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We are silent about the “M” in Mnemotron but not about our new 700 Series Data Recorder. With good reason. For one, it brings the size and cost of data recording systems down to sensible proportions if your data is analog voltage from DC to 5000 cycles per second. And its features would not embarrass even the costliest instrumentation recorder. Here are a few:

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Subsidiary of Technical Measurement Corporation, North Haven, Conn.
William J. Corcoran, assistant to the technical director of the Navy Special Projects Office, Washington, D.C., has been appointed director of the research and advanced technology division at United Technology Corporation, Sunnyvale, Calif.

Hugh H. Hussey, dean of Georgetown University's school of medicine, will resign early next year to become director of the American Medical Association's division of scientific activities, Chicago. He plans to be associated with the university as consultant and adviser for medical education.

Urner Liddel, assistant director of the Hughes Research Laboratories, Malibu, Calif., has been appointed chief of sciences for lunar and planetary programs at the National Aeronautics and Space Administration.

Charles E. Smith, dean of the University of California's School of Public Health (Berkeley) and president of the California State Board of Public Health; Jose Alvarez Amezquita, Mexico's secretary of health and welfare; and Theodore F. Hatch, professor of industrial health engineering at the University of Pittsburgh, have each received a $5000 Bronfman prize of the American Public Health Association. The awards are presented annually for "international accomplishment in applying new knowledge to the betterment of human health."

Francis S. Johnson, manager of space physics research at Lockheed Missiles and Space Company, has been appointed head of the recently established upper atmosphere and space sciences division at the Southwest Center for Advanced Studies, Dallas, Tex.

John D. Spikes, professor and head of the department of experimental biology at the University of Utah, has relinquished his administrative duties in order to devote full time to research and teaching. He is succeeded by Ivan M. Lyde, a member of the department.

Harry D. Goode, assistant district geologist with the U.S. Geological Survey's branch of ground water office, Salt Lake City, has been appointed associate professor of geology at the University of Utah. He succeeds Ray E. Marsell, who has retired.

Recent staff appointments at Hazleton Laboratories' primate and gnotobiotic colonies, Falls Church, Va.:

Herman G. Brant, technical director of laboratory animal production and development at Taconic Farms, Germantown, N.Y., as supervisor of the colonies.

William T. Kerber, veterinary laboratory officer in the Virus-Rickettsia Division, Fort Detrick, Md., as a veterinarian.

C. W. Asling, professor of anatomy at the University of California (Berkeley), is on leave until the summer of 1963 at the Institut de Médecine Dentaire, Université de Genève, Switzerland, under the auspices of the Gugenheim Foundation.

R. B. Woodward, Donner professor of science at Harvard University, is the third recipient of the medal for creative research in organic chemistry, presented annually by the Synthetic Organic Chemical Manufacturers Association, New York.

Saul Kit, of the University of Texas M.D. Anderson Hospital and Tumor Institute, has been named professor of biochemistry and head of the new division of biochemical virology at Baylor University College of Medicine, Houston, Tex.

Gene M. Nordby, head of the University of Arizona's department of civil engineering, has resigned to become dean of the University of Oklahoma's engineering college. He is succeeded by Emmett M. Laursen, professor of civil engineering at Arizona.

Robert Austrian, professor of medicine at the State University of New York's College of Medicine, has been named professor and chairman of the John Herr Musser department of research medicine at the University of Pennsylvania.

Louis P. Gerber, biochemist formerly with the William T. Thompson Chemical Company, Los Angeles, and S. I. Dukin, physiological chemist and former technical director of Chem-Tech Laboratories, have established Indag Laboratories, Inc., Beverly Hills, Calif. It will serve as an industrial, agricultural, food, and pharmaceutical consulting firm.

Recent Deaths

Niels H. D. Bohr, 77; Nobel laureate in physics and head of the Institute of Theoretical Physics at the University of Copenhagen; 18 Nov.

Bohr, born in Copenhagen, received his M.S. and Ph.D. degrees at the University of Copenhagen, where his father was a professor of physiology. He then went to Britain to work with Ernest Rutherford, who had established that the atom has a dense nucleus with a positive charge and is surrounded by negatively charged electrons in sufficient numbers to make the charges balance. In a series of papers in 1913, Bohr laid the theoretical foundation for spectroscopy with his concept that excited atoms radiate energy in the form of light. He later helped to clarify the basic principles of quantum theory. In 1916 Bohr returned to the university as professor of theoretical physics and was made director of the new Institute of Theoretical Physics in 1920. In 1922, he received the Nobel prize for his research on the structure of the atom and nuclear radiation.

During the early part of 1939, Bohr worked with John A. Wheeler at Princeton and drafted a theory of nuclear fission that remains the basis for much work in atomic energy. After the war, he concentrated on promoting international cooperation to harness atomic energy for peaceful uses, and in 1955 was instrumental in setting up the first Atoms for Peace Conference in Geneva.

He was chairman of the Danish Atomic Energy Commission, and a leader in creating CERN, the European Center for Nuclear Research. He was the first recipient of the Ford Foundation's Atoms for Peace award in 1957.

Sara E. Branham, 74; retired chief of the U.S. Public Health Service's bacterial toxins section; 16 Nov.

Kenneth A. Clendenning, 47; research biochemist at the Institute of Marine Resources, University of California, La Jolla; 12 Oct.

Robert H. Coleman; retired professor of mathematics at the College of Charleston (S.C.); 5 Nov.

Paul L. Errington, 60; professor of zoology at Iowa State University; 5 Nov.

L. Lahut Uzman, 39; Bronson Crothers professor of neurology at Harvard University; 7 Nov.
omitted: Kosower’s Z values, the von Richter reaction, the isokinetic relationship, reactions of isonitriles, and the question of ortho : para ratio in aromatic nucleophilic substitution.

Despite these shortcomings, Hine’s second edition is the leading book in its field, both as a graduate level textbook and a reference work.

JOSEPH F. BUNNETT
Department of Chemistry, Brown University

Introductory Textbook

Elements of Probability and Statistics.

This book, intended for use in an introductory course in probability and statistics, presupposes that the reader has had only high school algebra. Logarithms are outside its scope, and the author devotes space to the elementary notions of set algebra (using Venn diagrams without naming them as such), the meaning of an exponent, the use of the summation notation, the reading of algebraic expressions involving subscripts, the pronunciation of the Greek letters used, significant digits, and inequalities and absolute values. The reader is, however, presumed to be familiar with Euclidean geometry and the process of interpolation, and he is presumed to be well enough acquainted with physical principles to appreciate the interpretation of variance as a moment of inertia.

The book does provide a good elementary introduction to the vocabulary of probability and statistics and to the computation and use of the, by now, classical formulas of statistical theory. The author states on page 165 that up to that point, with the exception of Problem 7-40 (dealing with the Poisson distribution) and the problems based on this distribution, he has restricted attention to experiments that have a finite number of possible outcomes; this is not completely correct—for example, Problem 7-30 and Problem 7-83.

The book contains a bibliography of 22 items, including ten paperback books, an index, and tables of square roots, binomial distribution (both individual terms and cumulative), random digits, cumulative normal distribution, chi-square distribution, F-distribution, and Student’s t-distribution.

Overall, the book gives the impression of careful preparation and proof-reading. I found surprisingly few misprints. I enjoyed the sense of humor manifested by the limberkicks the author uses to introduce some of the sections, his comment about the word sedgeastic, the imaginary dialogue between two characters, and his recommendation that the reader refer to Halmos’s book on measure theory.

I believe the book will be a good text for classroom use at the level for which it is intended. For students with a better mathematical background, there are other books available, better designed for their needs.

S. KULLBACK
Department of Statistics, George Washington University, Washington, D.C.

New Books

Mathematics, Physical Sciences, and Engineering


Earth, Sea, and Air. Jerome Spar. 159 pp. Illus. Paper, $1.75; cloth, $2.95.


Vickers "55" Microscope with Automatic Photography

The inverted microscope has been commonly used only for a restricted range of biological techniques—mostly in tissue culture applications. However, the new Vickers "55" Microscope has been designed on the premise that there are positive advantages in an inverted design of the large universal photomicrographic stands which are used for research and for the rapid accumulation of high quality visual and photographic data.

With the availability of high efficiency projection screens it becomes practical (and most comfortable and convenient) to use the projected image for most routine examinations. This being so, the logical position for the viewing screen is somewhat below rather than, as in most instruments, quite high above the microscope. In this position both examination and photography are much more easily and conveniently carried out.

The Vickers "55" has been designed to achieve this basic improvement in viewing and photographic technique. An instrument, offering a complete range of optical capabilities, automatic photography and many exclusive operating features has been produced.

Automatic Photography

Built into the body of the instrument is the Automatic Integrating Photographic Timer which actuates a motorized, large aperture, roller-blind focal plane shutter (automatically rewound upon closure). Plates or film up to 5" x 7" in size, including Polaroid, with film speeds from 5ASA to 3200ASA can be exposed with the Timer.

Fully automatic 35mm photography is obtained by insertion into the optical path of a motorized 35mm cassette, also actuated by the Timer unit. The Light Path Selector Switch allows choice of simultaneous observation and photography or diversion of all light either to the film or the visual eyepieces. A high pressure Xenon light source (6300°K) is supplied as standard, but a mercury vapor lamp can be quickly mounted in its place.

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An Optical Bellows utilizing a pancratic (zoom) eyepiece operates in conjunction with a Magnification Changer to give continuous change of screen magnification from 24X to 2800X without change of eyepieces. The control drum for the Optical Bellows is graduated so as to give automatic indication of total screen magnification. A gliding stage with convenient joystick operating control is supplied. For research applications a unique rotating stage with combination gliding and micrometer-actuated traversing motions can be substituted.

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An interesting type of human mutation was reported by C. Baglioni (Naples), as the result of work with hemoglobin Lepore. His evidence indicates that the abnormal peptide chain is the product of a gene which is part delta and part beta. The hybrid is thought to have arisen by non-homologous crossing over.

In a review paper, H. Dintzis (Johns Hopkins) explained why protein biosynthesis can be so well studied in the reticulocyte. From his own work he described the assembly of the hemoglobin peptide chains as a sequential process, proceeding stepwise from the amino group at the end of the chain. In the reticulocyte only 1 to 2 minutes (at 37°C) are required for the synthesis of a whole chain. On the other hand, in cell-free systems prepared from reticulocytes, it appears that peptide chains are merely completed and that the synthesis of few if any new chains is begun. This point was disputed by R. S. Schweet (Kentucky).

A. Rich (M.I.T.) demonstrated that aggregates of reticulocyte ribosomes are needed for the active synthesis of hemoglobin. His electron micrographs do indeed show aggregates of approximately five ribosomes. Rich interprets these as being held together by a strand of messenger RNA. Each ribosome is synthesizing one or more peptide chains as it moves along the messenger RNA—a stimulating idea. The data of P. A. Marks (Columbia) also show that the aggregated ribosomes are those active in hemoglobin synthesis and that information for protein synthesis is contained in a relatively stable form in these particles. The role of soluble RNA as the “adapter” in placing amino acids in sequence on the messenger RNA template was clearly demonstrated by G. von Ehrenstein (Johns Hopkins).

In another area of study, H. Borsook (California Institute of Technology) related hemoglobin production to the developing red cells (erythroblast series) in the bone marrow. Hemoglobin synthesis normally is completed at the orthochromatic stage. An interesting report was read by L. Bernini (M.I.T.) who showed that human bone marrow cells synthesize carbonic anhydrase in addition to hemoglobin A and A2.

The three chairmen of the sessions, J. T. Edsall (Harvard), F. Lipmann (Rockefeller), and J. V. Neel (Michigan), were most effective, and much of the success of the workshop was...
GENETICS

By Robert C. King, Northwestern University. Illustrated by E. John Pfiffner, Chicago Natural History Museum.

A clear, thorough introduction to the elements of genetics, this volume combines a sound classical viewpoint with the most modern research advances to explore this increasingly vital field. Careful attention is focused on such topics as developmental genetics, population genetics, biochemical genetics, radiation genetics, and evolution theory. Cytology is discussed in substantial detail. The work is superbly illustrated and contains some 100 expertly prepared original drawings. Extensive references and a wide range of study questions are included.

1962, 368 pp. illustrated $7.50.

THE LIFE OF VERTEBRATES

Second Edition

By J. Z. Young, Professor of Anatomy, University College, London.

This classic study of the anatomy, physiology, and natural history of vertebrates has been completely revised and brought up to date. The second edition provides a systematic, balanced account of all vertebrates and 'a study of fossil vertebrates and their evolution. Incorporating much new knowledge gained since the book's original publication, the author examines various aspects of the life of each animal or group and discusses problems involved in each type of study.

1962, 824 pages, 514 figures, $10.00.

HEREDITY AND DEVELOPMENT

By John A. Moore, Professor of Zoology, Columbia University and Barnard College.

Designed for use in the introductory biology course, this book presents two sections from Dr. Moore's distinguished text, Principles of Zoology. The reprinted portions contain valuable and original treatment of genetics and embryology. Several new chapters have been added to the genetics section and a single new chapter to the account of embryology.

In preparation, 256 pp., 24 illus., paperbound. $1.95.

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due to their guidance. The conference closed with a unique talk by H. Lehmann (London) who connected the ethnological distribution of the abnormal human hemoglobin throughout the world with certain unusual social customs.

The conference was sponsored by the Department of Medicine of Columbia University and generously supported by the National Heart Institute.

VERNON M. INGRAM

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Forthcoming Events

January


14-18. Association of Surgeons of West Africa, Ibadan, Nigeria. (V. A. Ngu, University College Hospital, Ibadan)


17-19. Engineers' Training, conf., Strasbourg, France. (Counil of Europe, Avenue de l'Europe, Strasbourg)


22-24. Reliability and Quality Control, natl. symp., San Francisco, Calif. (L. W. Ball, Boeing Co., P.O. Box 3707, Seattle 24, Wash.)


24-27. American Mathematical Soc., annual, Berkeley, Calif. (AMS, 190 Hope St., Providence 6, R.I.)


26-28. Mathematical Assoc. of America, annual, Berkeley, Calif. (M. G. Gehman, Univ. of Buffalo, Buffalo 14, N.Y.)


29. Military Electronics, natl. winter convention, Los Angeles, Calif. (F. P. Adler, Space Systems Div., Hughes Aircraft Co., Culver City, Calif.)

31-1. American Soc. for Engineering Education, college-industry conf., Atlanta, Ga. (W. L. Collins, Univ. of Illinois, Urbana)

31-1. Society of Rheology, annual western regional meeting, Emeryville, Calif. (T. L. Smith, Stanford Research Inst., Menlo Park, Calif.)

31-2. Western Soc. for Clinical Research, annual, Carmel-by-the-Sea, Calif. (H. R. Warner, Latter-day Saints Hospital, Dept. of Physiology, Salt Lake City 3, Utah)

February


4-9. Recent Trends in Iron and Steel Technology, symp., Jamshedpur, India. (Secretary, Iron & Steel Institute of India, 31 Chowringhee Rd., Calcutta, India)


5-14. International Radio Consultative Committee, Plan Subcommittee for Asia, New Delhi, India. (V. Barthoni, 128 rue de Lausanne, Geneva, Switzerland)
AGING . . .
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Aging in tissues and cells: B. Glass, J. D. Ebert, G. H.
Bourne, A. White
Aging in the total organism: M. Landowne, G. Pincus, P.
Handler, E. W. Busse
Theories of aging: N. W. Shock, H. Selye, P. Prioreschi,
B. L. Strehler, J. E. Birren, E. W. BuLsse
Oral aspects of aging: R. F. Sognnaes, A. A. Dahlberg,
J. Nalbandian, J. Klingberg, L. Cancellaro, E. O.
Butcher, J. R. Ring
Financing medical costs after age 65: J. T. Freeman
Discussions. Index

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New Products

High constant-temperature baths use fluidized sand in place of liquid in order to avoid the disadvantages of fire risk, mess, corrosion, and electrical conductivity associated with oils, molten metals, or molten salts. The advantages of ease of access and rapid heat transfer are said to be retained. The sand is kept in suspension by a supply of clean dry air at constant pressure. When the air control valve is slowly opened, the air at first finds its way between the sand particles without disturbing them. As the flow is increased, the sand particles separate and the mass of sand can be seen to have expanded. Further increase of gas flow causes bubbling of the fluidized sand which takes on the appearance of boiling liquid. The sand is heated by electric heaters placed above the porous plate supporting the sand. Temperature is controlled by means of a thermoregulator placed above the heaters. Heat transference figure, said to be typical, is 0.06 w/cm² per degree Centigrade. Electrical leakage currents are of the order of 10⁻⁸ amp for a potential difference of 200 v between electrodes 1 cm² spaced 0.5 cm apart. Temperature is uniform within an effective working space about 20 cm in diameter and 15 cm deep. The swing in temperature at 174°C is ±0.4°C. The time required to heat up from 20° to 350° is 37.67 minutes.


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The material in this section is prepared by the following contributing writers:
Robert L. Bowman (S.L.B.), Laboratory of Technical Development, National Heart Institute, Bethesda 14, Md. (medical electronics and biomedical laboratory equipment).

The information reported is obtained from manufacturers and others considered reliable. Neither Science nor any of the writers assumes responsibility for the accuracy of the information.

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Edited by L. Zechmeister, California Institute of Technology, Pasadena, Calif., USA

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WIESNER, K. Structure and Stereochemistry of the Lycopodium Alkaloids.
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Magnetostrictive elements utilize the property of certain conductive materials of variability of electrical resistivity in proportion to the intensity of an applied magnetic field. The source of the magnetic field can be either a permanent magnet or an electromagnet. Output signals in the 5- to 10-volt range are said to be easily attainable from a Wheatstone-bridge circuit in which the devices can be used. Available magnetoresistors range in resistance from 100 to 10,000 ohms. Elements are rectangular in shape with an encapsulated square central active grid section contained between copper terminals. The active area is ¼ or 1 cm² in two models. The sensitivity characteristic is approximately linear throughout the full range to 50,000 gauss. Resistance increases 25 percent for each 6000-gauss increase in field. An experimenter's kit of four elements is available.—J.s. (American Aerospace Controls, Inc., Dept. S513, 123 Milbar Blvd., Farmingdale, N.Y.)