

discussion in view of the fact that 92 of 480 irons are listed as "anomalous," that is, as not belonging to any of the 12 groups, and that, even within chemical group I, 19 of a total of 88 are also listed as "anomalous."

Chapters 8 through 11 deal with chemical composition, mineral and structural components, and primary and secondary structures of iron meteorites. The concentrations of 32 selected elements, all minor except nickel, are discussed in some detail, and the concentrations of 12 of these—nickel, cobalt, phosphorus, carbon, sulfur, chromium, copper, zinc, gallium, germanium, iridium, and platinum—are reported for the individual meteorites in volumes 2 and 3 when the information is available. The author, a classic metallographer, is at his best when discussing structural features and phenomena. The structures and their interpretations are discussed clearly and critically, with due caution about such concepts as "cooling rates." Most of the photomicrographs in volume 1 are good, as are the diagrams, except for three that have been too much reduced. In the other two volumes the illustrations are of more variable quality. Some light or low-contrast photographs have suffered in the reproduction, and some diagrams and tables are barely legible. In any case chapters 8 through 11 constitute an excellent introduction to the descriptions in volumes 2 and 3.

Volume 1 also contains eight appendixes. One of these lists the 480 well-studied meteorites by chemical group, another lists 129 insufficiently known irons, and yet another lists 99 meteorites that have been artificially reheated (a most useful warning to other researchers). Some spallogenic gas data and exposure ages are also given. Finally, volume 1 lists the 2000-plus references cited throughout the work. Spot checks of the references and the data in tables and appendixes did not reveal any errors, and all cross-references seem to be correct—a remarkable feat in a work of this magnitude.

A major flaw in volume 1 is that only a few of the more than 230 illustrations are referred to in the text, which makes correlating text and illustrations laborious. The figure captions seem to have been written independently of and on a different level from the main text and almost constitute a parallel text. It could also be said that some parts of volume 1 are rather "primitive" and barely related to the main purpose of the *Handbook*. However, with the addition of a chapter or two on stony meteorites—and perhaps some condensation of chapters 6 through

11—the volume could become an excellent textbook in meteoritics for senior- to graduate-level students. Even in its present form, it would be valuable to have volume 1 available separately at some modest price.

The major part of the work, volumes 2 and 3, consists of alphabetically ordered descriptions of practically all known iron meteorites. The descriptions range from a few lines, essentially for the "insufficiently known" meteorites, to about 25 pages and 47 illustrations for Canyon Diablo, and average about one page with one or two illustrations. Little criticism can be leveled at the general layout. Some photomicrographs are of rather poor quality, but the features described are usually discernible. Few of the illustrations are referred to in the text, but this is not as disturbing here as in volume 1. Cross-references to features discussed in volume 1 would have been valuable.

The author has himself seen the major masses or substantial parts of most of the meteorites he describes. This has resulted in a consistent comparative study of iron meteorites of all types. The work is also quite international, as are the (Danish) author's several erudite quotations; the reviewer (Swedish) feels the following (Norwegian) quotation appropriate:

For fortune such as I've enjoyed I have to thank America. My amply furnished library I owe to Germany's later schools. From France, again, I get my waistcoats, my manners and my spice of wit—from England an industrious, and keen sense for my advantage. The Jew has taught me how to wait. Some taste for *dolce far niente* [sic] I have received from Italy—and one time, in a perilous pass, I had recourse to Swedish steel.—H. IBSEN, 1867.

Certainly this work will be of long-lasting value and a standard reference for anyone studying iron meteorites. And, because no real solution to the problem of their origin can be offered in spite of this monumental work, it should inspire further, more sophisticated research with modern tools.

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Books Received

American Medical Education. The Formative Years, 1765–1910. Martin Kaufman. Greenwood Press, Westport, Conn., 1976. x, 210 pp. \$12.95.

Beiträge zur Marx-Engels-Forschung. Dem Wirken Auguste Cornus gewidmet. Papers from a colloquium, Berlin, Sept. 1973. Akademie-Verlag, Berlin, 1975. 182 pp. Paper, 13 M. Sitzungberichte der Akademie der Wissenschaften der DDR, Jahrgang 1973, No. 20.

Beyond Aesthetics. Investigations into the Nature of Visual Art. Don Brothwell, Ed. Thames and Hudson, London, 1976 (U.S. distributor, Transatlantic Arts, Levittown, N.Y.). 212 pp., illus. \$25.

Bifurcation Problems in Nonlinear Elasticity. R. W. Dickey. Pitman, San Francisco, 1976. iv, 120 pp., illus. Paper, \$11.30. Research Notes in Mathematics, 3.

The Centrality of Science and Absolute Values. Proceedings of a conference, New York, Nov. 1975. International Cultural Foundation, Tarrytown, N.Y., 1976. Two volumes. xxvi + pp. 1–658 and xviii + pp. 661–1346. Cloth, \$39.95; paper, \$14.95.

Chalones. John C. Houck, Ed. North-Holland, Amsterdam, and Elsevier, New York, 1976. xiv, 510 pp., illus. \$63.50.

Chemical Transmission of Nerve Impulses. A Historical Sketch. Z. M. Bacq. Translated from the French edition (Paris, 1974). Pergamon, New York, 1975. xii, 106 pp. \$14.

Cognitive Development. An Information-Processing View. David Klahr and J. G. Wallace. Erlbaum, Hillsdale, N.J., 1976 (distributor, Halsted [Wiley], New York). xii, 244 pp., illus. \$12.95.

Cruelty and Kindness. A New Look at Aggression and Altruism. Harvey A. Hornstein. Prentice-Hall, Englewood Cliffs, N.J., 1976. vi, 154 pp. Cloth, \$7.95; paper, \$2.95. A Spectrum Book.

Data Base Systems. Proceedings of a symposium, Bad Homburg, Germany, Sept. 1975. H. Hasselmeier and W. G. Spruth, Eds. Springer-Verlag, New York, 1976. vi, 386 pp., illus. Paper, \$13.20.

Dental Care for Everyone. Problems and Proposals. James M. Dunning. Harvard University Press, Cambridge, Mass., 1976. xii, 234 pp., illus. \$12.50.

The Development of Biochemistry in Canada. E. Gordon Young. University of Toronto Press, Buffalo, N.Y., 1976. viii, 130 pp. \$15.

Development of Iron Chelators for Clinical Use. Proceedings of a symposium, Bethesda, Md., Sept. 1975. W. French Anderson and Marilyn C. Hiller, Eds. National Institute of Arthritis, Metabolism, and Digestive Diseases, Bethesda, Md., 1976. iv, 278 pp., illus. Paper. DHEW Publication No. (NIH) 76-994.

Development of Upper Respiratory Anatomy and Function. Implications for Sudden Infant Death Syndrome. Proceedings of a symposium. James F. Bosma and Jane Showacre, Eds. National Institutes of Health, Bethesda, Md., 1975 (available from the Superintendent of Documents, Washington, D.C.). xii, 280 pp., illus. \$7.10. Fogarty International Center Proceedings, No. 29. DHEW Publication No. (NIH) 75-941.

Dictionary of Scientific Biography. Vol. 14, Addison Emery Verrill—Johann Zwelfer. Charles Coulston Gillispie, Ed. Scribner, New York, 1976. xvi, 640 pp. \$40. Published under the auspices of the American Council of Learned Societies.

Drug Metabolism. Chemical and Biochemical Aspects. Bernard Testa and Peter Jenner. Dekker, New York, 1976. xvi, 500 pp., illus. \$47.50. Drugs and the Pharmaceutical Sciences, vol. 4.

The Early Mesoamerican Village. Kent V. Flannery, Ed. Academic Press, New York, 1976. xii, 378 pp., illus. \$14.50. Studies in Archaeology.

Electron Microscopy in Mineralogy. H.-R. Wenk, Ed. Springer-Verlag, New York, 1976. xiv, 566 pp., illus. \$39.40.

(Continued on page 347)

mack, who is an ardent advocate of nuclear power, suggested that the Union of Concerned Scientists or the Natural Resources Defense Council, two groups critical of nuclear power, might stage a conference on "why nuclear power is so dangerous to the country" or "why crime rates are increasing around nuclear reactors." He also suggested that some groups might try to subvert the program by using funds intended to support forums as a device for paying off scientists who assist them in other activities. As an example, he suggested that a group might pay \$1000 to a scientist for a half-hour speech at a forum, then gratefully accept the "free" service offered by that scientist in preparing a case against nuclear power. McCormack said he would use his position as a member of the House committee with legislative jurisdiction over NSF to "encourage" the Foundation to "screen the applicants so the money goes where Congress intended." By that, he means to "a public education program" rather than to support of groups that intervene in regulatory actions against the government.

Officials at NSF are somewhat baffled as to what mandate they have been given. Alexander J. Morin, director of NSF's Office of Science and Society, says he would "personally like to find a way to enable scientists to contribute to the resolution of public policy issues." But he adds: "I'm not certain at this point how to do that. I don't know what the legislative mandate allows me to do." Morin is not certain, for example, if the program would award fellowship support to a scientist who, in turn, would intervene in a regulatory case. Thus he will shortly be making the rounds of both House and Senate to get a reading from all parties as to how they interpret the legislation. The Senate will argue for a broad, aggressive program. The House will urge caution.

At the same time, budget specialists from NSF will try to divine how much money Congress really wants spent on the program. Although the authorization legislation earmarked \$1.2 million for the program, the appropriations bill did not specify an amount; it simply put the program in with other science education activities under a lump sum. On a pro rata basis, it appears that Science for Citizens would receive maximum funding for fiscal year 1977 of \$1 million. How well it does in future years will depend in part on the results of a "comprehensive analysis and assessment" of the program which NSF will conduct at the direction of Congress.

—PHILIP M. BOFFEY

BOOKS RECEIVED

(Continued from page 314)

Handbook of Industrial Toxicology. E. R. Plunkett. Chemical Publishing Co., New York, ed. 2, 1976. iv, 552 pp. \$27.50.

Handbook of Solid-State Troubleshooting. Hershal Gardner. Reston (Prentice-Hall), Reston, Va., 1976. xii, 318 pp., illus. \$15.95.

Herbal. Joseph Wood Krutch. Godine, Boston, 1976. 256 pp., illus. Cloth, \$27.50; paper, \$10. Reprint of the 1965 edition.

History of the Coniferous Forests, California and Nevada. Daniel I. Axelrod. University of California Press, Berkeley, 1976. vi, 62 pp., illus. Paper, \$5. University of California Publications in Botany, vol. 70.

Infrared. The New Astronomy. David A.

Allen. Halsted (Wiley), New York, 1976. 228 pp., illus. \$12.

Intermediate Mathematics of Electromagnetics. Donald G. Stinson. Prentice-Hall, Englewood Cliffs, N.J., 1976. xii, 290 pp. \$18.95. Prentice-Hall Electrical Engineering Series.

Intermediate Politometrics. Gordon Hilton. Columbia University Press, New York, 1976. x, 282 pp., illus. \$15.

International Environmental Law. Bo Johnson. LiberFörlag, Stockholm, 1976. 226 pp. Paper, Sw. Cr. 40.80.

Introduction to Computers. Alton R. Kindred. Prentice-Hall, Englewood Cliffs, N.J., 1976. vi, 538 pp., illus. \$14.95.

An Introduction to Hydrodynamics and Water Waves. Bernard Le Méhauté. Springer-

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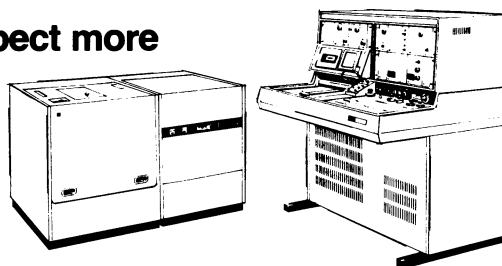
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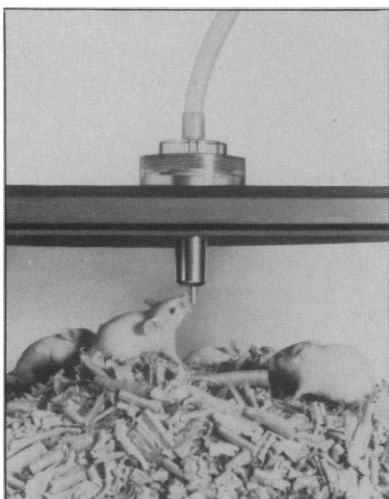
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Verlag, New York, 1976. viii, 316 pp., illus., + index. \$24.80. Springer Study Edition.

Introduction to Mathematical Physics. Charlie Harper. Prentice-Hall, Englewood Cliffs, N.J., 1976. xviii, 302 pp. \$16.50. Prentice-Hall Physics Series.

Introduction to Partial Differential Equations. Gerald B. Folland. Princeton University Press, Princeton, N.J., and University of Tokyo Press, Tokyo, 1976. vi, 352 pp. Paper, \$8.50. Mathematical Notes, 17.

An Introduction to Program Evaluation. Jack L. Franklin and Jean H. Thrasher. Wiley-Interscience, New York, 1976. xii, 234 pp. \$12.50.

Introductory Plant Physiology. G. Ray Noggle and George J. Fritz. Prentice-Hall, Englewood Cliffs, N.J., 1976. xvi, 688 pp., illus. \$17.95. Prentice-Hall Biological Sciences Series.

Ionic Polymerization. Unsolved Problems. Papers from a seminar, Fuji Hakone, Japan, Oct. 1974. J. Furukawa and O. Vogl, Eds. Dekker, New York, 1976. xii, 450 pp., illus. \$45.

Island of Isis. Philae, Temple of the Nile. William MacQuitty. Photographs by William and Betty MacQuitty. Scribner, New York, 1976. 192 pp. \$14.95.

Journey to the Green and Golden Lands. The Epic of Survival on the Wagon Trail. Raymond N. Doetsch. Kennikat Press, Port Washington, N.Y., 1976. viii, 112p., illus. \$9.95.

The Joy of Chemistry. Stanley M. Cherim and Leo E. Kallan. Saunders, Philadelphia, 1976. x, 408 pp., illus. \$12.95. Saunders Golden Sunburst Series.

Kremer and Urdang's History of Pharmacy. Revised by Glenn Sonnedecker. Lippincott, Philadelphia, ed. 4, 1976. xvi, 572 pp., illus. \$24.

Learning COBOL Fast. A Structured Approach. Claude J. DeRossi. Reston (Prentice-Hall), Reston, Va., 1976. xii, 212 pp., illus. Paper, \$8.95.

Life Sentences. Aspects of the Social Role of Language. R. Harré, Ed. Wiley, New York, 1976. xvi, 178 pp. Cloth, \$12.50; paper, \$4.95.

Lifeboat. Man and a Habitable Earth. Ken Hewitt with Edward J. Hallewick, Michael R. Bevan, and L. Brian Hill. Wiley, Toronto, 1976 (U.S. distributor, Wiley, New York). viii, 336 pp., illus. \$11.75.

Lipid Chromatographic Analysis. Vol. 3. Guido V. Marinetti, Ed. Dekker, New York, ed. 2, 1976. xii pp. + pp. 713-1000, illus. \$35.

Livingstone's Pocket Medical Dictionary. Nancy Roper. Churchill Livingstone, Edinburgh, ed. 12, 1976 (U.S. distributor, Scribner, New York). xvi, 592 pp., illus. Paper, \$3.95. Reprint of the 1974 edition.

Lymphocytes and Their Cell Membranes. Michael Schlesinger, Ed. Academic Press, New York, 1976. iv, 148 pp., illus. \$14.50.

Magnificent Microbes. Bernard Dixon. Atheneum, New York, 1976. 252 pp. \$8.95.

Man's Perception of Man-Made Environment. An Architectural Theory. Sven Hesselgren. Studentlitteratur, Lund, Sweden, and Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1976. 214 pp., illus. \$20.

Manual for Operational Amplifier Users. John D. Lenk. Reston (Prentice-Hall), Reston, Va., 1976. xii, 292 pp., illus. \$16.95.

Marine Plankton Ecology. Paul Bougis. North-Holland, Amsterdam, and Elsevier, New York, 1976. x, 356 pp., illus. \$49.95.

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Thomson. Prentice-Hall, Englewood Cliffs, N.J., 1976. xxii, 634 pp., illus. \$12.95.

Mathematics for Technical Education. Dale Ewen and Michael A. Topper. Prentice-Hall, Englewood Cliffs, N.J., 1976. xiv, 414 pp., illus. \$13.95. Prentice-Hall Series in Technical Mathematics.

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Memoirs of a Minor Prophet. 70 Years of Organic Chemistry. Vol. 1. Robert Robinson. Elsevier, New York, 1976. viii, 252 pp., illus. \$18.95.

Metal Ions in Biological Systems. Vol. 6, Biological Action of Metal Ions. Helmut Sigel, Ed. Dekker, New York, 1976. xvi, 454 pp., illus. \$39.50.

Mixed Land Use. From Revival to Innovation. Dimitri Procos. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1976. xiv, 194 pp., illus. \$18.

Molecular Gas Dynamics. G. A. Bird. Clarendon (Oxford University Press), New York, 1976. xvi, 238 pp., illus. \$26.50. Oxford Engineering Science Series.

Moon Morphology. Interpretations Based on Lunar Orbiter Photography. Peter H. Schultz. University of Texas Press, Austin, 1976. xviii, 626 pp., illus. \$35.

The Myth of Marginality. Urban Poverty and Politics in Rio de Janeiro. Janice E. Perlman. University of California Press, Berkeley, 1976. xxiv, 342 pp., illus. \$14.95.

A National Policy for the Environment. NEPA and Its Aftermath. Richard A. Liroff. Indiana University Press, Bloomington, 1976. xii, 274 pp. \$10.

Natural Hazards and Their Distributive Effects. A Research Assessment. Harold C. Cochrane. University of Colorado Institute of Behavioral Science, Boulder, 1975. xii, 136 pp., illus. Paper, \$5. Program on Technology, Environment and Man Monograph Series.

Negative Ions. Harrie Massey. Cambridge University Press, New York, ed. 3, 1976. xviii, 742 pp., illus. \$69.50. Cambridge Monographs in Physics.

Neuroendocrine Regulation of Fertility. A Potential New Approach to Human Fertility Regulation by Interfering with Neuroendocrine Pathways. Proceedings of a symposium. Simla, India, Oct. 1974. T. C. Anand Kumar, Ed. Karger, Basel, 1976. xii, 322 pp., illus. \$62.

Neurophysiologic Studies in Tissue Culture. Stanley M. Crain. Raven, New York, 1976. xii, 280 pp., illus. \$21.25.

New Concepts of Cattle Growth. Roy T. Berg and Rex M. Butterfield. Halsted (Wiley), New York, 1976. xiv, 240 pp., illus. \$12.50.

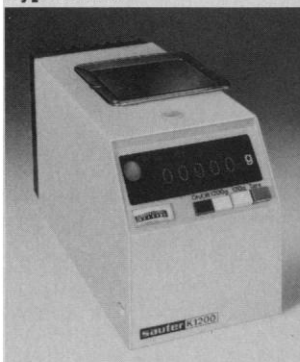
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The New Management. Line Executive and Staff Professional in the Future Firm. William H. Gruber and John S. Niles. McGraw-Hill, New York, 1976. xiv, 242 pp. \$12.95.

New Research on Women and Sex Roles at the University of Michigan. Papers from a conference, 1975. Dorothy G. McGuigan, Ed.

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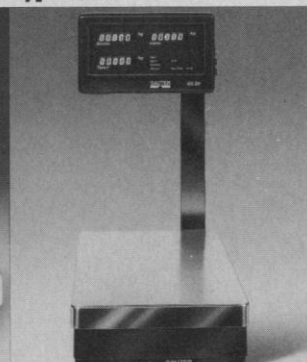
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University of Michigan Center for Continuing Education of Women, Ann Arbor, 1976. vi, 404 pp. Paper, \$5.

1975 Compendium of Current Environmental Studies in Puget Sound and Northwest Estuarine Waters. Saskia Schott and Joseph Pizzo, Eds. Oceanographic Institute of Washington, Seattle, 1976. Unpaged. Paper, \$16.

No Other Gods. On Science and American Social Thought. Charles E. Rosenberg. Johns Hopkins University Press, Baltimore, 1976. xiv, 274 pp. \$13.50.

Non-Technical FORTRAN. Thomas Worth. Prentice-Hall, Englewood Cliffs, N.J., 1976. xii, 356 pp., illus. Paper, \$9.25.

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Oceans. Karl K. Turekian. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1976. viii, 152 pp., illus. Cloth, \$9.95; paper, \$5.95. The Prentice-Hall Foundations of Earth Science Series.

100 Geometric Games. Pierre Berloquin. Translated from the French edition (Paris, 1973). Scribner, New York, 1976. Unpaged. \$6.95.

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An Optimized Translation Process and Its Application to ALGOL 68. P. Branquart, J.-P. Cardinael, J. Lewi, J.-P. Delescaille, and M. Vanbegin. Springer-Verlag, New York, 1976. x, 334 pp., illus. Paper, \$12.30. Lecture Notes in Computer Science, vol. 38.

The Over-Educated American. Richard B. Freeman. Academic Press, New York, 1976. xii, 218 pp., illus. \$12.

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Oxides and Oxide Films. Vol. 3. John W. Diggle and Ashok K. Vijh, Eds. Dekker, New York, 1976. xvi, 334 pp., illus. \$33.50. The Anodic Behavior of Metals and Semiconductors Series.

Peace and World Order Systems. Teaching and Research. Paul Wehr and Michael Washburn. Sage Publications, Beverly Hills, Calif., 1976. vi, 258 pp. Cloth, \$12; paper, \$7. Sage Library of Social Research, vol. 25.

Petroleum Engineering. Alfred Mayer-Gürr. Halsted (Wiley), New York, 1976. xvi, 208 pp., illus. Paper, \$6.95. Geology of Petroleum, vol. 3.

Pharmacology of Marihuana. Proceedings of a conference, Savannah, Ga., Dec. 1974. Monique C. Braude and Stephen Szara, Eds. Raven, New York, 1976. Two volumes, illus. xviii + pp. 1-458, and xviii + pp. 459-866. \$50.

Phase Diagrams for Ceramists. 1975 Supplement. Ernest M. Levin and Howard F. McMurdie, Margie K. Reser, Ed. American Ceramic Society, Columbus, Ohio, 1975. iv, 514 pp., illus. \$35.

Physical Geology. Sheldon Judson, Kenneth S. Deffeyes, and Robert B. Hargraves. Prentice-Hall, Englewood Cliffs, N.J., 1976. xvi, 560 pp., illus. \$14.50.

Physics. Foundations and Frontiers. George Gamow and John M. Cleveland. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1976. xvi, 606 pp., illus. \$14.95.

Physiology. Ewald E. Selkurt, Ed. Little, Brown, Boston, ed. 4, 1976. xvi, 880 pp., illus. Cloth, \$17.50; paper, \$12.50.

Plutonium. Health Implications for Man. Proceedings of a symposium, Los Alamos, N.M., May 1974. J. W. Healy, Ed. Pergamon, New York, 1976. vi pp. + pp. 441-640, illus. \$20. Reprinted from *Health Physics*, vol. 29, No. 4.

Polymer Grafts in Biochemistry. Papers from a symposium, Los Angeles, Apr. 1974. Harry F. Hixson, Jr., and Eugene P. Goldberg, Eds. Dekker, New York, 1976. xvi, 366 pp., illus. Paper, \$29.75. Reprinted from *Journal of Macromolecular Science-Chemistry*, vol. A10 (1 and 2).

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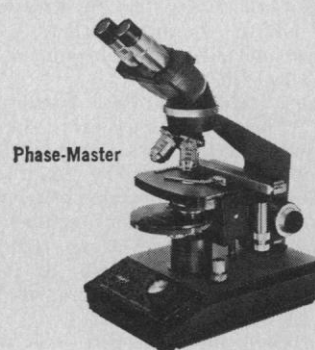
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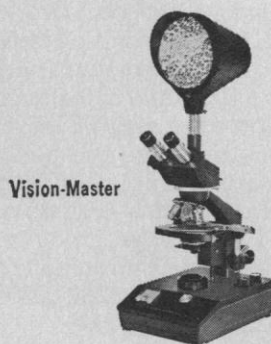
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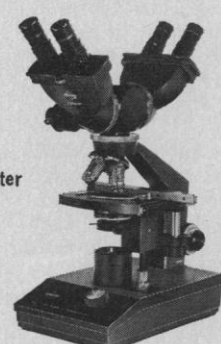
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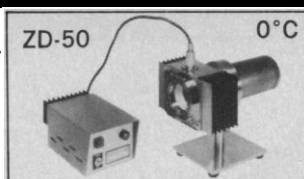
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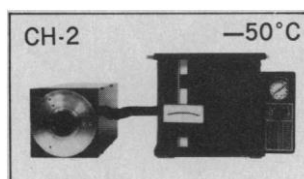


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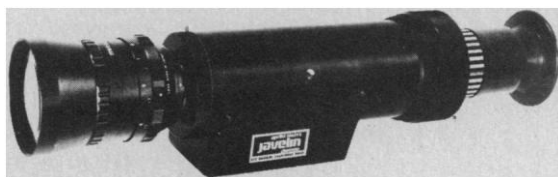


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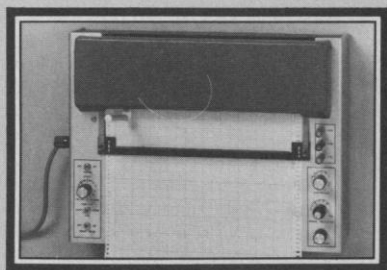
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