real and assumed mistakes duly included! Mendel was able to recognize and acknowledge results that did not fit his theory when he accepted Nägeli's advice to use the hawkweeds, *Hieracium*, instead of peas for his experiments. The advice was disastrous, because neither Nägeli nor Mendel knew the fact, discovered half a century later, that the hawkweeds frequently produce seeds by parthenogenesis (apogamy) rather than by sexual crossing.

A fine collection of original papers of the pioneers of Mendelism in the early years following the rediscovery (de Vries, Correns, Tschermak, Bateson, Castle, Cuenot, Garrod, Boveri, Wilson, Sutton, Cannon, McClung) are found, in the original languages and with the original pagination indicated, in the Krizenecky-Nemec volume. Critical discussions of these formative years are given in the introductory part of the Sosna volume and in Dunn's book.

In his book, Dunn, approaching more recent history, of course uses a broader canvas: part 3 of the book is entitled The Theory of the Gene: 1910-1939, and among its chapters are: Genetics in 1939-Mileposts of Progress, The Cytological Basis of the Chromosome Theory, Cytogenetical Analysis, The Experimental Study of Mutation, The Physiology of the Gene, Development and Genetics, The Rise of Population Genetics, and Concluding Reflections. Taking 1939 as a cutoff point is admittedly arbitrary but, as Dunn writes, "by this time the theory of the gene had taken on a more general character. The gene had become an essential term in describing continuity, function, evolution. This expansion in the range of phenomena encompassed by the idea, much greater than could have been foreseen in 1900, had been accomplished by about 1939 without losing the fundamental unity implicit in the original concept of the gene." Nevertheless, Dunn adds a short Postlude: Old and New in Genetics, which sounds almost like a preface to what a historian of genetics might write some decades hence.

The two Mendel memorial symposia contain a great variety of articles, ranging from historical essays to critical reviews of certain problems to descriptions of original research. Only some of the highlights can be mentioned, in full realization that their selection is an arbitrary procedure. In Sosna's volume, Dubinin discusses

Some Cardinal Problems of the Contemporary Theory of Mutations, and there are papers by F. Jacob on Génétique Cellulaire chez les Bactéries, C. H. Waddington on Mendel and Evolution, I. M. Lerner on Mendelism and Animal Breeding, and C. Stern on Mendel and Human Genetics. In the Brink-Styles volume one finds Genes and Gene Complexes, by E. B. Lewis, Properties of Genes, by M. Demerec, An Experimental Analysis of the Genetic Code, by Matthaei and co-workers, The Operon, by Buttin, Jacob, and Monod, Gene Action at the Level of the Chromosome, by W. Beermann, Human Populations, by L. L. Cavalli-Sforza, The Evolutionary Integration of the Genetic Material into Genetic Systems, by T. M. Sonneborn, and, finally, H. J. Muller's valedictory address The Gene Material as the Initiator and the Organizing Basis of Life. Neither symposium, nor both together, can be said to give an inclusive overview of modern genetics; this is not intended as a criticism, since probably no symposium can be organized to accomplish that much. What the collection of books here reviewed does show is how some geneticists viewed the history and the state of their science a century after Mendel's discovery.

Theodosius Dobzhansky Rockefeller University, New York 10021

History of Physics

Sources for History of Quantum Physics. An Inventory and Report. Thomas S. Kuhn, John L. Heilbron, Paul Forman, and Lini Allen. American Philosophical Society, Philadelphia, 1967. 190 pp. \$5.

This is an inventory of about 100 tapes of interviews with leading quantum theoreticians and of about 100 microfilms full of data and of biographical sketches littered with references. Copies of these sources are available in Philadelphia and in Berkeley. The rest is a brief technical report and a sample. The compilers honestly describe the shortcomings of their work and confess inability to assess its future usefulness. As is often the case with hastily collected material, selection will be the chief problem of future users.

JOSEPH AGASSI
Department of Philosophy,
Boston University.

Boston, Massachusetts

Books Received

Absorption Spectra in the Ultraviolet and Visible Region. vol. 7. L. Lang, Ed. Academic Press, New York, 1967. 412 pp. Illus. \$23.

Abstract Algebra. Andrew O. Lindstrum, Jr. Holden-Day, San Francisco, 1967. 223 pp. \$9. Series in Mathematics.

The Actinomycetes: A Summary of Current Knowledge. Selman A. Waksman. Ronald, New York, 1967. 286 pp. Illus. \$12.

The Admiralty Chart: British Naval Hydrography in the Nineteenth Century. G. S. Ritchie. Elsevier, New York, 1967. 400 pp. Illus. \$15.

Advances in Clinical Chemistry. vol. 9. Harry Sobotka and C. P. Stewart, Eds. Academic Press, New York, 1967. 422 pp. Illus. \$16. Six papers.

Alcoholism. David J. Pittman, Ed. Harper and Row, New York, 1967. 286 pp. Paper, \$3.75. Readers in Social Problems Series. Seventeen papers.

America's Natural Resources. Charles H. Callison, Ed. Ronald, New York, ed. 2, 1967. 228 pp. \$5. Eleven papers.

Analysis Instrumentation. vol. 4. Proceedings of the Twelfth Annual Analysis Instrumentation Symposium (Houston, Tex.), May 1966. Lewis Fowler, Raymond G. Harmon, and David K. Roe, Eds. Plenum Press, New York, 1967. 246 pp. Illus. \$17.50. Twenty-five papers.

Analysis of Engineering Cycles. R. W. Haywood. Pergamon, New York, 1967. 292 pp. Illus. \$6.50. Commonwealth and International Library.

The Analysis of Silicates. I. A. Voinovitch, J. Debras-Guedon, and J. Louvrier. Translated from the French by R. Kondor. E. Seijffers, Translation Ed. Israel Program for Scientific Translations, Jerusalem; Davey, New York, 1967. 397 pp. Illus. \$24.

Analytical Trigonometry. Thomas J. Robinson. Harper and Row, New York, 1967. 198 pp. Illus. \$6.

The Anatomy of Achievement Motivation. Heinz Heckhausen. Translated from the German by Kay F. Butler, Robert C. Birney, and David C. McClelland. Academic Press, New York, 1967. 235 pp. \$5.95. Personality and Psychopathology Series.

Annual Review of Medicine. vol. 18. Arthur C. De Graff and William P. Creger, Eds. Annual Reviews, Palo Alto, Calif., 1967. 567 pp. Illus. \$8.50.

Another View of the City. A chronicle of a heritage besieged. Russell Peterson. McGraw-Hill, New York, 1967. 236 pp. Illus. \$6.50.

Applied Stress Analysis. A. J. Durelli. Prentice-Hall, Englewood Cliffs, N.J., 1967. 196 pp. Illus. \$12. Civil Engineering and Engineering Mechanics Series.

Astronomischer Jahresbericht. vol. 65, Die Literatur des Jahres 1965. W. Lohmann, F. Henn, and U. Güntzel-Lingner, Eds. De Gruyter, Berlin, 1967. 760 pp. Paper, 80 DM.

Autoimmunity: Clinical and Experimental. J. R. Anderson, W. W. Buchanan, and R. B. Goudie. Thomas, Springfield, Ill., 1967. 501 pp. Illus. \$19.50.

(Continued on page 1661)

(Continued from page 1589)

Behavior: An Introduction to Comparative Psychology. John B. Watson. Holt, Rinehart and Winston, New York, 1967. 477 pp. Illus. \$7.95. Reprint, 1914 edition. Henry Holt Editions in Psychology Series.

The Biochemistry of Animal Development. vol 2, Biochemical Control Mechanisms and Adaptations in Development. Rudolf Weber, Ed. Academic Press, New York, 1967. 495 pp. Illus. \$21. Nine papers.

Biochimie et Biologie Moléculaire. Marcel Florkin and Ernest Schoffeniels. Desoer, Liege, Belgium, 1966. 588 pp. Illus.

Book of ASTM Standards: With Related Material. Pt. 7, Nonferrous Metals and Alloys (Including Corrosion Tests); Electrodeposited Metallic Coatings; Metal Powders; Nonferrous Filler Metal; Nonferrous Surgical Implant Materials (956 pp. \$16); pt. 11, Bituminous Materials for Highway Construction, Waterproofing, and Roofing; Soils; Skid Resistance (908 pp. \$14); pt. 12, Chemical-Resistant Nonmetallic Materials; Clay and Concrete Pipe and Tile: Masonry Mortars and Units Asbestos-Cement Products; Natural Building Stones (498 pp. \$8); pt. 13, Refractories, Glass, and Other Ceramic Materials; Manufactured Carbon and Graphite Products (672 pp. \$10); pt. 17, Petroleum Products-Fuels; Solvents; Burner Fuel Oils; Lubricating Oils; Cutting Oils; Lubricating Greases; Hydraulic Fluids (1152 pp. \$20); pt. 18, Petroleum Products-Measurement and Sampling; Liquefied Petroleum Gases; Light Hydrocarbons; Plant Spray Oils; Aerospace Materials; Sulfonates; Crude Petroleum; Petrolatum; Wax; Graphite (914 pp. \$16); pt. 19, Gaseous Fuels; Coal and Coke (500 pp. \$8); pt. 20, Paint, Varnish, Lacquer, and Related Products—Materials Specifications and Tests; Naval Stores; Industrial Aromatic Hydrocarbons (1232 pp. \$20); pt. 21, Paint, Varnish, Lacquer, and Related Products—Tests for Formulated Products and Applied Coatings (658 pp. \$10); pt. 22, Sorptive Mineral Materials; Soap; Engine Antifreeze; Wax Polishes; Halogenated Organic Solvents; Activated Carbon; Industrial Chemicals (670 pp. \$10); pt. 29; Electrical Insulating Materials (1256 pp. \$22). American Soc. for Testing and Materials, Philadelphia, 1967. Illus.

The Cell and Environmental Temperature. Proceedings of the international symposium on cytoecology (Leningrad), May-June 1963. A. S. Troshin, Ed. Translated from the Russian (1964). C. L. Prosser, Ed. Pergamon, New York, 1967. 472 pp. Illus. \$21.50. Fifty-nine papers. International Series of Monographs in Pure and Applied Biology.

The Chemistry of the Ether Linkage. Saul Patai, Ed. Interscience (Wiley), New York, 1967. 795 pp. Illus. \$29.50. Sixteen papers.

Chromatography. Erich Heftmann. Reinhold, New York, ed. 2, 1967. 893 pp. Illus. \$27.50.

The City. Robert E. Park, Ernest W. Burgess, and Roderick D. McKenzie. Univ. of Chicago Press, Chicago, 1967. 249 pp. \$5. Reprint, 1925 editon.

Clinical Judgment. Alvan R. Feinstein. Williams and Wilkins, Baltimore, 1967. 422 pp. Illus. \$9.50.

Coden for Periodical Titles. vols. 1 and 2. Prepared by Wyandotte-ASTM Punched Card Project. L. E. Kuentzel, Ed. American Soc. for Testing and Materials, Philadelphia, ed. 2, 1966. vol. 1, 523 pp.; vol. 2, 591 pp. \$85 per set.

Cold Spring Harbor Symposia on Quantitative Biology. vol. 31, The Genetic Code. Cold Spring Harbor Laboratory of Quantitative Biology, Cold Spring Harbor, N.Y., 1966. 784 pp. Illus. \$15. Eightyeight papers.

College Physics. Franklin Miller, Jr. Harcourt, Brace, and World, New York, ed. 2, 1967. 735 pp. Illus. \$10.50.

The Comparative Anatomy and Histology of the Cerebellum from Myxinoids through Birds. Olof Larsell. Univ. of Minnesota Press, Minneapolis, 1967. 301 pp. Illus. \$14.

Composite Materials. Lectures delivered at the Institution's refresher course, November 1965. A. Kelly, G. C. Smith, P. J. E. Forsyth, and A. J. Kennedy. Published for The Institution of Metallurgists. Iliffe, London; Elsevier, New York, 1967. 154 pp. Illus. \$7.50. Four papers.

The Control of Nuclear Activity. A

The Control of Nuclear Activity. A symposium (Woods Hole, Mass.), August-September 1966. Sponsored by The Society of General Physiologists. Lester Goldstein, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1967. 508 pp. Illus. \$7.50.

Cross Electrophoresis: Its Principle and Applications. Shojiro Nakamura. Shoin, Tokyo, 1966; Elsevier, New York, 1967. 204 pp. Illus. \$17.

Cytogenetics. Carl P. Swanson, Timothy Merz, and William J. Young. Prentice-Hall, Engelwood Cliffs, N.J., 1967. 206 pp. Illus. Paper, \$3.75; cloth, \$5.95. Foundations of Modern Genetics Series.

Desalination and Its Role in Water Supply. British Information Services, New York, 1967. 103 pp. Illus.

Diagnostic des Maladies à Virus. R. Sohier. Éditions Médicales Flammarion, Paris, ed. 2, 1967. 971 pp. Illus. \$32.

Diagnostic Procedures in Veterinary Bacteriology and Mycology. G. R. Carter. Thomas, Springfield, Ill., 1967. 298 pp. Illus. \$14.

Differential Geometry. Louis Auslander. Harper and Row, New York, 1967. 285 pp. Illus. \$12.50. Harper's Series in Modern Mathematics.

Digital Computer Programming. Peter A. Stark. Macmillan, New York, 1967. 541 pp. Illus. \$9.95.

Drugs Affecting the Peripheral Nervous System. Alfred Burger, Ed. Dekker, New York, 1967. 644 pp. Illus. \$27.50. Ten papers. Medicinal Research: A Series of Monographs, vol. 1.

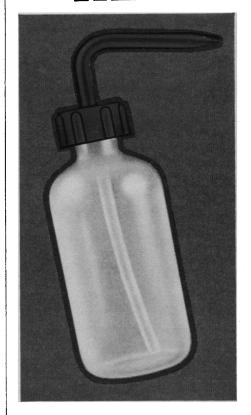
The Ecology of Animals. Charles Elton. Methuen, London; Barnes and Noble, New York, 1967. 107 pp. Paper, \$1.75; cloth, \$3.25. Reprint, edition 3 (1950).

Economic Organizations and Social Systems. Robert A. Solo. Bobbs-Merrill, New York, 1967. 519 pp. Illus. \$8.75.

Eden Was No Garden: An Inquiry into the Environment of Man. Nigel Calder. Holt, Rinehart, and Winston, New York, 1967. 240 pp. \$4.95.

Electrical Properties of Rocks. E. I.

GOBE RED



Functional color comes to labware!

Now you can buy new Mallinckrodt AR Plastics wash bottles in five colorcoded caps for instant identification of your washing solutions. Perhaps, red for solvents. Blue for bases. Green for decinormal solutions. White and yellow for other solutions. No more guesswork. No more faded, home-made labels. Call your Mallinckrodt distributor now for color-coded wash bottles. and all the other innovations you'll find in AR Plastics.

Mallinckrodt® AR Plastics

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS . NEW YORK . LOS ANGELES

MINIMUM CONTACT-MAXIMUM SAFETY

with self-sticking
TIME LABORATORY
TAPES and LABELS

Self-sticking tapes and labels eliminate a direct source of personal contamination in laboratories. Pre-printed or plain tapes and labels provide a quick means of marking laboratory equipment. Just write necessary data on label (use pencil, pen or grease marker) and place it on any surface—glass, metal or plastic. Labels stick tight through autoclave (up to 250°),



deep freeze (to -70°), or water bath. When no longer needed these tapes and labels can be quickly removed leaving no sticky residue. Vinyl Coated—available in white or colors.



See your laboratory or hospital supplier for a complete selection of Time Tapes and Labels.

PROFESSIONAL TAPE CO., INC.

365 E. Burlington Avenue

Riverside, Illinois 60546



"DIAL" ULTRA-THIN SECTIONS?

Precisely . . . since the new Reichert "Om U2" ultramicrotome is automated. Now you just dial for single or continuous ultra-thin sections for electron microscopy. With all controls dial or push-button operated, you merely "select" speed, sequence and thickness of sections. The completely inertia-free thermal advance of the "Om U2" represents a major breakthrough in ultramicrotomy.

The "Om U2" gives you the accuracy of the thermal advance and the advantages of a precision, mechanical advance in one instrument. The tedious task of producing useful ultra-thin sections is now a thing of the past.





Request literature and a free demonstration.

William J. Hacker & Co., Inc.

Box 646
W. Caldwell, N.J. 07006
(201) 226-8450

Parkhomenko. Translated from the Russian edition by George V. Keller. Plenum Press, New York, 1967. 328 pp. Illus. \$19.50. Monographs in Geoscience.

Elementary Genetics. W. Ralph Singleton. Van Nostrand, Princeton, N.J., ed. 2, 1967. 588 pp. Illus. \$9.50.

Elements of Real Analysis. Sze-Tsen Hu. Holden-Day, San Francisco, 1967. 379 pp. Illus. \$10.95.

Essentials of Healthier Living. Justus J. Schifferes. Wiley, New York, ed. 3, 1967. 468 pp. Illus. \$7.50.

Estuaries. A symposium (Jekyll Island, Ga.), March-April 1964. AAAS Publication No. 83. George H. Lauff, Ed. AAAS, Washington, D.C., 1967. 773 pp. Illus. \$27. There are 71 papers.

Experimental Methods of Materials Research. Herbert Herman, Ed. Interscience (Wiley), New York, 1967. 328 pp. Illus. \$14.95. Ten papers. Advances in Materials Research, vol. 1.

Families of Flowering Plants in Ethiopia. An introduction with keys for the identification of the families of flowering plants and gymnosperms found in Ethiopia and adjacent areas of eastern Africa. William C. Burger. Oklahoma State Univ. Press, Stillwater, 1967. 240 pp. Illus. \$7.

Foundations of Mechanics. Ralph Abraham. Benjamin, New York, 1967. 334 pp. Illus. \$14.75.

From Frege to Gödel: A Source Book in Mathematical Logic, 1879–1931. Jean van Heijenoort. Harvard Univ. Press, Cambridge, Mass., 1967. 672 pp. Illus. \$18.50.

Fundamental Aspects of Electrocrystallization. J. O'M. Bockris and G. A. Razumney. Plenum Press, New York, 1967. 167 pp. Illus. \$7.50.

Handbook of the Engineering Sciences. vol. 1, The Basic Sciences. James H. Potter, Ed. Van Nostrand, Princeton, N.J., 1967. 1365 pp. Illus. \$37.50.

Handbook of the Poisson Distribution. Frank A. Haight. Wiley, New York, 1967. 182 pp. \$9.50. Heat Transfer. Alan J. Chapman. Mac-

Heat Transfer. Alan J. Chapman. Macmillan, New York, ed. 2, 1967. 637 pp. Illus. \$12.95.

Hemes and Hemoproteins. A colloquium (Philadelphia), April 1966. Britton Chance, Ronald W. Estabrook, and Takashi Yonetani, Eds. Academic Press, New York, 1966. 640 pp. Illus. \$13.75.

Heredity and Evolution in Human Populations. L. C. Dunn. Harvard Univ. Press, Cambridge, Mass., ed. 2, 1967. 165 pp. Illus. \$3.50.

Intermediate Algebra for College Students. Thurman S. Peterson. Harper and Row, New York, ed. 3, 1967. 393 pp. Illus. \$7.50.

Intracellular Transport. Katherine Brehme Warren, Ed. Academic Press, New York, 1966. 343 pp. Illus. \$15. Fourteen papers. Symposia of the International Society for Cell Biology, vol. 5.

An Introduction to Analysis. Wilson M. Zaring. Macmillan, New York, 1967. 378 pp. Illus. \$9.95.

An Introduction to Astronomy. Charles M. Huffer, Frederick E. Trinklein, and Mark Bunge. Holt, Rinehart and Winston, New York, 1967. 391 pp. Illus. \$8.95.

An Introduction to Fourier Analysis. R. D. Stuart. Methuen, London; Barnes and Noble, New York, 1967. 128 pp. Illus.

BRS PRECISION TIME BASE GENERATOR

The emphasis is on precision, convenience and price in this solid state clock which simultaneously generates 1000, 100, 10 and 1 pulses-per-second. It's versatile—does the work of four single-frequency clocks; and it's accurate, within a frequency tolerance of $\pm 0.1\%$ —the ideal time base generator for a wide range of laboratory experiments involving critical timing. A base frequency of 1000 cps is divided to provide the four square-wave timing frequencies. A reset input allows the synchronization of the 100, 10 and 1 cps outputs with external events. It's the ideal synchronized unit for digital logic systems.

The MV-4S Time Base Generator has binding posts for the four simultaneous outputs, the synchronization input and the power supply, making it a compatible partner to a variety of laboratory equipment. \$170

The BRS Power Supply, PS-12b, at 12 VDC (\$140) and MV-4S Precision Time Base Generator can be mounted as one, self-contained unit in a 3½ x 19 inch rack panel. (CF-002 Panel—\$7)



For complete information on all BRS products, write for free BRS catalog, Dept. 505

BRS electronics

5451 HOLLAND DRIVE BELTSVILLE, MARYLAND Paper, \$1.75; cloth, \$3.25. Reprint, 1961 edition.

The Iron Age in Northern Britain. Based on papers delivered to the Conference on Problems of the Iron Age in Northern Britain (Edinburgh), October 1961. A. L. F. Rivet, Ed. Edinburgh Univ. Press; Aldine, Chicago, 1966. 163 pp. Illus. \$8.50. Six papers.

The Ixodid Ticks of Tanzania. G. H. Yeoman and Jane B. Walker. Commonwealth Institute of Entomology, London, 1967. 227 pp. Illus.

Lectures on Algebraic Topology. Marvin J. Greenberg. Benjamin, New York, 1967. 245 pp. Illus. Paper, \$5.95; cloth, \$10.

Lehrbuch der Theoretischen Physik. vol. 5, Statistische Physik. L. D. Landau and E. M. Lifschitz. Akademie-Verlag, Berlin, 1966. 543 pp. Illus.

Let Us Start Here. An introduction to basic readings in the life sciences. Paul Gibbons Roofe. World, Cleveland, 1967. 112 pp. \$3.50.

The Levittowners: Ways of Life and Politics in a New Suburban Community. Herbert J. Gans. Pantheon Books, New York, 1967. 504 pp. \$7.95.

Life, Atoms, Chance: Three Essays in the Philosophy of Science. F. F. Centore. Pageant Press, New York, 1966. 118 pp. \$3.

Local Atomic Arrangements Studied by X-Ray Diffraction. Proceedings of a symposium (Chicago, Ill.), February 1965. Sponsored by the Metallurgical Society, American Institute of Mining, Metallurgical, and Petroleum Engineers. J. B. Cohen and J. E. Hilliard, Eds., Gordon and Breach, New York, 1966. 393 pp. Illus. Paper, \$22. Metallurgical Society Conferences, vol. 36. Eleven papers.

Luminescence Dosimetry. Proceedings of an international conference (Stanford, Calif.), June 1965. Sponsored by U.S. Atomic Energy Commission, Office of Naval Research, and Stanford University. Frank H. Attix, Ed. U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1967 (available from Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). 526 pp. Illus. Paper, \$3. Forty-five papers.

Magnetism in Solids. D. H. Martin. M.I.T. Press, Cambridge, Mass., 1967. 462 pp. Illus. \$19.95.

Man and the Earth. Joseph Bixby Hoyt. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1967. 480 pp. Illus. \$9.95.

The Mathematical Approach to Biology and Medicine. Norman T. J. Bailey. Wiley, New York, 1967. 310 pp. Illus. \$8.75.

Mathematics—An Integrated Series: Book Four, Analysis. H. Vernon Price, Philip Peak, and Phillip S. Jones. Harcourt, Brace, and World, New York, 1967. 491 pp. Illus. \$6.

Maxima and Minima. Morris E. Levenson. Macmillan, New York, 1967. 160 pp. Illus. Paper, \$2.95.

Medicine at the Paris Hospital, 1794–1848. Erwin H. Ackerknecht. Johns Hopkins Press, Baltimore, 1967. 256 pp. Illus. \$8.95.

Medical Cytogenetics. Mihály Bartalos and Theodore A. Baramki. Williams and Wilkins, Baltimore, 1967. 443 pp. Illus. \$12.50.

CODE Blue



Functional color... better fluid control!

New Mallinckrodt colorcoded wash bottles identify your wash solutions instantly. They also give you better fluid delivery control than you've ever had before. Tight, one-piece cap-and-nozzle construction responds sensitively, instantly to hand pressure. Squeeze off anything from a single droplet to a powerful jet stream. No other wash bottle is made this way. It's labware you'll like for the job it does—not just for the money it saves.



MALLINCKRODT CHEMICAL WORKS

ST. LOUIS . NEW YORK . LOS ANGELES







Only an automatic polarimeter this sensitive could be this accurate.

Sensitive to 0.0001° and accurate to ± 0.0002 °, Bendix® Polarimeters are the world's most accurate—and often give more precise results than methods based on any other physical or chemical phenomena.

Bendix automatic polarimeters are all-electronic with no moving parts. They feature the most versatile readout in the business—dual-range meter, chart recorder (directly), digital display and a tape printer. And you can also use a scope for a readout.

The basic model features a four-inch, dual-range meter for reading optical rotation. A recording model incorporates a multi-range, strip-chart recorder. The digital model provides a direct, four-place readout and gives optimum advantage of system accuracy. A printer programmer can be added, to automatically scan a number of measurements, totalize, stop or repeat with readout on a digital tape printer.

Ability to use a very short sample cell extends the effective range to $\pm 50^{\circ}$ and adds to the versatility of Bendix automatic polarimeters for quality control, process control, reaction monitoring, column chromatography and optical and physical property studies.

Bendix scientific instruments—including mass spectrometers, atomic absorption and flame spectrophotometers, polarimeters, polarographic systems and electron multipliers—are used in over 100 areas of research and analysis. For more information, write: The Bendix Corporation, Scientific Instruments Division, 3625 Hauck Road, Cincinnati, Ohio 45241. Or phone (513) 772-1600.



The Method of Coordinates. I. M. Gelfand, E. G. Glagoleva, and A. A. Kirillov. Translated and adapted from the Russian by Leslie Cohn and David Sookne. M.I.T. Press, Cambridge, Mass., 1967. 79 pp. Illus. Paper, \$1.50. Library of School Mathematics Series, vol. 1.

Methods of Wood Chemistry. vol. 1. B. L. Browning. Interscience (Wiley), New York, 1967. 406 pp. Illus. \$15.

Metis of the Mackenzie District. Richard Slobodin. Canadian Research Centre for Anthropology, Ottawa, 1966. 189 pp. Paper, \$4.

Mineral Recognition. Iris Vanders and Paul F. Kerr. Wiley, New York, 1967. 330 pp. Illus. \$11.95.

A Model of Simple Competition. Joel E. Cohen. Harvard Univ. Press, Cambridge, Mass., 1966. 150 pp. Illus. \$5.95. Annals of the Computation Laboratory, vol. 41.

Modern Developments in the Mechanics of Continua. Proceedings of an international conference (Pinebrook, N.Y.), August 1965. Salamon Eskinazi, Ed. Academic Press, New York, 1966. 215 pp. Illus. \$10. Sixteen papers.

Modern Plane Geometry for College Students. Herman R. Hyatt and Charles C. Carico. Macmillan, New York, 1967. 464 pp. Illus. \$7.95.

Molecular Flow in Vessels. Yurii Naumovich Lyubitov. Translated from the Russian edition (Moscow, 1964) by Wendell H. Furry and James S. Wood. Consultants Bureau, New York, ed. 2, 1967. 172 pp. Illus. Paper, \$22.50.

Molecules and Cells. D. A. Coult. Houghton Mifflin, Boston, 1967. 176 pp. Illus. Paper, \$2.75. Principles of Modern Biology Series.

National Document-Handling Systems for Science and Technology. L. F. Carter et al. Wiley, New York, 1967. 356 pp. Illus. \$9.95.

The New College Physics: A Spiral Approach. Albert V. Baez. Freeman, San Francisco, 1967. 757 pp. Illus. \$11.75.

New Geography, 1966-67. John Laffin. Abelard-Schuman, New York, 1967. 237 pp. Illus. Paper, \$2.95; cloth, \$5.95. Oil Property Valuation. Richard V.

Oil Property Valuation. Richard V. Hughes. Wiley, New York, 1967. 325 pp. Illus. \$11.50.

On Education—Sociological Perspectives. Donald A. Hansen and Joel E. Gerstl, Eds. Wiley, New York, 1967. 314 pp. \$7.50. Nine papers.

Organic Reactions. vol. 15. Arthur C. Cope, Ed. Wiley, New York, 1967. 615 pp. Illus. \$18. Two papers.

Perspectives in Powder Metallurgy: Fundamentals, Methods, and Applications. vol. 2, Vibratory Compacting: Principles and Methods. Henry H. Hausner, Kempton H. Roll, and Peter K. Johnson, Eds. Plenum Press, New York, 1967. 312 pp. Illus. \$17.50. Twenty-seven papers.

Planning Human Resource Development: Educational Models and Schemata. Russell G. Davis. Rand McNally, Chicago, 1967. 352 pp. Illus. \$8.

Practical Physical Chemistry. Arthur M. James. Churchill, London, ed. 2, 1967. 383 pp. Illus. Paper, 40s.

Principles of Biology. Neal D. Buffaloe and J. B. Throneberry. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1967. 416 pp. Illus. \$7.50.

1664 SCIENCE, VOL. 156



New concepts in animal cage systems become a reality at Harford.

- Primate cages Poultry cages
- Dog cages
- Rodent cages
- Cat cages
- Robbit cages

Custom-Engineered animal cage systems



Harford

Metal Products, Inc. Building 101 Aberdeen, Md. 21001 272-3400 (301)

OCEANOGRAPHY

1961. Fourth Printing: September 1966. Invited lectures presented at the International Oceanographic Congress held in New York in 1959.

Edited by Mary Sears. 666 pp., 146 illus., indexes.

\$14.75. AAAS members' cash orders: \$12.50. Chapters:

I. History of the Oceans
Authors: Gustaf Arrhenius, J. B. Bernal,
Sir Edward C. Bullard, Maurice Ewing,
Edwin L. Hamilton, G. E. Hutchinson, Mark
Landisman, A. I. Oparin.

II. Populations of the Sea Trygve Braarud, H. O. Bull, G. S. Carter, Preston E. Cloud, Jr., Hermann Friedrich, R. S. Glover.

M. N. Bramlette, W. S. Broecker, Anton F. Bruun, Maurice Ewing, R. D. Gerard, B. C. Heezen, W. V. R. Malkus, Edgard E. Pic-

ciotto, Torben Wolff, L. A. Zenkevitch.

IV. Boundaries of the Sea F. G. Barber, Erik Eriksson, P. H. Kuenen, Gunnar Thorson, J. P. Tully, Pierre Wel-

Gunnar Thorson, J. P. Tully, Pierre Wel ander.

V. Cycles of Organic and Inorganic

Substances in the Ocean
L. H. N. Cooper, Edward D. Goldberg,
Johannes Krey, G. E. Lucas, Lars Gunnar
Sillén, John H. Steele.

American Association for the Advancement of Science

1515 Massachusetts Avenue, N.W. Washington, D.C. 20005 Principles of Color Reproduction. Applied to photomechanical reproduction, color photography, and the ink, paper, and other related industries. J. A. C. Yule. Wiley, New York, 1967. 427 pp. Illus. \$15. Wiley Series on Photographic Science and Technology and the Graphic Arts.

Principles of Lithogenesis. vol. 1. N. M. Strakhov. Translated from the Russian edition (Moscow, 1962) by J. Paul Fitzsimmons, S. I. Tomkeieff, and J. E. Hemingway, Translation Eds. Oliver and Boyd, Edinburgh; Consultants Bureau, New York, 1967. 253 pp. Illus. \$20.

Principles of Statistical Mechanics: The

Principles of Statistical Mechanics: The Information Theory Approach. Ammon Katz. Freeman, San Francisco, Calif., 1967. 200 pp. Illus. \$8.

Principles on Tetanus. Proceedings of an international conference (Bern), July 1966. Sponsored by the Swiss Academy of Medical Sciences with the support of WHO. Leo Eckmann, Ed. Huber, Bern, Switzerland, 1967. 577 pp. Illus. \$43.

Problems and Solutions in Mathemat-

Problems and Solutions in Mathematical Physics. Y. Choquet-Bruhat. Translated from the French by C. Peltzer, J. J. Brandstatter, Translation Ed. Holden-Day, San Francisco, 1967. 326 pp. Illus. \$9. Holden-Day Series in Mathematical Physics.

Process and Pattern in Evolution. Terrell H. Hamilton. Macmillan, New York, 1967. 128 pp. Illus. Paper, \$1.95. Current Concepts in Biology Series.

The Programmer's ALGOL: A Complete Reference. Charles Philip Lecht. McGraw-Hill, New York, 1967. 275 pp.

Progress in Solid-State Chemistry. Vol. 3. H. Reiss, Ed. Pergamon, New York, 1967. 522 pp. Illus. \$19. Nine papers.

Project Nero: Near-Earth Rescue and Operations. Theodore M. Isaacs, Ed. M.I.T. Press, Cambridge, Mass., 1967. 284 pp. Illus. Paper, \$7.50. An interdepartmental student project in systems engineering at M.I.T., 1966. M.I.T. Report No. 10.

Psychic Trauma. Sidney S. Furst, Ed. Basic Books, New York, 1967. 270 pp. \$6.95. Eight papers.

Psychoanalysis Observed. Geoffrey Gorer, Anthony Storr, John Wren-Lewis, and Peter Lomas. Coward-McCann, New York, 1967. 165 pp. \$4.50.

Psychological Stress: Issues in Research. Based on a conference (Toronto, Canada), May 1965. Mortimer H. Appley and Richard Trumbull, Eds. Appleton-Century-Crofts (Meredith), New York, 1967. 489 pp. Illus. \$8. Fourteen papers.

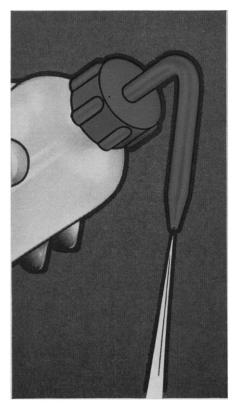
The Psychology of Communication.
George A. Miller. Basic Books, New
York, 1967. 207 pp. Illus. \$4.95. Seven

Queuing Theory: Recent Developments and Applications. Proceedings of a conference (Lisbon), September-October 1965. R. Cruon, Ed. Elsevier, New York, 1967. 240 pp. Illus. \$13.50. Fourteen papers; in English or French.

Radar Signals: An Introduction to Theory and Application. Charles E. Cook and Marvin Bernfeld. Academic Press, New York, 1967. 547 pp. Illus. \$19.50. Electrical Science Series.

Radiation Dosimetry. vol. 2, Instru-

GODE GREEN



Functional color... cleaner chemistry!

New Mallinckrodt color-coded wash bottles are also chemically inert. They'll hold HF, alkaline metals and most other kinds of harsh and corrosive reagents—high pH and low pH—with no silica contamination and no etching or deterioration of the bottle. That's an advantage you'll get in all Mallinckrodt AR Plastics—labware designed by the people who've spent more than 100 years on your side of the bench.



MALLINCKRODT CHEMICAL WORKS

ST. LOUIS . NEW YORK . LOS ANGELES



The SPECTRA CASSEGRAIN OBJECTIVE is a further refinement that permits the already wide range of the PRITCHARD PHOTOMETER to be extended to measure fields from 10 minutes to 10 seconds of arc.

Write Today for Complete Information

PHOTOMETRIC SERVICES AVAILABLE



837 No. Cahuenga Blvd. • Hollywood, California 90038 • (213) 462-6673 • Cable: Spectra



magnifications - at time lapse or normal speeds - with any microscope. The Sage Series 500 includes an anti-vibration base plate and camera mount, solid state exposure and framing rate controls, and a motor-driven Bolex H-16M cine camera which is adjustable to any height.

A new Cinemicrography Exposure Meter accessory insures perfect exposures right from the start. For biological studies, the optional Air Curtain Incubator holds specimens to ± 0.2 °C of selected temperature.

any upright microscope; Model 502 any inverted;

the Model 503 Universal, any upright or inverted. Sage Series 500 Cine units are priced as low as \$1545.00. Send for complete technical data today.

SAGE INSTRUMENTS, INC.

2 Spring Street, White Plains, N. Y. 10601 914 949-4121

mentation. Frank H. Attix and William C. Roesch, Eds. Academic Press, New York, ed. 2, 1966. 480 pp. Illus. \$20. Eight papers.

Radiation Measurements in Nuclear Power. Proceedings of an international conference (Berkeley, Gloucestershire), September 1966. Institute of Physics and the Physical Soc., London, 1966. 463 pp. Illus. \$15. Fifty-six papers.

Range Instrumentation. Ernest H. Ehling, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1967. 654 pp. Illus. \$16. Ten papers.

Recording and Analyzing Child Behavior: With Ecological Data from an American Town. Herbert F. Wright. Harper and Row, New York, 1967. 301 pp. Illus. Paper, \$4.50. Based on chapters from Midwest and Its Children (1955).

Research in Protozoology. vol. 1. Tze-Tuan Chen, Ed. Pergamon, New York. 1967. 436 pp. Illus. \$17. Five papers.

Response Set in Personality Assessment. Irwin A. Berg, Ed. Aldine, Chicago, 1967. 256 pp. Illus. \$6.75. Modern Applications in Psychology.

Rigid Plastics Foams. T. H. Ferrigno. Reinhold, New York, ed. 2, 1967. 391 pp. Illus. \$14.

Russian-English Translators Dictionary. A guide to scientific and technical usage. Mikhail G. Zimmerman. Plenum Press, New York, 1967. 294 pp. \$12.

The Scientific Basis of Medicine Annual Reviews 1967. Oxford Univ. Press, New York, 1967. 394 pp. Illus. \$9.25. Twenty papers.

Scientific Instruments in Art and History. Henri Michel. Translated from the French edition (Brussels, 1965) by R. E. W. Maddison and Francis R. Maddison. Viking Press, New York, 1967. 208 pp. Illus. \$18.50.

Scientific Research II: The Search for Truth. Mario Bunge. Springer-Verlag. New York, 1967. 382 pp. Illus. \$17. Studies in the Foundations Methodology and Philosophy of Science, vol. 3, pt. 2.

Scientists and War: The Impact of Sci-

ence on Military and Civil Affairs. Sir Solly Zuckerman. Harper and Row, New York, 1967. 191 pp. \$4.95.

Sexual Deviance. John H. Gagnon and William Simon, Eds. Harper and Row, New York, 1967. 320 pp. Paper, \$3.50. Readers in Social Problems Series. Eleven papers.

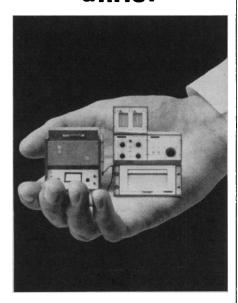
Spectral Theory and Wave Processes. M. Sh. Birman, Ed. Translated from the Russian edition (Leningrad, 1966). Consultants Bureau, New York, 1967. 122 pp. Illus. Paper, \$15. Five papers. Topics in Mathematical Physics, vol. 1.

Starlight: What It Tells about the Stars. Thornton Page and Lou Williams Page, Eds. Macmillan, New York, 1967. 351 pp. Illus. \$7.95. Seventy-seven papers published in The Sky, Sky and Telescope, and The Telescope between 1937 and 1965. Macmillan Sky and Telescope of Astronomy Series, vol. 5.

Statistical Mechanics, Thermodynamics, and Kinetics. Oscar Knefler Rice. Free-man, San Francisco, 1967. 600 pp. Illus. \$12.50.

Statistics in Biology: Statistical Methods for Research in the Natural Sciences. vol. 1. C. I. Bliss. McGraw-Hill, New York, 1967. 572 pp. Illus. \$15.50.

Introducing Warner-Chilcott's OPERATION GRASP



Operation WHAT?

Operation GRASP is Warner-Chilcott's unique training school for customers interested in gas chromatography. It stands for Gas Review and Applications Study Program.

We've been kidded a lot about the name. In fact, we have even thought of changing it!
But customers who have been to the school tell us that after we've taken them from theory through applications, they do have a good grasp of gas chromatography and

Warner-Chilcott's Gas Chromatographs.

Get a good GRASP of gas chromatography! The school is *free* (except for transportation) if you buy a Warner-Chilcott Gas

Chromatograph.
Classes are held on both the East and West Coasts. Contact your Warner-Chilcott Instruments
Salesman or write to us directly if you would like more information.
We'll send you a brief course outline and descriptive literature.
Request Data File GC-5.

WARNER-CHILCOTT INSTRUMENTS DIVISION

200 South Garrard Blvd. Richmond, California 94804 Strong and Weak Interactions: Present Problems. International School of Physics "Ettore Majorana," a CERN-MPI-NATO Advanced Study Institute (Erice), June–July 1966. A. Zichichi, Ed. Academic Press, New York, 1966. 879 pp. Illus. \$26.50. Eleven papers, seven seminars, and twenty-six discussions.

Structural Fatigue in Aircraft. A symposium (Seattle, Wash.), October-November 1965. Sponsored by Committee E-9 on Fatigue. M. S. Rosenfeld, Chairman. American Soc. for Testing and Materials, Philadelphia, 1967. 206 pp. Illus. \$18.50. Ten papers.

Studies in Ohio Archaeology. Olaf H. Prufer and Douglas H. McKenzie, Eds. Press of Western Reserve Univ., Cleveland, 1967. 384 pp. Illus. \$11. Nine papers.

Switching Circuits for Engineers. Mitchell P. Marcus. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1967. 352 pp. Illus. \$12.95.

Symmetry Concepts in Modern Physics. Abdus Salam. Atomic Energy Centre, Lahore, 1966. 63 pp. Illus. Iqbal Memorial Lectures.

Theory of Arithmetic. John A. Peterson and Joseph Hashisaki. Wiley, New York, ed. 2, 1967. 351 pp. Illus. \$7.50.

Thermobiology. Anthony H. Rose, Ed. Academic Press, New York, 1967. 667 pp. Illus. \$25. Sixteen papers.

Thermophysical Properties of High Temperature Solid Materials. vol. 3, Ferrous Alloys. Y. S. Touloukian, Ed. Macmillan, New York, 1967. 618 pp. Illus. \$60

Toward a Unified Theory of Human Behavior: An Introduction to General Systems Theory. Roy R. Grinker, Ed. Basic Books, New York, ed. 2, 1967. 416 pp. Illus. Paper, \$3.95; cloth, \$10. Twentytwo papers.

The Traditional Crafts of Persia. Their development, technology, and influence on Eastern and Western civilizations. Hans E. Wulff. M.I.T. Press, Cambridge, Mass., 1967. 428 pp. Illus. \$25.

Trigonometry: An Analytic Approach. Irving Drooyan and Walter Hadel. Macmillan, New York, 1967. 368 pp. Illus.

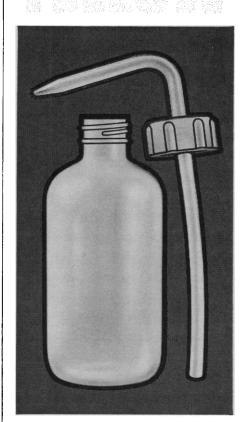
Tropical Plant Types. B. G. M. Jamieson and J. F. Reynolds. Pergamon, New York, 1967. 355 pp. Illus. \$8.50. Commonwealth and International Library.

Tzintzuntzan: Mexican Peasants in a Changing World. George M. Foster. Little, Brown, Boston, 1967. 384 pp. Illus. \$6.95.

Under the Bo Tree. Studies in caste, kinship, and marriage in the interior of Ceylon. Nur Yalman. Univ. of California Press, Berkeley, 1967. 420 pp. Illus. \$8.50.

The Use of Social Research in Federal Domestic Programs. vols. 1-4. vol. 1, Federally Financed Social Research, Expenditures, Status, and Objectives (385 pp., \$1); vol. 2, The Adequacy and Usefulness of Federally Financed Research on Major National Social Problems (643 pp., \$1.75); vol. 3, The Relation of Private Social Scientists to Federal Programs on National Social Problems (611 pp., \$1.75); vol. 4, Current Issues in the Administration of Federal Social Research (664 pp., \$1.75). A staff study of the Research and Technical Programs Subcom-

CODE



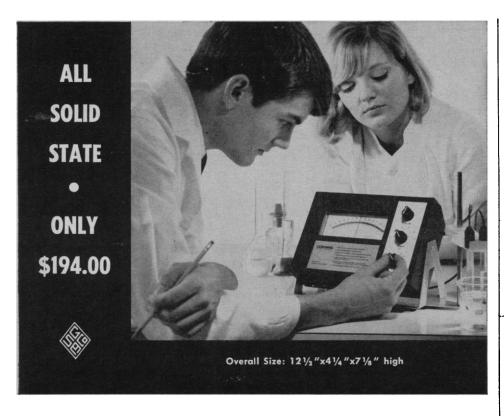
Functional color... longer wear!

New Mallinckrodt color-coded wash bottles are not only the handiest you can buy—they're also the toughest. Cap and nozzle are a single plastic mold—no joints to leak or spurt when you put on the pressure. The rigid, "hard-nosed" nozzle can't split, crack or sag. Color-code your wash solutions now with our 125, 250, 500 and 1,000 ml wash bottles—in any combination of red, green, blue, yellow or white.

✓ Mallinckrodt AR®Plastics

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS • NEW YORK • LOS ANGELES



CORNING® MODEL 5 pH METER

for educational and industrial labs

Although this new pH meter is priced at almost half the cost of a general-purpose laboratory meter, you can see from the accompanying specifications how versatile it is and exactly what you may expect in the way of accuracy.

To begin with, Model 5 features solid state circuitry, so there are no tubes to replace, no batteries to buy — virtually no service requirements. Coupled with the low price, it's the perfect pH meter for volume instrument users.

Notice that the Model 5 is suspended in a stainless steel cradle which holds it above the bench where spills occur. Since the meter is "tiltable," not only does this facilitate plugging-in electrodes, but it also makes it easier to read from either a standing or sitting position. Operating instructions are printed right on the meter case which is made of chemical and impact-resistant phenolic.

Ask us for literature!

H-3535X Corning Model 5 pH Meter complete with pH and reference electrodes, electrode holder, support rod and cradle, 3-to-2 grounding adapter plug, special instruction manual, and pH 7.00 buffer pack. For 115 volts, 50/60 cycles AC. Price\$194.00

SPECIFICATIONS

- 51/2" scale
- pH range: 0-14
- mv range: ±700
- Smallest scale subdivisions:
 0.1 pH or 10 mv
- Readability: 0.05 pH
- Relative accuracy: ±0.1 pH
- Repeatability: ±0.05
- Meter: taut band, mirror scale, with knife-edge pointer
- Temperature compensator: 0 100°C
- Built-in shorting lead
- Recorder output: 10 mv for full-scale deflection
- Automatic temperature control: provision for 0-100°C
- Polarizing current:

 10 micoamps for
 Karl Fischer-type
 titrations

.50



LABORATORY...

- INSTRUMENTS CHEMICALS
- + GLASSWARE

Branches: Boston 16 Danbury Elk Grove Village Fullerton Philadelphia 2 Silver Spring Syracuse 2
Mass. Conn. III. Calif. Penna. Md. N.Y.

mittee, Committee on Government Operations. U.S. Government Printing Office, Washington, D.C., 1967 (order from Superintendent of Documents, Washington, D.C.). Paper.

UV Atlas of Organic Compounds. vol. 2. Plenum Press, New York, 1967. Unpaged. Illus. \$115.

Vergleichende Anatomie der Wirbeltiere. vol. 1, Integument, Sinnesorgane, Nervensystem. Peter Rietschel. Fischer, Jena, East Germany, 1967. 306 pp. Illus. MDN. 47.40.

La Vie des Crabes. A. Bauchau. Lechevalier, Paris, 1966. 138 pp. Illus. F. 70.
Village School Downtown: Politics and

Village School Downtown: Politics and Education—A Boston Report. Peter Schrag. Beacon Press, Boston, 1967. 203 pp. \$5.95.

Viruses and Colds: The Modern Plague.

Viruses and Colds: The Modern Plague. John M. Adams. Elsevier, New York, 1967. 184 pp. Illus. \$5.75.

Watching Ourselves Evolve. Herbert Henry Busher. Fell, New York, 1967. 173 pp. \$4.95.

The Wild Gardener in the Wild Landscape. The art of naturalistic landscaping. Warren G. Kenfield. Hafner, New York, 1966. 244 pp. Illus. \$7.50.

Year Book of the National Institute of Sciences of India. Natl. Inst. of Sciences of India, New Delhi, 1967. 266 pp. R. 15.

Your Teeth. A handbook of dental care for the whole family. Daniel A. Collins. Doubleday, Garden City, N.Y., 1967. 238 pp. Illus. \$4.95.

Miscellaneous Publications

American Museum of Natural History. Bulletin, vol. 134, pp. 185–260, "Studies on amphisbaenids (Amphisbaenia, Reptilia), 3. The small species from southern South America commonly identified as Amphisbaena darwini," Carl Gans (1966, \$4); vol. 134, pp. 261–296, "The birds of Cocos Island (Costa Rica)," Paul Slud (1967, \$2); vol. 134, pp. 297–346, "A review of the South American spiders of the family Agelenidae (Arachnida, Araneae)," Vincent D. Roth (1967, \$2); vol. 135, pp. 1–60, "Higher taxonomic categories of gekkonid lizards and their evolution," (1967, \$2.50); vol. 135, pp. 61–106, "A check list of recent amphisbaenians (Amphisbaenia, Reptilia)," Carl Gans (1967, \$1.50); vol. 135, pp. 173–216, "Results of the 1958–1959 Gilliard New Britain Expedition, 4. Annotated list of birds of the Whiteman Mountains, New Britain," E. Thomas Gilliard and Mary Lecroy (1967, \$1.50). The Museum, New York.

Bibliography of the History of Medicine. U.S. Department of Health, Education, and Welfare, Washington, D.C., 1966 (order from Superintendent of Documents, Washington, D.C.). 290 pp. \$1.75.

British Museum (Natural History). Type-Specimens of Birds in the British Museum (Natural History). vol. 1, Non-Passerines. Rachel L. M. Warren (1966, 320 pp., £4). Bulletin: Entomology, vol. 19, No. 1, pp. 1-57: "The Phlebotomine sand-flies of West Pakistan (Diptera: