

these books. These include the dielectric theory of ionicity, electrical studies of native donors and acceptors in ZnTe, ZnSe, CdTe, and CdSe, detailed studies of the shallow acceptors Li and Na in CdS, and the deep acceptors P in ZnSe and Cu in ZnO, studies of the isoelectronic traps, and experiments in ion implantation.

The author succeeds in his primary goal of providing the reader with a concise summary of electrical and optical phenomena in II-VI compounds and their commercial applications. In order to remain concise, he excludes all discussion of the physical chemistry of defects or the observation of defects by electron spin resonance. This makes it rather difficult for the reader to gain an understanding (insofar as one exists) of the role of native defects in determining why these materials behave the way they do. For instance, no explanation is given why various II-VI compounds will not conduct both *n*-type and *p*-type.

C. H. HENRY

*Bell Telephone Laboratories,
Murray Hill, New Jersey*

Film Physics

Thin Film Phenomena. KASTURI L. CHOPRA. McGraw-Hill, New York, 1969. xx, 844 pp., illus. \$24.50.

Chopra has set out to write a one-volume review of the research on thin solid films that has been carried out during the last few years. Much of the recent effluence has been stimulated by device-development programs. The quantity has been enormous and the quality mixed. A brave attempt is made in *Thin Film Phenomena* to touch on all significant scientific and technical accomplishments involving films, however prepared. The discussion of individual points is necessarily brief. Typically, there is an outline of the theoretical ideas followed by a recital of experimental results. The treatment is critical ("Wherever disorder exists in the literature, I have declared my own views and provided a reasonable synthesis.") and conservative ("Both the observed . . . effect and the explanation offered need further verification.").

The major theme of the book is that films usually have complicated microstructures which play a role at least comparable to that of the thinness of the samples in determining the observa-

ble physical properties. Sections of the book on nucleation and growth give reasonably complete discussions of what is known about the way the special structures found in evaporated and sputtered films come about. The effect of structural details on physical properties is then illustrated in chapters on mechanical properties and on electrical and thermal transport in metal, semiconductor, and insulator films. I find these parts of the book especially satisfying, quite possibly because the areas are ones in which Chopra has himself made numerous research contributions.

A very good chapter discussing ferromagnetism in films has been contributed by M. H. Cohen. It is the one case where Chopra has deviated from his plan of presenting a unified treatment by doing everything himself.

The main part of the book is rounded out with chapters on optical properties of films and on superconductivity. Although not exhaustive, these contain a large amount of material and offer a reasonable entry into the described areas of research.

There is one case in which I would want to quarrel a little with Chopra's insistence on the critical importance of microstructure. Very fortunately, superconducting properties are determined by a spatial average over a region containing thousands of atoms. This largely, though not completely, eliminates the influence of the microstructure and is probably responsible for the considerable success that has been experienced with superconducting film experiments.

Another minor reservation I have about the book concerns the section on experimental technique. Every word is true but there are not enough of them. Film preparation is made to sound simple and straightforward, almost trivial. This is an illusion which could bring forth another flock of complicated measurements on poorly characterized samples, just the sort of thing against which the author does battle throughout most of the book.

Chopra has made a good job of an impossible task. Everyone engaged in research using thin films will want to buy this book. The good sections are too numerous and too long to Xerox. The book is a bargain. Chopra provides a review of over 2000 research papers for about a penny apiece.

ROLFE E. GLOVER, III

*Department of Physics and Astronomy,
University of Maryland, College Park*

Books Received

Advances in Food Research. Vol. 17. C. O. Chichester, E. M. Mrak, and G. F. Stewart, Eds. Academic Press, New York, 1969. x + 302 pp., illus. \$14.50.

Afro-American Anthropology. Contemporary Perspectives. Norman E. Whitten, Jr., and John F. Szweid, Eds. Free Press, New York; Collier-Macmillan, London, 1970. x + 470 pp. + plates. \$5.95.

Analysis of Reflector Antennas. W. V. T. Rusch and P. D. Potter. Academic Press, New York, 1970. x + 182 pp., illus. \$12.50. Electrical Science Series.

Annual Summary of Information on Natural Disasters. No. 1, 1966. UNESCO, Paris, 1970. 84 pp., illus. Paper, \$3.50.

The Architecture Machine. Toward a More Human Environment. Nicholas Negroponte. M.I.T. Press, Cambridge, Mass., 1970. x + 154 pp., illus. Paper, \$5.95.

Atomic, Molecular, and Solid-State Theory and Quantum Biology. Proceedings of an international symposium, Sanibel Island, Fla., January 1969. Part 2. Per-Olov Löwdin, Ed. Interscience (Wiley), New York, 1970. Illus. Paper, \$32.50. International Journal of Quantum Chemistry Symposium No. 3, pp. 349-910.

Basic Nutrition and Diet Therapy. Corinne H. Robinson. Macmillan, New York; Collier-Macmillan, London, ed. 2, 1970. x + 358 pp., illus. Paper, \$4.25.

Bleeding Problems in Clinical Medicine. Armand J. Quick. Saunders, Philadelphia, 1970. xii + 228 pp., illus. \$9.50.

Cell Fusion. The Dunham Lectures, Cambridge, Mass., 1969. Henry Harris. Harvard University Press, Cambridge, 1970. x + 110 pp., illus. Cloth, \$6; paper, \$2.95.

Climate, Man, and History. Robert Claiborne. Norton, New York, 1970. 444 pp., illus. \$8.95.

Computer Languages. A Practical Guide to the Chief Programming Languages. Peter C. Sanderson. Philosophical Library, New York, 1970. viii + 200 pp. \$15.

The Cuyahoga River Watershed. Proceedings of a symposium, Kent, Ohio, November 1968. G. Dennis Cooke, Ed. Institute of Limnology and Department of Biological Sciences, Kent State University, Kent, Ohio, 1969. viii + 144 pp., illus. Spiral bound, \$4.

The Design Within. Psychoanalytic Approaches to Shakespeare. M. D. Faber. Science House, New York, 1970. xii + 554 pp. \$13.50.

Dictionnaire d'informatique. Anglais-Français. Michel Ginguay. Masson, Paris, 1970. vi + 140 pp. Paper, 36 F. Les techniques de base de l'informatique.

Diversity and Stability in Ecological Systems. A symposium, Upton, N.Y., May 1969. Biology Department, Brookhaven National Laboratory, Upton, N.Y., 1969 (available from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). viii + 266 pp., illus. Paper; \$3; microfiche, 65¢.

Electric Power Transmission. The Power System in the Steady State. John Zaborzsky and Joseph W. Rittenhouse. Rensselaer Bookstore, Troy, N.Y., 1969. Two volumes, xii + 676 pp., illus. Paper, \$6.

(Continued on page 903)

BOOKS RECEIVED

(Continued from page 850)

Evolutionary Biology. Vol. 3. Theodosius Dobzhansky, Max K. Hecht, and William C. Steere, Eds. Appleton-Century-Crofts, New York, 1970. xii + 312 pp., illus. \$18.

Flow Research on Blading. Proceedings of a symposium, Baden, Switzerland, March 1969. Lang S. Dzung, Ed. Elsevier, New York, 1970. xvi + 400 pp., illus. \$26.

Focus on Physics. Optics I—Lenses, Mirrors, and Optical Instruments. J. Warren Blaker. Barnes and Noble, New York, 1970. x + 118 pp., illus. Paper, \$1.25. Barnes and Noble College Outline Series, No. 129.

Fundamentals of Display System Design. Sol Sherr. Wiley-Interscience, New York, 1970. xii + 484 pp., illus. \$19.95.

Gas Chromatography. Principles, Techniques, and Applications. A. B. Littlewood. Academic Press, New York, ed. 2, 1970. xiv + 546 pp., illus. \$22.50.

General Chemistry in the Laboratory. Including Qualitative Analysis. W. Norton Jones, Jr., and Morris F. Stubbs. Mosby, St. Louis, 1970. x + 246 pp., illus. Paper, \$5.

The Geology of Acadia National Park. Carleton A. Chapman. Chatham, 1970 (distributor, Viking, New York). 128 pp., illus. Cloth, \$6.95; paper, \$2.95.

The Greatest Depths. Probing the Seas to 20,000 Feet and Below. Gardner Soule. Macrae Smith, Philadelphia, 1970. 194 pp., illus. \$5.95.

Health in Elementary Schools. Harold J. Cornacchia, Wesley M. Staton, and Leslie W. Irwin. Mosby, St. Louis, ed. 3, 1970. x + 394 pp., illus. \$8.75.

A History of Dyed Textiles. Dyes, Fibers, Painted Bark, Batik, Starch-Resist, Discharge, Tie-Dye, Further Sources for Research. Stuart Robinson. M.I.T. Press, Cambridge, Mass., 1969. 112 pp., illus. \$10.

Human Nature and the Social Order. Edward L. Thorndike. Edited and Abridged by Geraldine Joncich Clifford. M.I.T. Press, Cambridge, Mass., 1970. xxvi + 374 pp., illus. \$15. Original unabridged edition published 1940.

Inhalation Carcinogenesis. Proceedings of a conference, Gatlinburg, Tenn., October 1969. M. G. Hanna, Jr., P. Nettesheim, and J. R. Gilbert, Eds. Division of Technical Information, U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1970 (available as CONF-691001 from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). xii + 524 pp., illus. Paper, \$3. AEC Symposium Series, No. 18.

Initial Reports of the Deep Sea Drilling Project. A project planned and carried out with the advice of the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). Vol. 3, covering leg 3 of the cruises of the drilling vessel *Glomar Challenger*, Dakar, Senegal to Rio de Janeiro, Brazil, December 1968–January 1969. Arthur E. Maxwell *et al.*, participating scientists. Prepared for the National Science Foundation by the Scripps Institution of Oceanography, La Jolla, Calif., 1970 (available from the

And that's only part of the story. It's unique from the ground up—from concept to coverage. It answers scores of questions no other research tool can. The kind of questions you need answered.

Only *Science Citation Index (SCI®)* can tell you quickly, easily, if your idea is original or if someone else has been there first. Whether a theory's been confirmed—or rejected. If a product's been clinically evaluated, or a patent's been cited. What other companies, institutions or researchers are working in a particular field. And what they're working on. If a product's been applied to a new field. What potential uses there are for a new synthesis. Or whether a development has been extended or a method improved. No other information system will answer even a few of these questions.

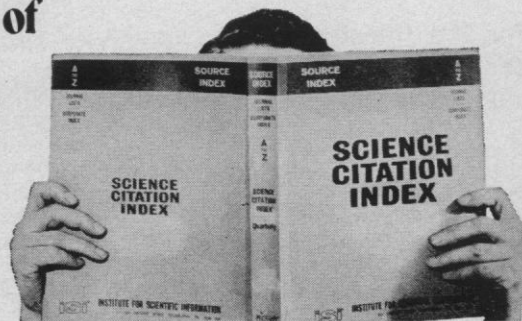
SCI subject coverage matches its utility. It indexes completely over two thousand scientific and technical journals. Every article, review, letter, correction.



Science Citation Index®
Can you afford to be
without it?

The best friend an R&D man ever had.

Science Citation Index®
takes the tedium out of
literature searches.
Leaves more time for
creative thinking.



Four million individual entries are contained in the latest annual issue. All of them derived from the literature of the past 12 months. And you get all this quarterly, cumulated annually. Weekly up-dating service is also available through ISI's unique ASCA® system.

In short, *SCI* is a must for information centers and corporate libraries in high technology organizations interested in cutting research time and costs.

Want even more convincing reasons? Just return the coupon.

A few of the many organizations subscribing to *SCI*

North American Rockwell	RCA
The Rand Corp.	Squibb—
Varian Associates	Institute of Medical Research
American Cyanamid Co.	Sandia Corp.
Olin Mathieson Chemical Corp.	Bell Labs.
Abbott Labs.	IBM
Lincoln Labs.—M.I.T.	R. J. Reynolds Co.
Dow Chemical Co.	McNeil Labs.
Upjohn Co.	Smith, Kline & French Labs.
Colgate-Palmolive Co.	Westinghouse Electric Corp.

ISI® INSTITUTE FOR SCIENTIFIC INFORMATION

325 Chestnut Street, Philadelphia, Pennsylvania 19106, USA
Telephone: (215) 923-3300. Telex: 84-5305. Cable: SCINFO
132 High Street, Uxbridge, Middlesex, UK
Other offices in Washington, Ottawa, Paris, Tokyo

S-8/28-0

Gentlemen:
Please send me full information on *Science Citation Index®*.

NAME _____

TITLE _____

COMPANY/DIVISION _____

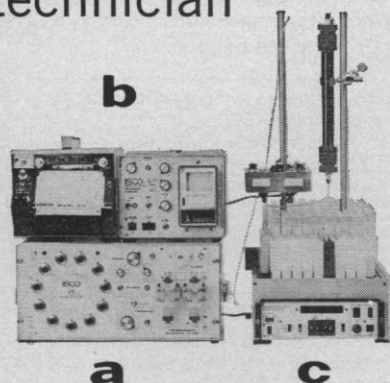
ADDRESS _____

CITY _____

STATE _____ ZIP _____

COUNTRY _____ TELEPHONE _____

position desired: laboratory technician



I don't look like an ordinary technician. But then, I'm not ordinary. I can do all your liquid chromatography work for you. Accurately and without supervision. Just flip a few switches and forget about me. Want to hire me? It's as easy as ABC. Here's how...

a Dial any elution formed by two liquids directly into the Dialagrad Programmed Gradient Pump. Program duration and pumping rates are easily adjusted over broad ranges.

b Monitor the effluent with an ISCO quantitative absorbance recorder. Measures true linear absorbance, not percent transmittance. Single or dual beam operation at 254 m μ , 280 m μ , and many other wavelengths.

c Collect the effluent automatically in an ISCO fraction collector. Two linear and four round models to choose from. Priced from \$245 to \$850.

For the finest results in liquid chromatography, hire ISCO...the best technician you'll ever have.



**INSTRUMENTATION
SPECIALTIES COMPANY**

4700 SUPERIOR LINCOLN, NEBRASKA 68504
PHONE (402) 434-0231 CABLE: ISCOLAB LINCOLN

Superintendent of Documents, Washington, D.C.). xx + 806 pp., illus. Case bound, \$10.75.

Intermediate Algebra. John H. Minnick. Prentice-Hall, Englewood Cliffs, N.J., 1970. xii + 468 pp., illus. \$9.50.

International Symposium on Antarctic Glaciological Exploration (ISAGE). Hanover, N.H., September 1968. A. J. Gow, C. Keeler, C. C. Langway, and W. F. Weeks, Eds. Scientific Committee on Antarctic Research of the International Council of Scientific Unions, Cambridge, England, 1970. xviii + 544 pp., illus. Paper, \$10. International Association of Scientific Hydrology, No. 86.

An Introduction to the Meaning and Structure of Physics. Short edition. Leon N. Cooper. Harper and Row, New York, 1970. xiv + 542 pp., illus. \$11.95.

Laboratory Exercises in Genetics. Louis Levine and Norman M. Schwartz. Mosby, St. Louis, 1970. viii + 136 pp., illus. Paper, \$3.85.

A Manual for Surveys of Fertility and Family Planning: Knowledge, Attitudes, and Practice. Demographic Division of the Population Council. John C. Caldwell, Harvey M. Choldin, Louisa F. Noé, David L. Sills, and Frederick F. Stephan, Major Contributors. Population Council, New York, 1970. xxiv + 408 pp., illus. Paper.

Mathematical Reflections. Contributions to Mathematical Thought and Teaching, Written in Memory of A. G. Sillitto. Edited by members of the Association of Teachers of Mathematics. Cambridge University Press, New York, 1970. viii + 246 pp. + plates. Cloth, \$11.50; paper, \$4.95.

Mathematics Applied to Physics. With contributions of G. A. Deschamps *et al.* E. Roubine, Ed. Springer-Verlag, New York; UNESCO, Paris, 1970. xx + 612 pp., illus. \$16.

Measuring Ego Development. Vol. 1, Construction and Use of a Sentence Completion Test, Jane Loevinger and Ruth Wessler, xxii + 250 pp.; vol. 2, Scoring Manual for Women and Girls, Jane Loevinger, Ruth Wessler, and Carolyn Redmore, xx + 460 pp. \$25. Jossey-Bass, San Francisco, 1970. Jossey-Bass Behavioral Science Series.

Medicine in Three Societies. A Comparison of Medical Care in the USSR, USA and UK. John Fry. Elsevier, New York, 1970. x + 250 pp., illus. \$7.50.

Methods in Computational Physics. Vol. 9, Plasma Physics. Advances in Research and Applications. Berni Alder, Sidney Fernbach, and Manuel Rotenberg, Eds. Academic Press, New York, 1970. xviii + 502 pp., illus. \$23.

Microbiology Laboratory Manual. A Sequence of Experiments. Louis P. Gebhardt. Mosby, St. Louis, 1970. xii + 116 pp., illus. Paper, \$5.

Mini-Computers in the Clinical Laboratory. A workshop. Southfield, Mich., March 1969. Edwin M. Knights, Jr., Ed. Thomas, Springfield, Ill., 1970. xii + 116 pp., illus. \$9.75.

Moving the Obelisks. A chapter in engineering history in which the Vatican obelisk in Rome in 1586 was moved by muscle power, and a study of more recent moves. Bern Dibner. M.I.T. Press, Cambridge, Mass., 1970. 64 pp., illus. Paper, \$2.95. Reprint of the 1952 edition.

Natural Symbols. Explorations in Cosmology. Mary Douglas. Pantheon, New York, 1970. xviii + 178 pp., illus. \$5.95.

New Approaches to Personality Classification. Alvin R. Mahrer, Ed. Columbia University Press, New York, 1970. xii + 428 pp., illus. \$12.50.

The Nuclear Years. The Arms Race and Arms Control, 1945-70. Chalmers M. Roberts. Praeger, New York, 1970. xiv + 162 pp., illus. \$6.95.

Organic Peroxides. Vol. 1. Daniel Swern, Ed. Wiley-Interscience, New York, 1970. xii + 660 pp., illus. \$31.50.

Party Leadership and Revolutionary Power in China. John Wilson Lewis, Ed. Cambridge University Press, New York, 1970. viii + 424 pp. Cloth, \$9.50; paper, \$2.95. Contemporary China Institute Publications.

Personality Dynamics. A Biosocial Approach. G. M. Gilbert, with the assistance of Gardner Murphy. Harper and Row, New York, 1970. xii + 372 pp., illus. \$7.95.

The Pests of Protected Cultivation. The Biology and Control of Glasshouse and Mushroom Pests. N. W. Hussey, W. H. Read, and J. J. Hesling. Elsevier, New York, 1970. viii + 408 pp., illus. \$26.

Physician to the West. Selected Writings of Daniel Drake on Science and Society. Henry D. Shapiro and Zane L. Miller, Eds. University Press of Kentucky, Lexington, 1970. xl + 424 pp., illus. \$12.50.

La physique du métal. Pierre Peguin. Presses Universitaires de France, Paris, 1970. 128 pp., illus. Paper. "Que Sais-Je?" No. 1378.

Problems of the Logic of Scientific Knowledge. P. V. Tavanec, Ed. Translated from the Russian edition (Moscow, 1964) by T. J. Blakeley. Reidel, Dordrecht, Holland; Humanities Press, New York, 1970. xii + 432 pp. \$11.75. Synthese Library.

Progress in the Chemistry of Organic Natural Products. Vol. 27. L. Zechmeister, Ed. Springer-Verlag, New York, 1969. viii + 414 pp., illus. \$33; by subscription, \$29.70.

Race and Class in Latin America. Based on a conference, New York, December 1965. Magnus Mörner, Ed. Columbia University Press, New York, 1970. x + 310 pp. \$10. Institute of Latin American Studies.

The Steam-Powered Automobile. An Answer to Air Pollution. Andrew Jamison. Indiana University Press, Bloomington, 1970. x + 166 pp. \$4.95.

Studies in the Vegetational History of the British Isles. Essays in Honour of Harry Godwin. D. Walker and R. G. West, Eds. Cambridge University Press, New York, 1970. viii + 268 pp., illus. \$25.

Theory in Humanistic Studies. American Academy of Arts and Sciences, Boston, 1970. Paper, \$2. *Daedalus*, vol. 99, No. 2, Spring 1970, pp. 237-530.

Topical Conference on Weak Interactions. Proceedings, Geneva, January 1969. CERN, Geneva, 1969. x + 534 pp., illus. Paper.

The Wolf. The Ecology and Behavior of an Endangered Species. L. David Mech. Published for the American Museum of Natural History by Natural History Press, Garden City, N.Y., 1970. xxiv + 392 pp., illus. \$9.95.