp. Privately published, 1971; D. H. Eargle Jr, Dept. of Chemistry, Universidad de Los Andes, Mérida, Venezuela. \$1.50

Essays in Physics, Vol. III C. K. T. Conn, G. N. Fowler, eds. 169 pp. Academic, New York, 1971. \$4.50

Science and Archaeology. R. H. Brill, ed. 288 pp. MIT Press, Cambridge, Mass., 1971. \$30.00

POPULARIZATIONS

Beyond the Observatory. By H. Shapely. 223 pp. Charles Scribner's Sons, New York, 1972. \$2.65

Continental Drift: A Study of the Earth's Moving Surface. By D. Tarling, M. Tarling. 140 pp. Doubleday, New York, 1971. Cloth, \$5.95; paper, \$1.95

The Fourth State of Matter: Plasma Dynamics and Tomorrow's Technology. By B. Bova. 181 pp. St. Martin's Press, New York, 1971. \$5.95

Invisible Astronomy. By C. A. Ronan. 173 pp. Lippincott, New York, 1972. \$7.95

Our Blue Planet: The Story of the Earth's Evolution. By H. Haber. 86 pp. Charles Scribner's Sons, New York, 1972. \$1.95

Secret Sentries in Space. By P. J. Klass. 237 pp. Random House, New York, 1971. \$7.95

LIGHT MEASUREMENT PROBLEMS?
1,001 solutions from Gamma Scientific



System 2400H
Reflection or
Transmission
Microdensitometer



Get total freedom of choice, using Gamma Scientific's building block approach to light measurement systems. Start with one basic system. Plug in standard modules of compatible units from our wide selection of receptors, spectral selectors, photomultiplier detectors and signal conditioners.

Results—more than 1,001 systems and solutions to solve a broad spectrum of light measurement problems. No special engineering. No special adaptors. No calibration problems. You get total capability and optimum performance.



System 2400E
Microphotometer



System 2400T
Telespectro-
radiometer



System 2400SRA
Spectroradiometer

For more details, request Brochure SF70. Write Gamma Scientific, Inc., 3777 Ruffin Road, San Diego, CA 92123. Immediate solutions? Call collect: 714/279-8034. Cable: GAMS I Telex: 697938

GAMMA SCIENTIFIC Incorporated

Circle No. 42 on Reader Service Card