

attention is focused on high lysine (opaque-2) maize, but consideration is also given to other cereals: wheat, triticale, oats, rice, sorghum, and barley.

The improved amino acid balance of opaque-2 maize was first reported in 1962. Since that time abundant evidence of a corresponding improvement in nutritive value has accumulated. Studies conducted in Colombia and Guatemala indicate that the protein of opaque-2 maize has a biological value about 90 percent of that of skim milk in the feeding of protein-deprived children. Rat and swine feeding trials also attest to the improved nutritional value of opaque-2 maize.

The book includes reports on the development of opaque-2 maize types from various areas of the world: Brazil, Colombia, Hungary, India, Mexico, Peru, the Philippines, the United States, and the Soviet Union. In spite of the tremendous effort that has been expended on it and its proven nutritional superiority, opaque-2 maize occupies a very limited percentage of world acreage. Strategies for increasing utilization receive some attention.

The current situation with respect to improvements in protein quality or quantity in other cereals is also reviewed; subjects covered include the new high-protein wheats and oats and naturally occurring or induced mutations in both sorghum and barley that improve in protein quality through a reduction in the alcohol-soluble fraction. Consideration is also given to the economic and technical feasibility of improving dietary protein quality through fortification and supplementation as alternatives to genetic improvement. A series of workshops on chemical and biological evaluation techniques for protein, problems involved in the introduction of improved varieties, and social and economic factors involved in public acceptance of these varieties complete the book.

A large number of legume species, which are the subject of *Nutritional Improvement of Food Legumes by Breeding*, are used as human food in various areas of the world. It is possible that the wealth of species available has been a deterrent to progress, as few have received concentrated attention. The six most important types are cowpeas (*Vigna unguiculata*), dry beans (*Phaseolus vulgaris*), chick peas (*Cicer arietinum*), pigeon peas (*Cajanus cajan*), groundnuts (*Arachis hypogaea*), and soybeans (*Glycine max*). The last two are grown primarily for industrial processing though both are also used directly as human food.

Yields of food legumes have not been increased by the Green Revolution. In fact, the increases achieved in the cereals have often been accompanied by decreases in

both acreage devoted to and total production of the food legumes. In addition to relatively low yields, the legumes pose other specific problems that limit expanded use, and these are discussed in the book. The six objectives of food legume improvement programs are higher protein levels and better amino acid profiles; reduction of toxic constituents; reduction of flatulence; improvement of processing and consumer acceptance; development of screening methodology useful to plant breeders for measuring relevant chemical, nutritional, and toxicological factors; and expansion of research related to crop yields and productivity.

Within each of the six main types of food legumes, survey data indicate rather striking differences in protein percentages. As in other seed crops, percentage of protein in legumes is markedly influenced by environment, which complicates selection and evaluation. The lack of a simple screening technique has precluded extensive work on methionine and cystine, the amino acids of greatest interest.

Little information is available on the genetic control of various toxic or otherwise undesirable substances present in some or all of the food legumes. The effects of some of these (trypsin inhibitors, phytohemagglutinins, and antivitamin factors) can be minimized through cooking; apparently the digestibility of all legumes is improved by heat treatment. Other undesirable substances, such as goiterogens, cyanogenic glycosides, flatulents, and possible heat-resistant growth depressants, are relatively unaffected by normal cooking procedures. Species and varietal variation of some of these characteristics has been established, but the extent and complexity of genetic control remains largely unknown.

On the basis of the general history of success in plant breeding it appears safe to assume that further increases in productivity in these two classes of food crops can and will be achieved. Improvements in other desirable characteristics (such as an increase in kernel hardness in opaque-2 maize or a reduction in toxic substances in legumes) are less predictable and will take longer. A prerequisite for the desired progress in any plant breeding program is the availability of a simple, rapid, and efficient screening technique for each of the factors of major interest.

These two volumes contain information of interest to specialists in agriculture and human nutrition and to all others who are interested in the adequacy and the protein quality of the world food supply.

G. F. SPRAGUE

Department of Agronomy,
University of Illinois,
Urbana-Champaign

Books Received

Acupuncture Anesthesia in the People's Republic of China, 1973. James Y. P. Chen. National Institutes of Health, Bethesda, Md., 1975 (available from the Superintendent of Documents, Washington, D.C.). xii, 106 pp., illus. Paper, \$1.80. DHEW Publication No. (NIH) 75-769.

Advances in X-Ray Analysis. Vol. 18. Proceedings of a conference, Denver, Aug. 1974. William L. Pickles, Charles S. Barrett, John B. Newkirk, and Clayton O. Ruud, Eds. Plenum, New York, 1975. xx, 642 pp., illus. \$39.50.

Analysis in Euclidean Space. Kenneth Hoffman. Prentice-Hall, Englewood Cliffs, N.J., 1975. xvi, 432 pp. \$15.95.

Annual Review of Earth and Planetary Sciences. Vol. 3. Fred A. Donath, Francis G. Stehli, and George W. Wetherill, Eds. Annual Reviews, Palo Alto, Calif., 1975. x, 466 pp., illus. \$15.

Aquatic and Wetland Plants of Southwestern United States. Donovan S. Correll and Helen B. Correll. Stanford University Press, Stanford, Calif., 1975. Two volumes illus. xviii + pp. 1-856, and iv + pp. 857-1778. \$37.50.

Assessment in Infancy. Ordinal Scales of Psychological Development. Ina C. Uzgiris and J. McV. Hunt. University of Illinois Press, Urbana, 1975. xii, 264 pp. \$10.

Atherosclerosis III. Proceedings of a symposium, West Berlin, Oct. 1973. G. Schettler and A. Weizel, Eds. Springer-Verlag, New York, 1974. xxxviii, 1036 pp., illus. \$32.

Atlas de Biologie Cellulaire. Jean-Claude Roland, Annette Szöllosi, and Daniel Szöllosi. Masson, Paris, 1974. iv, 166 pp. Paper, 39 F.

Azraq. Desert Oasis. Bryan Nelson. Drawings by John Busby. Photographs by Eric Hosking and the author. Ohio University Press, Athens, 1975. xx, 436 pp. + plates. \$14.50.

BASIC. Samuel L. Marateck. Academic Press, New York, 1975. xii, 404 pp. Paper, \$7.95.

Basics of Electricity and Electronics. Matthew Mandl. Prentice-Hall, Englewood Cliffs, N.J., 1975. xii, 388 pp., illus. \$15.95.

Biochemical Ecology of Water Pollution. Patrick R. Dugan. Plenum, New York, 1975. x, 160 pp., illus. Paper, \$5.95. A Plenum/Rosetta Edition. Reprint of the 1972 edition.

Biologic Effects and Health Hazards of Microwave Radiation. Proceedings of a symposium, Warsaw, Oct. 1973. Polish Medical Publishers, Warsaw, 1974 (available as PB No. 239-554 from the National Technical Information Service, Springfield, Va.). xvi, 350 pp., illus. \$10; microfiche, \$2.25.

Biology. Aaron O. Wasserman. Addison-Wesley, Reading, Mass., ed. 2, 1975. xxii, 832 pp., illus. \$14.95.

The Biology of Tribolium. With Special Emphasis on Genetic Aspects. Vol. 2. A. Sokoloff. Clarendon (Oxford University Press), New York, 1975. xviii, 610 pp., illus. \$59.50.

Birds of the Harold Hall Australian Expeditions, 1962-70. A Report on the Collections Made for the British Museum (Natural History). B. P. Hall, Ed. British Museum (Natural History), London, 1974. xii, 396 pp. + plates. Paper, £12.50. Results of the Harold Hall Australian Expeditions, No. 33. British Museum (Natural History) Publication No. 745.

The Brain Bank of America. An Inquiry into the Politics of Science. Phillip M. Boffey. McGraw-Hill, New York, 1975. xxiv, 312 pp. \$10.95.

Cancer Registry. Proceedings of a symposium, Düsseldorf, Germany, Apr. 1973. E. (Continued on page 905)

BOOKS RECEIVED

(Continued from page 873)

Grundmann and E. Pedersen, Eds. Springer-Verlag, New York, 1975. viii, 194 pp., illus. \$20.70. Recent Results in Cancer Research, 50.

Cell Patterning. Proceedings of a symposium, London, May 1974. Associated Scientific Publishers (Elsevier, Excerpta Medica, North-Holland), New York, 1975. viii, 356 pp., illus. \$26.95. Ciba Foundation Symposium 29 (new series).

Chapters in the Prehistory of Eastern Arizona, IV. Paul S. Martin and six others. Field Museum of Natural History, Chicago, 1975. xii, 174 pp., illus. Paper, \$9.25. *Fieldiana: Anthropology*, vol. 65. Publication 1201.

The Chemistry and Biochemistry of Plant Proteins. Proceedings of a symposium, Ghent, Belgium, Sept. 1973. J. B. Harborne and C. F. Van Sumere, Eds. Academic Press, New York, 1975. xiv, 326 pp., illus. \$30.75. Annual Proceedings of the Phytochemical Society, No. 11.

Child Psychology. Wallace A. Kennedy. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1975. xxii, 554 pp., illus. \$12.95. The Prentice-Hall Series in Developmental Psychology.

Cognitive Psychology. The Study of Knowing, Learning, and Thinking. Barry F. Anderson. Academic Press, New York, 1975. xvi, 402 pp., illus. \$11.95.

Combined Immunodeficiency Disease and Adenosine Deaminase Deficiency. A Molecular Defect. Proceedings of a symposium, Albany, N.Y., Oct. 1973. Hilaire J. Meuwissen, Bernard Pollara, Richard J. Pickering, Ian H. Porter, Ernest B. Hook, and Sally Kelly, Eds. Academic Press, New York, 1975. xii, 322 pp., illus. \$16.50. Birth Defects Institute Symposia.

Community Worker. James B. Taylor and Jerry Randolph. Aronson, New York, 1975. xiv, 140 pp. \$7.50.

Computer Chess. Monroe Newborn. Academic Press, New York, 1975. xiv, 200 pp., illus. \$15. ACM Monograph Series.

Computer Graphics. Techniques and Applications. Papers from a symposium, Uxbridge, England, July 1968. R. D. Parslow, R. W. Prowse, and R. Elliot Green, Eds. Plenum, New York, 1975. xvi, 234 pp., illus. Paper, \$6.95. A Plenum/Rosetta Edition. Reprint of the 1969 edition.

Computers in Biology. J. A. Nelder. Wykeham, London, and Springer-Verlag, New York, 1975. viii, 160 pp., illus. Paper, \$7.80. The Wykeham Science Series.

Concepts in Biochemical Pharmacology. Part 3. J. R. Gillette, J. R. Mitchell, and Patricia S. Randall, Eds. Springer-Verlag, New York, 1975. xxviii, 482 pp., illus. \$106.70. Handbook of Experimental Pharmacology, vol. 28/3.

Concepts, Problems and Solutions in General Physics. A Study Guide for Students of Engineering and Science. Vol. 2. Raymond A. Serway. Saunders, Philadelphia, 1975. xvi, 378 pp., illus. Paper, \$6.95.

Construction Contracting. Richard H. Clough. Wiley-Interscience, New York, ed. 3, 1975. x, 454 pp. \$16.95.

Continuous Flows in the Plane. Anatole Beck with the assistance of Jonathan Lewin and Mirit Lewin. Springer-Verlag, New York, 1974. xii, 464 pp., illus. \$46.80. Die Grundlehren der mathematischen Wissenschaften, Band 201.

Control Processes in Virus Multiplication. Papers from a symposium, London, Apr. 1975. D. C. Burke and W. C. Russell, Eds. Published for the Society for General Microbiology by Cambridge University Press, New York, 1975. x, 450



From tissue to homogenate in 30 seconds!

For homogenization, dispersion, defibrillation and emulsification, nothing works quite like a Polytron. Utilizing the Willems "High Frequency Principle", the Polytron combines ultrasonic energy with mechanical shearing action to homogenize virtually any type of tissue . . . small organs, soft bones, muscle, cartilage, even an entire mouse.

Because of its unique shearing effect, the Polytron outperforms any blender, mixer or similar homogenizer, and requires only 30-60 seconds to do what other instruments do in 15 minutes or more. This rapid action is an important advantage when working with heat-sensitive biological materials.

The Polytron system offers a wide selection of models, generators and speeds to provide ideal conditions for homogenization as dictated by type of material, experimental conditions and desired end result. For an informative brochure, write: Polytron Division, Brinkmann Instruments, Cantiague Road, Westbury, N.Y. 11590. In Canada: 50 Galaxy Boulevard, Rexdale (Toronto), Ont.

Brinkmann Polytron®

Circle No. 144 on Readers' Service Card

pp., illus. \$27.50. The Society for General Microbiology Symposia, 25.

Control Theory, Numerical Methods and Computer Systems Modelling. Papers from a symposium, Rocquencourt, France, June 1974. A. Bensoussan and J. L. Lions, Eds. Springer-Verlag, New York, 1975. viii, 758 pp., illus. Paper, \$22.80. Lecture Notes in Economics and Mathematical Systems, vol. 107.

Cost of Living Index Numbers. Practice, Precision, and Theory. Kali S. Banerjee. Dekker, New York, 1975. xvi, 180 pp. \$13.75. Statistics, vol. 11.

The Creative Process in Science and Medicine. Proceedings of a symposium, Kronberg, Germany, May 1974. Hans A. Krebs and Julian H. Shelley, Eds. Excerpta Medica, Amsterdam, and Elsevier, New York, 1975. xii, 138 pp., illus. Paper, \$21.75.

Crystals with the Fluorite Structure. Electronic, Vibrational, and Defect Properties. W. Hayes, Ed. Clarendon (Oxford University Press), New York, 1975. x, 448 pp., illus. \$54.50.

Documents on Disarmament 1973. United States Arms Control and Disarmament Agency, Washington, D.C., 1975 (available from the Superintendent of Documents, Washington, D.C.). xx, 974 pp. Paper, \$8.90. United States Arms Control and Disarmament Agency Publication 76.

Drug Design. Vol. 6. E. J. Ariëns, Ed. Academic Press, New York, 1975. xviii, 364 pp., illus. \$39.50. Medicinal Chemistry, vol. 11.

Ecology in Ancient Civilizations. J. Donald Hughes. University of New Mexico Press, Albuquerque, 1975. xiv, 182 pp. + plates. \$9.50.

Economics of the Family. Marriage, Children, and Human Capital. Papers from two conferences, June 1972 and June 1973. Theodore W. Schultz, Ed. Published for the National Bureau of Economic Research by University of Chicago Press, Chicago, 1975. x, 584 pp. \$12.95. Originally published as supplements to the *Journal of Political Economy*, Mar.-Apr. 1973 and Mar.-Apr. 1974.

Elements of Chordate Anatomy. Charles K. Weichert and William Presch. McGraw-Hill, New York, ed. 4, 1975. x, 526 pp., illus. \$14.95. McGraw-Hill Series in Organismic Biology.

ELF-VLF Radio Wave Propagation. Proceedings of a NATO Advanced Study Institute, Spätind, Norway, Apr. 1974. J. A. Holtet, Ed. Reidel, Boston, 1974. xii, 428 pp., illus. \$37. NATO Advanced Study Institutes Series C, vol. 10.

Energy and Environment. The Four Energy Crises. G. Tyler Miller, Jr. Wadsworth, Belmont, Calif., 1975. vi, 122 pp., illus. Paper, \$3.95.

Energy for Survival. The Alternative to Extinction. Wilson Clark. Anchor (Doubleday), Garden City, N.Y., 1975. xviii, 652 pp. Paper, \$4.95. Reprint of the 1974 edition.

Epidemiology of Aging. Papers from a conference, Elkridge, Md., June 1972. Adrian M. Ostfeld, Don C. Gibson, and Christine P. Donnelly, Eds. National Institutes of Health, Bethesda, Md., 1975 (available from National Institute of Aging, NIH, Bethesda, Md.). xviii, 286 pp., illus. Paper. DHEW Publication No. (NIH) 75-711.

Epitaxial Growth. Part A. J. W. Matthews, Ed. Academic Press, New York, 1975. xii, 380 pp., illus. + index. \$38.50. Materials Science and Technology.

Essentials of Statistics for Scientists and Technologists. C. Mack. Plenum, New York, 1975. viii, 174 pp., illus. Paper, \$4.95. A Plenum/Rosetta Edition. Reprint of the 1966 edition.

Ethnic Variables in Human Factors Engineering. Papers from a symposium, Oosterbeek, Netherlands, June 1972. Alphonse Chapanis. Johns Hopkins University Press, Baltimore, 1975. xx, 290 pp., illus. \$17.50.

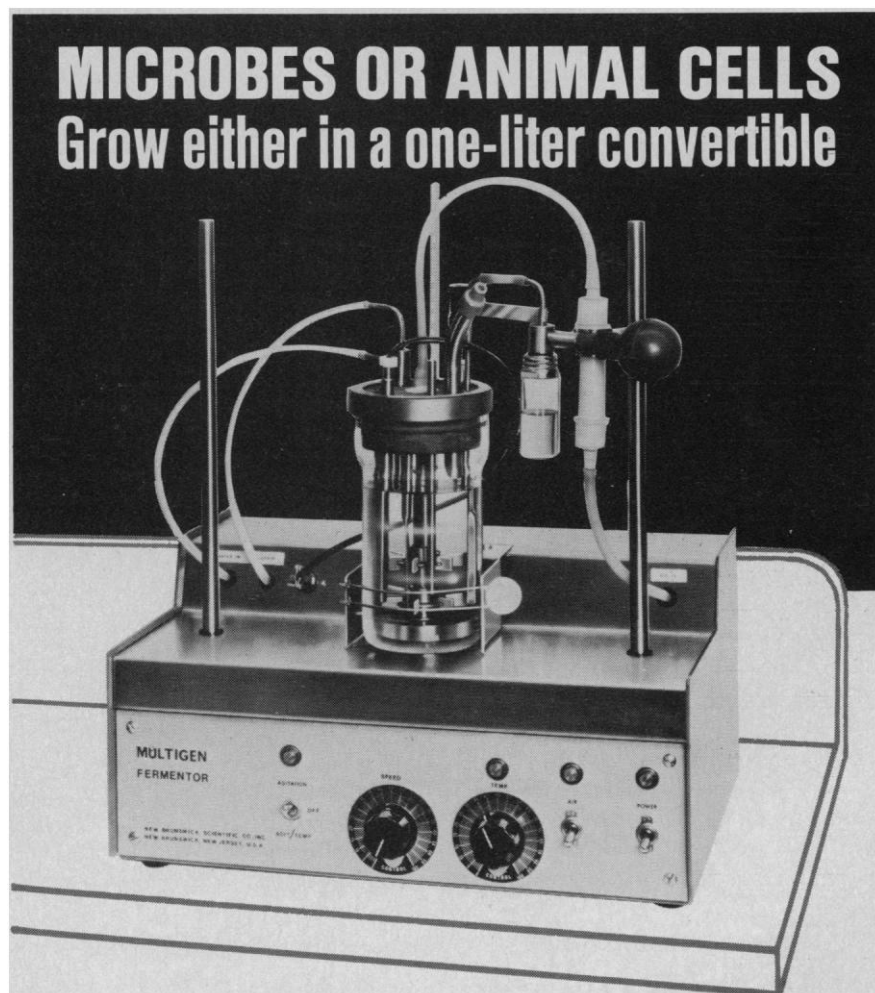
Experiences with Plants for Young Children. Frank C. Gale and Clarice W. Gale. Pacific Books, Palo Alto, Calif., 1975. 118 pp., illus. \$6.95.

Experimental Lung Cancer. Carcinogenesis and Bioassays. Proceedings of a symposium, Seattle, June 1974. Eberhard Karbe and James F. Park, Eds. Springer-Verlag, New York, 1974. xiv, 614 pp., illus. \$34.90.

Explorations in Cognition. Donald A. Norman, David E. Rumelhart, and the LNR Research Group. Freeman, San Francisco, 1975. xviii, 430 pp., illus. \$13.50. A Series of Books in Psychology.

The Federal Role in Postsecondary Education. Unfinished Business, 1975-1980. A Report by the Carnegie Council on Policy Studies in Higher Education. Jossey-Bass, San Francisco, 1975. xiv, 98 pp., illus. Paper, \$4.95. The Carnegie Council Series.

Formal Aspects of Cognitive Processes. Proceedings of a conference, Ann Arbor, Mich., Mar. 1972. Thomas Storer and David Winter,



The MultiGen is a low cost culture apparatus designed for the control of all basic environmental conditions: temperature, agitation, aeration, pH, and dissolved O₂. Whether the need is for viscous microbial cultures or animal cell suspensions, air sparging or gas overlay, the MultiGen can be adapted to specific research requirements, and can provide an ideal alternative to spinner flask procedures.

Virtually every component is supplied in one compact assembly; glassware, tubing, penetrations, air filter and sampler. It even has its own built-in air pump, heating system, and facilities for cooling, as well as a choice of agitation systems. The impellers are magnetically coupled to eliminate contamination.

ASK FOR BULLETIN F1000/S975



NEW BRUNSWICK SCIENTIFIC CO., INC.

1130 SOMERSET ST., NEW BRUNSWICK, N. J. 08903 201-846-4600

With NBS, Advanced Technology is a Way of Life.

Circle No. 99 on Readers' Service Card



FX 60 1mm C/H DUAL PROBE
10 μ g of Diethyl Benzylmalonate
500 Pulses (10 min.) ^1H

FX 60 C/H DUAL PROBE
1mm (1 hour) ^{13}C

5 mg of CHOLESTEROL

FX 60 C/H DUAL PROBE
10mm (24 hours) ^{13}C

3,600 PULSES 86,400

Now Available in 1mm, 5mm, 10mm Sample VT Probes

Our FX60 $^1\text{H}/^{13}\text{C}$ Dual Probe makes even Lighter Work of FT NMR Spectroscopy

Now with the FX60 you can change frequencies from ^{13}C to ^1H or vice versa, **without touching the probe**. You observe within seconds because two simple operations, that just about anyone can perform, are all that's required.

The development of this remarkable high resolution, high sensitivity **dual capacity probe** means that lock resonance conditions remain identical when changing from one frequency to another.

Daily **sample output can increase** dramatically because it is no longer required to spend precious time relocating, establishing the lock and readjusting field homogeneity.

For FX60 and FX100 information, call or write . . .

JEOL
Analytical Instruments, Inc.
235 Birchwood Ave., Cranford, NJ 07016
201-272-8820

Eds. Springer-Verlag, New York, 1975. vi, 214 pp., illus. Paper, \$9.50. Lecture Notes in Computer Science, vol. 22.

FORTTRAN to PL/I Dictionary. PL/I to FORTRAN Dictionary. Gary DeWard Brown. Wiley-Interscience, New York, 1975. xiv, 204 pp. \$10.95.

FORTTRAN IV. Jehosua Friedmann, Philip Greenberg, and Alan Hoffberg. Wiley, New York, 1975. xii, 452 pp., illus. Paper, \$5.95. Self-Teaching Guides.

Freedom and Growth in Marriage. James Leslie McCary. Hamilton (Wiley), Santa Barbara, Calif., 1975. x, 422 pp., illus. Cloth, \$12.95; paper, \$9.95.

Fundamentals of Electronic Devices. David A. Bell. Reston (Prentice-Hall), Reston, Va., 1975. xii, 468 pp., illus. \$15.95.

Gem Hunter's Guide. How to Find and Identify Gem Minerals. Russell P. MacFall. Crowell, New York, ed. 5, 1975. x, 324 pp. + plates. \$7.95.

Genetics and Biochemistry of *Pseudomonas*. P. H. Clarke and M. H. Richmond, Eds. Wiley-Interscience, New York, 1975. xii, 366 pp., illus. \$25.

Gestalt Therapy Primer. Introductory Readings in Gestalt Therapy. F. Douglas Stephenson, Ed. Thomas, Springfield, Ill., 1975. xvi, 216 pp. Paper, \$16.50.

Guide to Ethnohistorical Sources. Howard F. Cline, Charles Gibson, and H. B. Nicholson, Eds. University of Texas Press, Austin, 1975. Part 3. x + pp. 1-310 + plates. Part 4. xii + pp. 311-724. \$40. Handbook of Middle American Indians, vols. 14 and 15.

Guide to Simple Sanitary Measures for the Control of Enteric Diseases. S. Rajagopalan with a section by M. A. Shiffman. World Health Organization, Geneva, 1974 (U.S. distributor, Q Corp., Albany, N.Y.). 104 pp., illus. Paper, \$13.80.

Handbook of Metal Ligand Heats and Related Thermodynamic Quantities. James J. Christensen, Delbert J. Eatough, and Reed M. Izatt. Dekker, New York, ed. 2, 1975. x, 496 pp. \$25. Contribution No. 66 from the Center for Thermochemical Studies, Brigham Young University.

Highlights in Astronomy. Fred Hoyle. Freeman, San Francisco, 1975. viii, 180 pp., illus. Cloth, \$10; paper, \$5.50.

Hominology. Psychiatry's Newest Frontier. C. David Jones. Thomas, Springfield, Ill., 1975. xx, 216 pp. \$12.50.

Human Biology and Behavior. An Anthropological Perspective. Mark L. Weiss and Alan E. Mann. Little, Brown, Boston, 1975. xiv, 484 pp., illus. + index. \$11.95.

Human Reproduction. Eric Golanty. Holt, Rinehart and Winston, New York, 1975. xii, 226 pp., illus. Paper, \$5.

Hydrogen Energy. Proceedings of a conference, Miami Beach, Mar. 1974. T. Nejat Veziroğlu, Ed. Plenum, New York, 1975. Two volumes, illus. xlii + pp. 1-674, and xxvi + pp. 675-1370. \$95.

The Hyperkinetic Child. A Bibliography of Medical, Educational, and Behavioral Studies. Carol Ann Winchell. Greenwood, Westport, Conn., 1975. xiv, 184 pp. \$11.

Immaculate Deception. A New Look at Women and Childbirth in America. Suzanne Arms. San Francisco Book Co., San Francisco, and Houghton Mifflin, Boston, 1975 (distributor, Houghton Mifflin). xiv, 318 pp., illus. Cloth, \$11.95; paper, \$6.95.

In Command of Tomorrow. Resource and Environmental Strategies for Americans. Sterling Brubaker. Published for Resources for the Fu-

ture by Johns Hopkins University Press, Baltimore, 1975. xiv, 178 pp. \$7.95.

Indicators of Environmental Quality. Proceedings of a AAAS symposium, Philadelphia, Dec. 1971. William A. Thomas, Ed. Plenum, New York, 1975. x, 276 pp., illus. Paper, \$6.95. A Plenum/Rosetta Edition. Reprint of the 1972 edition.

The Intelligent Universe. A Cybernetic Philosophy. David Foster. Putnam, New York, 1975. 192 pp. \$7.95.

Interaction between Ions and Molecules. Proceedings of a NATO Advanced Study Institute, Biarritz, France, June 1974. Pierre Ausloos, Ed. Plenum, New York, 1975. x, 690 pp., illus. \$54. NATO Advanced Study Institutes Series B, Physics, vol. 6.

International Review of Cytology. Vol. 40. G. H. Bourne, J. F. Danielli, and K. W. Jeon, Eds. Academic Press, New York, 1975. viii, 456 pp., illus. \$35.

Interviewing in Social Research. Herbert H. Hyman with William J. Cobb, Jacob J. Feldman, Clyde W. Hart, and Charles Herbert Stember. University of Chicago Press, Chicago, 1975. xviii, 414 pp. Paper, \$5.25. A Phoenix Book. Reprint of the 1954 edition.

An Introduction to Energy Conversion. Vol. 2, Energy Conversion Cycles. V. Kadambi and Manohar Prasad. Halsted (Wiley), New York, 1975. x, 312 pp., illus. \$9.95.

Introduction to Marine Biology. Barry Fell. Harper and Row, New York, 1975. xii, 356 pp., illus. \$10.95.

An Introduction to Mathematical Statistics. H. D. Brunk. Xerox College Publishing, Lexington, Mass., ed. 3, 1975 (distributor, Wiley, New York). xiv, 458 pp., illus. + appendix. \$13.50.

Introductory Experimental Chemistry. Robert J. Ouellette, Carole W. Bohn, John S. Swenton, and Stanley Marcus. Harper and Row, New York, ed. 2, 1975. viii, 214 pp., illus. Paper, \$5.95.

Ion Implantation Range and Energy Deposition Distributions. Vol. 1, High Incident Ion Energies. David K. Brice. IFI/Plenum, New York, 1975. xii, 590 pp. \$59.50.

Isozymes. Vol. 3, Developmental Biology. Papers from a conference, New Haven, Conn., Apr. 1974. Clement L. Markert, Ed. Academic Press, New York, 1975. xxii, 1034 pp., illus. \$37.50.

Die Kopf- und Körperhaltung und das Gleichgewichtsorgan der Wirbeltiere. Fritz Cl. Werner. Fischer, Jena, East Germany, 1975. 86 pp., illus. Paper, 23.20 M.

Life in and around Freshwater Wetlands. Michael J. Ursin. Crowell, New York, 1975. xii, 116 pp. + plates. Cloth, \$6.95; paper, \$2.95.

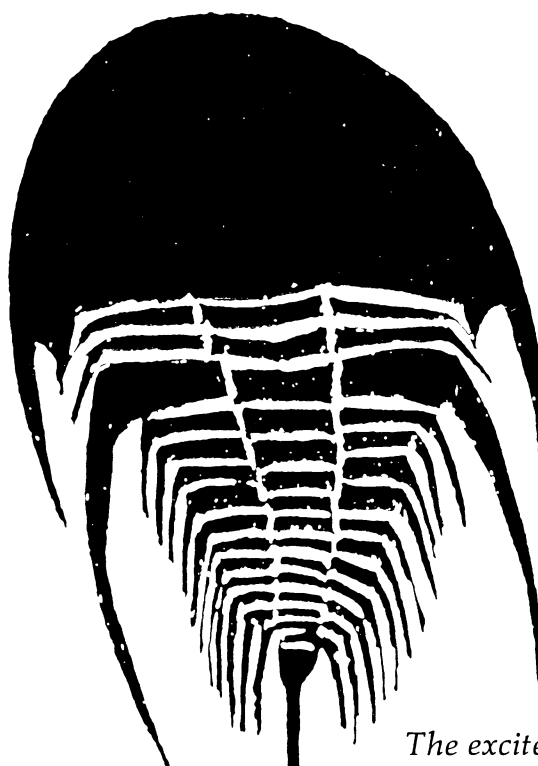
Linear Algebra. Ichiro Satake. Translated from the second Japanese edition (Tokyo) by Sebastian Koh, Tadatoshii Akiba, and Shin-ichiro Ihara. Dekker, New York, 1975. xii, 376 pp. \$13.75. Monographs and Textbooks in Pure and Applied Mathematics, 29.

Low-Dimensional Cooperative Phenomena. The Possibility of High-Temperature Superconductivity. Papers from a NATO Advanced Study Institute, Starnberg, Germany, Sept. 1974. H. J. Keller, Ed. Plenum, New York, 1975. viii, 350 pp., illus. \$25.50. NATO Advanced Study Institutes Series B, vol. 7.

LSD. A Total Study. D. V. Siva Sankar and 11 others. PJD Publications, Westbury, N.Y., 1975. 960 pp., illus. \$29.75.

Madness and the Brain. Solomon H. Snyder. McGraw-Hill, New York, 1975. viii, 296 pp. Paper, \$3.95. Reprint of the 1974 edition.

Main Group Elements—Groups IV and V. D. B. Sowerby, Ed. Butterworth, London, and Uni-



*The excitement of
a voyage back in
time to the dawn of life*

Riccardo Levi-Setti

Tri lobites

A Photographic Atlas

A magnificent pictorial record of the ancient, fascinating fossils which are clues to the evolution of the first complex life forms on earth.

Levi-Setti's own inventive techniques of macrophotography provide the beautiful and dramatic black-and-white illustrations which reveal details often impossible to detect in museum specimens. His lucid descriptive text includes an account of the discovery of the remarkable sophistication of the trilobite's optical organ. A special appendix incorporates the author's recent findings of giant fossils in Newfoundland.

Large format, 10" x 10" 158 plates \$27.50



versity Park Press, Baltimore, 1975. xii, 332 pp., illus. \$37.50. International Review of Science. Inorganic Chemistry, Series Two, vol. 2.

Main Group Elements—Hydrogen and Groups I-III. M. F. Lappert, Ed. Butterworth, London, and University Park Press, Baltimore, 1975. xii, 358 pp., illus. \$37.50. MTP International Review of Science. Inorganic Chemistry, Series Two, vol. 1.

Man and Animals in Hot Environments. D. L. Ingram and L. E. Mount. Springer-Verlag, New York, 1975. xii, 186 pp., illus. \$29.80. Topics in Environmental Physiology and Medicine.

Man, Nature, and Society. An Introduction to Biology. E. Peter Volpe. Brown, Dubuque, Iowa, 1975. xvi, 854 pp. + plates. \$13.95. Study guide, Theodore W. Pohrte and L. Jack Pierce. viii, 182 pp. Spiral bound, \$3.95. Laboratory manual, William W. Reynolds. viii, 254 pp., illus. Spiral bound, \$5.50.

Marine Gas Turbines. John B. Woodward. Wiley-Interscience, New York, 1975. xxiv, 390 pp., illus. \$23. Ocean Engineering.

Mass Spectrometry. Vol. 3, A Review of the Literature Published between July 1972 and June 1974. R. A. W. Johnstone, Senior Reporter. The Chemical Society, London, 1975. xiv, 402 pp., illus. £13.50. A Specialist Periodical Report.

The Mathematical Papers of Isaac Newton. Vol. 6, 1684-1691. D. T. Whiteside, Ed., with the assistance in publication of M. A. Hoskin and A. Prag. Cambridge University Press, New York, 1975. xxxvi, 614 pp. + plates. \$72.50.

Membranes, Dissipative Structures, and Evolution. Papers from a conference, Brussels, Nov. 1972. G. Nicolis and R. Lefever, Eds. Interscience (Wiley), New York, 1975. x, 390 pp., illus. \$23.95. Advances in Chemical Physics, vol. 29.

Methodological Guidelines for Social Assessment of Technology. Organisation for Economic Co-operation and Development, Paris, 1975 (U.S. distributor, OECD Publications Center, Washington, D.C.). 148 pp. Paper, \$5.50.

Methods in Enzymology. Sidney P. Colowick and Nathan O. Kaplan, Eds. Vols. 41 and 42, Carbohydrate Metabolism. W. A. Wood, Ed. Academic Press, New York, 1975. Part B. xxvi, 564 pp., illus. \$32.50. Part C. xxii, 438 pp., illus. \$31.50.

Moloy's Evaluation of the Pelvis in Obstetrics. Charles M. Steer. Plenum, New York, ed. 3, 1975. xiv, 128 pp., illus. \$15.

Mössbauer Effect Data Index. Covering the 1966-1968 Literature. John G. Stevens and five others, Eds. IFI/Plenum, New York, 1975. x, 522 pp. \$49.50.

My Story. Uri Geller. Praeger, New York, 1975. vi, 282 pp. + plates. \$8.95.

Nuclear Energy. An Introduction to the Concepts, Systems, and Applications of Nuclear Processes. Raymond L. Murray. Pergamon, New York, 1975. xvi, 280 pp., illus. Cloth, \$14.50; paper, \$9. Pergamon Unified Engineering Series, vol. 19.

Nutrition and Mental Functions. Proceedings of a symposium, Mar. 1973. George Serban, Ed. Plenum, New York, 1975. xiv, 282 pp., illus. \$22.50. Advances in Behavioral Biology, vol. 14.

Organic Reactions. Vol. 22. Wiley, New York, 1975. xii, 474 pp., illus. \$24.95.

Pavlov. A Biography. B. P. Babkin. University of Chicago Press, Chicago, 1975. xiv, 366 pp. Paper, \$4.25. A Phoenix Book. Reprint of the 1949 edition.

The People of Africa. Jean Hiernaux. Scribner, New York, 1975. xiv, 218 pp. + plates. Cloth, \$12.50; paper, \$4.95. Peoples of the World Series.

omnicon™ Image Analysis Systems.

Simple solutions for complex life science investigations.

These systems have proven their value in virtually every technological field. Now . . . Omnicon's versatility and quantitative analytical capabilities eliminate the inaccuracies and tedium of manual methods used in . . .

Histopathology, Hematology, Microbiology, Cytology, Cancer Research, Botany
. . . and many other areas.

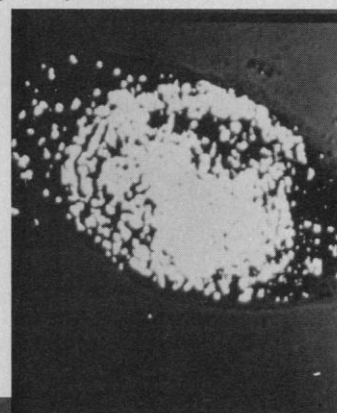
BIOLOGICAL SCIENCE PROBLEM SOLVERS:

Background (shading) can vary even within a microscope's field of view due to differences in staining or other preparation procedures. The **Omnicon Shading Corrector** assures accurate feature detection in the image of the specimen.

The **Light Pen** can be used to edit features as required by selection, isolation or deletion.

Modularity is offered yet high measurement accuracy is maintained throughout the line. The sophisticated **Pattern Analysis System** allows individual features, such as autoradiographic grains, lysosome counts and sizing, nuclear properties (i.e., different shaped nuclei within cells), etc., to be easily investigated, quantified and classified **automatically**.

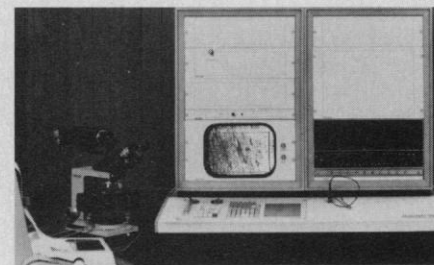
Additional measurements can easily be obtained by simple **software** changes using the popular BASIC language.



Polaroid® photographs of a HeLa cell as viewed in the Omnicon™ system with a macroviewer. The white spots represent detection and extraction of the lysosomes lying in the cytoplasm

without (photo a) and with (photo b) the Omnicon™ Shading Corrector and optical level set-up equipment.

Hans M. Aus, et al., paper, Medical Data Processing Symposium, March 3-7, Toulouse, France.



Contact us now and see for yourself.

BAUSCH & LOMB
ANALYTICAL SYSTEMS DIVISION

For complete details, write Bausch & Lomb, Analytical Systems Division, 71-21-17 Linden Avenue, Rochester, New York 14625

Pest Control and Its Ecology. Helmut F. van Emden. Arnold, London, 1975 (U.S. distributor, Crane, Russak, New York). iv, 60 pp., illus. Paper, \$2.75. The Institute of Biology's Studies in Biology No. 50.

Pharmacotherapy and Psychotherapy. Paradoxes, Problems and Progress. Group for the Advancement of Psychiatry, New York, 1975. pp. 259-434. Paper, \$6. GAP Publication, vol. 9, Report No. 93.

Physical and Dynamic Climatology. Proceedings of a symposium, Leningrad, Aug. 1971. Published for the World Meteorological Organization by Gidrometeoizdat, Leningrad, 1974 (U.S. distributor, Unipub, New York). 400 pp., illus. \$16. WHO—No. 347.

Physical Geology. Principles and Perspectives. A. Lee McAlester and Edward A. Hay. Prentice-Hall, Englewood Cliffs, N.J., 1975. viii, 440 pp., illus. \$10.50.

Physics. Energy in the Environment. Alvin M. Saperstein. Little, Brown, Boston, 1975. xvi, 384 pp., illus. Paper, \$9.95.

Physics for Life Science Students. Hans Breuer. Prentice-Hall, Englewood Cliffs, N.J., 1975. xxii, 454 pp., illus. \$12.95. Prentice-Hall Physics Series.

Physics for Scientists and Engineers. Vol. 2. Frederick Lobkowicz and Adrian G. Melissinos. Illustrated by Alexis Kelner. Saunders, Philadelphia, 1975. xvi, 576 pp. \$13.95. Saunders Golden Series.

Physics, the Environment, and Man. Isaac Turiel. Prentice-Hall, Englewood Cliffs, N.J., 1975. xvi, 400 pp., illus. \$10.95.

The Physiology of Giant Algal Cells. A. B. Hope and N. A. Walker. Cambridge University Press, New York, 1975. xiv, 202 pp. + plates. \$24.95.

Phytophthora Disease of Cocoa. P. H. Gregory, Ed. Longman, New York, 1975. xii, 348 pp., illus. \$47.50.

Planetary Geology. Nicholas M. Short. Prentice-Hall, Englewood Cliffs, N.J., 1975. xvi, 362 pp., illus. \$17.95.

Practical and Theoretical Aspects of Psychoanalysis. Lawrence S. Kubie. International Universities Press, New York, ed. 2, 1975. x, 362 pp. \$15.

Principles and Methods of Psychology. Robert B. Lawson, Steven G. Goldstein, and Richard E. Musty. Oxford University Press, New York, 1975. xvi, 528 pp., illus. \$11.50. Experiment kit with laboratory manual. \$7.95.

Principles and Techniques of Electron Microscopy. Biological Applications. Vol. 5. M. A. Hayat, Ed. Van Nostrand Reinhold, New York, 1975. xx, 250 pp., illus. \$19.95.

Progress in Geography. International Reviews of Current Research. Vol. 7. Christopher Board, Richard J. Chorley, Peter Haggett, and David R. Stoddart, Eds. St. Martin, New York, 1975. viii, 292 pp. + plates. \$25.

Progress in Nucleic Acid Research and Molecular Biology. Vol. 15. Waldo E. Cohn, Ed. Academic Press, New York, 1975. xx, 332 pp., illus. \$24.50.

PSA 1972. Proceedings of a meeting, Lansing, Mich., Oct. 1972. Kenneth F. Schaffner and Robert S. Cohen, Eds. Reidel, Boston, 1974. x, 452 pp. Cloth, \$39; paper, \$22. Synthese Library, vol. 64. Boston Studies in the Philosophy of Science, vol. 20.

Psychology. Gardner Lindzey, Calvin Hall, and Richard T. Thompson. Worth, New York, 1975. xiv, 802 pp., illus. \$13.95.

Pursuit of the Ancient Maya. Some Archaeologists of Yesterday. Robert L. Brunhouse. University of New Mexico Press, Albuquerque, 1975. x, 252 pp. + plates. \$8.95.

Races, Types, and Ethnic Groups. The Problem of Human Variation. Stephen Molnar. Prentice-Hall, Englewood Cliffs, N.J., 1975. xiv, 194 pp., illus. Cloth, \$9.95; paper, \$5.95. The Prentice-Hall Series in Anthropology.

Radiochemistry. A. G. Maddock, Ed. Butterworth, London, and University Park Press, Baltimore, 1975. xii, 338 pp., illus. \$37.50. International Review of Science. Inorganic Chemistry, Series Two, vol. 8.

La Raisonement Modal. Etude Génétique. Gilberte Piérait-Le Bonniec. Published for Ecole Pratique des Hautes Etudes by Mouton, Paris, 1975. xviii, 288 pp., illus. Paper, 64 F. Connaissance et Langage 2.

Recent Progress in Reproductive Endocrinology. Proceedings of a conference, Milan, May 1973. P. G. Crosignani and V. H. T. James, Eds. Academic Press, New York, 1975. x, 846 pp., illus. \$31. Proceedings of the Sero Foundation Symposia, No. 4.

Regional Environmental Management. Papers from a conference, San Diego, Feb. 1973. L. Edwin Coate and Patricia A. Bonner, Eds. Wiley-Interscience, New York, 1975. xiv, 348 pp., illus. \$19.95.

Reproduction of Marine Invertebrates. Vol. 2. Entoprocts and Lesser Coelomates. Arthur C. Giese and John S. Pearse, Eds. Academic Press, New York, 1975. xiv, 344 pp., illus. \$36.50.

Sedimentary Rocks. F. J. Pettijohn. Harper and Row, New York, ed. 3, 1975. xii, 628 pp., illus. \$19.95.



**LAB-LINE
EXPLOSION-PROOF
FRIGID CABS**
May Look Like
Conventional
Refrigerators
But The
Similarity
Ends Where
LAB-LINE Begins

No. 3551

5 MODELS AVAILABLE!

...With a Complete Line of **TRIPLE-SAFE EXPLOSION-PROOF FRIGID CABS & FREEZERS**

All Lab-Line Frigid Cabs and Freezers have 100% Safe, 3-way Explosion-Proof protection from:

1. Fumes from containers in the chamber.
2. Fumes from the chamber seeping into the exterior.
3. Fumes in the surrounding atmosphere.

Don't let the conventional domestic or commercial refrigerators lull you into a false sense of security, when storing potentially explosive products, such as, volatile solvents and flammable liquids.

Underwriters' Laboratories have established a rigid code for storage of flammable or explosive solvents for which the conventional refrigerator is totally unsuitable.

Removal of arcing components from the interior of domestic or commercial refrigerators does not make them Explosion-Proof . . . does not eliminate all internal and external explosion hazards. Only Lab-Line "Triple-Safe" U.L. listed Frigid Cabs and Freezers are 100% explosion-proof, and U.L. listed for hazardous locations, Class 1, Groups C & D.

Conventional refrigerators and freezers not

listed under Class 1, Groups C & D — which merely have interior wiring and other parts removed, but with non-explosion-proof thermostats, relays, switches, compressors, etc. — does not eliminate the explosion hazard.

Be 100% safe, don't risk an explosion in your laboratory or plant. You can rely on Lab-Line Frigid Cabs and Freezers for the ultimate in safety engineered Explosion-Proof protection.

For additional information, write for Catalog AM-72 Today. TOMORROW MAY BE TOO LATE!



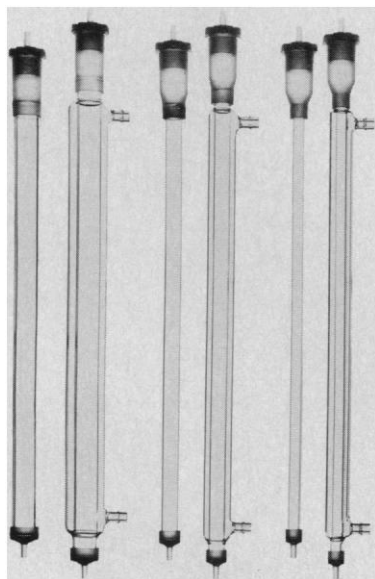
LAB-LINE INSTRUMENTS, Inc.
Designers and Manufacturers
Lab-Line Plaza
Melrose Park, Illinois 60160

FIRST IN INSTRUMENTS
SERVING SCIENCE, INDUSTRY,
AND EDUCATION SINCE 1908

Circle No. 16 on Readers' Service Card

ECONO-COLUMNS™ are bargains!

One way you can hold the line against rising lab costs is to use Bio-Rad's new low-cost chromatographic columns. These quality columns sell for as little as 98 cents in quantities of 200. Yet their performance characteristics equal or exceed those of competing columns costing more than twice as much.



ECONO-COLUMNS come in 4 diameters (0.5, 0.7, 1.0 and 1.5 cm ID) and in lengths up to 50 cm. They are constructed of borosilicate glass with polypropylene end pieces. A complete line of jacketed ECONO-COLUMNS is also available at competitive prices. Accessories such as 3-way nylon stop-cocks and flangeless fittings are economy-priced too.

ECONO-COLUMNS will satisfy a wide range of separation techniques including ion exchange, gel filtration, adsorption and affinity chromatography. Bulletin 1029 gives full details. Contact:

BIO-RAD Laboratories

32nd and Griffin Avenue
Richmond, CA 94804
Phone (415) 234-4130

Also in: Rockville Centre, N.Y.;
Mississauga, Ontario; London;
Munich; Milan; Sao Paulo

Circle No. 170 on Readers' Service Card

Responding to Social Change. Basil Honikman, Ed. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1975 (distributor, Halsted [Wiley], New York). viii, 312 pp. \$18. Community Development Series, 19.

Services for Cardiovascular Emergencies. Report of a WHO Expert Committee. World Health Organization, Geneva, 1975 (U.S. distributor, Q Corp., Albany, N.Y.). 132 pp., illus. Paper, \$5. World Health Organization Technical Report Series, No. 562.

Skeletal Dysplasias. Papers Presented at the Johns Hopkins Hospital. Daniel Bergsma and five others, Eds. The National Foundation—March of Dimes, New York, Excerpta Medica, Amsterdam, and Elsevier, New York, 1974. xviii, 558 pp., illus. \$60.50. Birth Defects Original Article Series, vol. 10, No. 12, 1974.

Sociobiology. The New Synthesis. Edward O. Wilson. Belknap Press of Harvard University Press, Cambridge, Mass., 1975. x, 698 pp., illus. \$20.

Solution of Large Networks by Matrix Methods. Homer E. Brown. Wiley-Interscience, New York, 1975. xiv, 258 pp., illus. \$15.95.

Springer Tracts in Modern Physics. Ergebnisse der exakten Naturwissenschaften. Vol. 73. G. Höhler and E. A. Niekisch, Eds. Springer-Verlag, New York, 1975. vi, 304 pp., illus. \$49.80.

Statistics for Technology. Christopher Chatfield. Chapman and Hall, London, and Halsted (Wiley), New York, 1975. 360 pp., illus. Paper, \$6.95. Reprint of the 1970 edition.

Structure and Bonding. Vol. 20. J. D. Dunitz and seven others, Eds. Springer-Verlag, New York, 1974. iv, 174 pp., illus. \$27.10.

A Taxonomic Study of African Allodapine Bees (Hymenoptera, Anthophoridae, Ceratinini). Charles D. Michener. American Museum of Natural History, New York, 1975. pp. 67–240, illus. Paper, \$8.55. *Bulletin of the American Museum of Natural History*, vol. 155, article 2.

Technology Transfer. Proceedings of a NATO Advanced Study Institute, Evry, France, June 1973. Harold F. Davidson, Marvin J. Cetron, and Joel D. Goldhar, Eds. Noordhoff, Leiden, Netherlands, 1974 (distributor, Academic Book Services, Groningen, Netherlands). xii, 662 pp., illus. Dfl. 135. NATO Advanced Study Institutes Series E, vol. 6.

Telemedicine. Explorations in the Use of Telecommunications in Health Care. Papers from a conference, Ann Arbor, Mich., Oct. 1973. Rashid I. Bashshur, Patricia A. Armstrong, and Zakhour I. Youssef, Eds. Thomas, Springfield, Ill., 1975. xvi, 356 pp. Cloth, \$21.75; paper, \$18.75.

Thermal Conductivity of Solids. J. E. Parrott and Audrey D. Stuckes. Pion, London, 1975 (U.S. distributor, Academic Press, New York). x, 158 pp., illus. \$10.50. Applied Physics Series, 8.

Towards a Social Ecology. Contextual Appreciations of the Future in the Present. F. E. Emery and E. L. Trist. Plenum, New York, 1975. xvi, 240 pp. Paper, \$5.95. A Plenum/Rosetta Edition. Reprint of the 1973 edition.

Treatise on Coatings. Vol. 4, Formulations. Part I. Raymond R. Myers and J. S. Long, Eds. Dekker, New York, 1975. xviii, 588 pp., illus. \$68.

Tumors of the Nervous System. Proceedings of a symposium, Philadelphia. H. Gunter Seydel, Ed. Wiley, New York, 1975. xii, 194 pp., illus. \$18.50. Wiley Series in Diagnostic and Therapeutic Radiology. A Wiley Biomedical-Health Publication.

What Is Science for? Bernard Dixon. Harper Colophon Books (Harper and Row), New York, 1974. 256 pp. Paper, \$3.95. Reprint of the 1973 edition.

OXFORD

Problems of Scientific Revolution: Progress and Obstacles to Progress in the Sciences, The Herbert Spencer Lectures 1973

Edited by ROM HARRE. The progress of science is neither inevitable nor simple; enlargement of knowledge is not in itself a guarantee of progress, but there are institutions that can channel scientific advances into the service of society. The six well-known scientists and philosophers who examine this problem are Professors Sir Hermann Bondi, J. L. Monod, W. F. Bodmer, B. F. Skinner, Sir Karl Popper and J. R. Ravetz. 1975 112 pp. \$11.25

Light-Emitting Diodes

ARPAD A. BERGH and PAUL J. DEAN. This book surveys the basic concepts of photometry and human vision, then explains the electrical properties of p-n junctions, the theory and practice of light generation in crystalline solids, the preparatory technology and engineering design of LEDs and finally current applications with some emphasis on the telecommunications industry. (Monographs in Electrical and Electronic Engineering) Nov. 1975 502 pp. 239 figs. \$37.75

Heavy Nuclei, Superheavy Nuclei, and Neutron Stars

J. M. IRVINE. This study deals with nuclear matter—not the academic substance composed of neutrons and protons which has occupied theorists so much in recent years—but nuclear matter as it exists, or might exist, in nature. The book is written at an introductory level, and requires a knowledge of basic quantum mechanics and an introduction to nuclear physics at the undergraduate level. (Oxford Studies in Nuclear Physics) 1975 200 pp. 92 figs. \$22.50

Special Relativity

JOHN G. TAYLOR. By adopting the relativistic viewpoint from the very beginning, this book encourages students to leave behind them Newtonian physics with all its limitations. The author uses the fact that the speed of light is constant to show how space and time are distorted by high-speed motion, and he describes the quantitative measure of these effects and their combination in the Lorentz transformation. Although its treatment of relativity is self-contained, the text complements the Oxford Physics Series volume *Electromagnetism* by F. N. H. Robinson. (Oxford Physics Series) 1975 118 pp. 28 figs. \$10.75 Prices are subject to change.



OXFORD UNIVERSITY PRESS
200 MADISON AVENUE
NEW YORK, N.Y. 10016

Circle No. 87 on Readers' Service Card