

a limited adoption of this type of system, perhaps for newly described minerals. The complete transformation of all existing names into a new system raises the problem of carrying on the meaning of the thousands of old names and synonyms in the past scientific literature.

In the case of Povarennykh's system, there is a further matter that creates an irresolvable difficulty. This concerns his redefinition of the unit of description to which a species name is to be applied. He unknowingly or unwarily returns to the precise definition employed by Franz von Kobell in 1848 in his debate with J. M. Fuchs on the species concept in mineralogy. This particular concept has run out, in the course of a century or so of consideration, into terms such as structure-type and isotype. It has proved useful in a classificatory way but not as a unit of description for species names. It states that the species comprises the entire range of composition within a single type of crystal structure. Povarennykh uses a single species name for this unit, with subspecies, varieties, and subvarieties within the unit being given names derived from the name of the species and formed from it by prefixes. This is superficially attractive, but it can deprive us of a rational name for any end composition present in the broad unit. For example, in the calcite group, the complete solid solution series between Mg-Fe and Mn-Fe results in Povarennykh's abandonment of the familiar designations siderite, magnesite, and rhodochrosite and their replacement by the two names magfercite and manfercite. The pure end compositions  $\text{FeCO}_3$ ,  $\text{MgCO}_3$ , and  $\text{MnCO}_3$ , which do or can occur in nature, are indicated by prefixes to the solid solution names, as the subspecies ferromanfercite, magnesiomagfercite, and manganomanfercite. This is irrational because the end compositions contain only one cation and the names indicate two.

Povarennykh's two volumes, in addition to nomenclatural matters, also contain a treatment of relevant aspects of crystal chemistry and of various historical topics. There is also a useful partial description of the x-ray characters of some 1900 minerals; structural drawings and some interatomic distances are included.

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## Personal Memoir

**Rutherford.** *Recollections of the Cambridge Days.* MARK OLIPHANT. Elsevier, New York, 1972. xvi, 158 pp. + plates. \$7.50.

Oliphant's recollections of his decade at the Cavendish Laboratory are a welcomed addition to the genre of what might well be termed highly personal source material. His reminiscences will be of interest to the sociologist and historian of science as well as to a more general public. They provide not only anecdotal glimpses of the striking personalities associated with Ernest Rutherford during the last ten years of his directorship of the Cavendish, but also offer diverse suggestions as to Rutherford's abilities and limitations in the scientific, administrative, and teaching arenas. Thus, although the somewhat standard claim is made that Rutherford was the greatest experimental physicist since Faraday, the most vivid depictions are of a researcher so eager for results (and yet, somehow, incapable of providing more than the bare essentials of equipment) that his collaborators, who were continuously engaged in the experimentation itself, hoped for—and even conspired to assure—his absence during critical moments lest he damage apparatus and spoil incipient results by his enthusiastic, impetuous behavior!

As a book the work suffers severely from two related defects. It may be expected that any set of recollections spanning a decade will be diffuse, but this book is unnecessarily episodic and disorderly in spite of chapter titles and subheadings that give an initial promise of organization. One therefore regrets all the more that it was not deemed worthwhile to prepare a careful, or indeed any, index. Second, while Oliphant has usefully supplemented his own recollections with those (some of them previously unpublished) of several of his Cambridge colleagues, he has curiously enough restricted himself to these same sources when attempting to sketch in background material and to make historical assessments. It is true that in an introductory disclaimer he urges that his work be regarded as but a supplement to the official biography by A. S. Eve (*Rutherford*, Cambridge, 1939). It is also true, however, that in the intervening third of a century a small but significant body of historical scholarship has emerged. In not making use of this scholarship Oliphant has perpetuated a

few anachronisms and, much more important, has neglected certain likely underlying themes that could have been used to provide a context for his episodes and thus a cohesiveness for his book. This neglect has also deprived the sociologists and historians of science of the benefit of his reactions to the themes they have suggested. Any comments Oliphant might have made as a physicist personally involved in the work of the period would have been greatly appreciated.

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## Books Received

**Advances in Protein Chemistry.** Vol. 26. C. B. Anfinsen, Jr., John T. Edsall, and Frederic M. Richards, Eds. Academic Press, New York, 1972. xii, 432 pp., illus. \$21.

**The Analysis of Tides.** Gabriel Godin. University of Toronto Press, Buffalo, N.Y., 1972. xxii, 264 pp., illus. \$25.

**Analysis of Triglycerides.** Carter Litchfield. Academic Press, New York, 1972. xiv, 356 pp., illus. \$19.50.

**Astronomy and Astrophysics Abstracts.** Vol. 7: Literature 1972, Part 1. S. Böhme and six others, Eds. Published for Astronomisches Rechen-Institut by Springer-Verlag, New York, 1972. x, 526 pp. \$22.90.

**Basic Human Anatomy.** Charles E. Tobin. McGraw-Hill, New York, 1972. x, 342 pp., illus. \$8.95.

**Cephalosporins and Penicillins.** Chemistry and Biology. Edwin H. Flynn, Ed. Academic Press, New York, 1972. xvi, 752 pp., illus. \$25.

**Chemical Technology.** An Encyclopedic Treatment. The Economic Application of Modern Technological Developments. Vol. 5, Natural Organic Materials and Related Synthetic Products. L. W. Codd and five others, Eds. Barnes and Noble, New York, 1972. xxxii, 898 pp., illus. \$42.50; to subscribers, \$37.50.

**Chemistry in Space Research.** Robert F. Landel and Alan Rembaum, Eds. Elsevier, New York, 1972. xiv, 662 pp., illus. \$39.50.

**Communication.** A *Scientific American* Book. Freeman, San Francisco, 1972. vi, 136 pp., illus. Cloth, \$6.50; paper, \$3.25. Reprinted from *Scientific American*, Sept. 1972.

**Concepts in Physics.** Reuben Benumof. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1973. xx, 568 pp., illus. \$12.95.

**Concepts of Biology.** A Cultural Perspective. Neal D. Buffalo and J. B. Throneberry. Prentice-Hall, Englewood Cliffs, N.J., 1973. xii, 372 pp., illus. \$9.95.

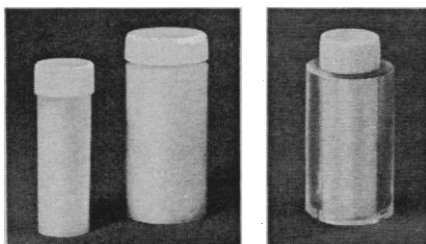
**Conceptual Notation and Related Articles.** Gottlob Frege. Translated and edited by Terrell Ward Bynum. Oxford University Press, New York, 1972. xii, 290 pp., illus. \$30.50.

(Continued on page 1052)

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cology"; A. Heggveit, "Pathology of toxic and nutritional cardiomyopathies"; T. Balazs, "Drug induced ischemic myocardial necrosis."

31 July. Computer technology in toxicology (Robert Carlson, discussion leader): Carlton Smith, "Data acquisition and retrieval systems"; Lionel Mawdsley-Thomas, "Automated analysis of cellular change." (C. Middleton, discussion leader): Geoff Lord, "Model diseases in toxicology, congenital and induced."

1 August. Drug adverse reactions (Nelson Irey, discussion leader): Jim Campbell, "Problems and control"; Ian Henderson, "Drug reactions and interactions." (R. Scala, discussion leader): Lionel Rubin, "Ophthalmological toxicology."

2 August. Immunologic technics in toxicology (L. Perelmutter, discussion leader): I. L. Bernstein, "In vivo and in vitro technics in immediate allergic reactions"; Roger Morrell, "Radioimmunologic assays in toxicology present and potential." (Harold Grice, discussion leader): Robert Kinch, "Contraception through the ages."

3 August. Screening tests for carcinogenicity (Harold Peck, discussion leader): Lionel Poirier, "Screening tests for carcinogenicity."

### BOOKS RECEIVED

(Continued from page 993)

A Cost-Effectiveness Study of Clinical Methods of Birth Control. With Special Reference to Puerto Rico. William J. Kelly. Praeger, New York, 1972. xii, 122 pp., illus. \$12.50. Praeger Special Studies in International Economics and Development.

Critical Variables in Differentiation. Barbara E. Wright. Prentice-Hall, Englewood Cliffs, N.J., 1973. xvi, 110 pp., illus. \$7.95. Concepts of Modern Biology Series.

Crop Processes in Controlled Environments. Proceedings of a symposium, Littlehampton, England, July 1971. A. R. Rees, K. E. Cockshull, D. W. Hand, and R. G. Hurd, Eds. Academic Press, New York, 1972. xiv, 392 pp., illus. \$19.50. Applied Botany, vol. 2.

Current Topics in Membranes and Transport. Vol. 3. Felix Bronner and Arnost Kleinzeller, Eds. Academic Press, New York, 1972. xii, 436 pp., illus. \$24.50.

Cyclotrons—1972. Proceedings of a conference, Vancouver, Canada, July 1972. J. J. Burgerjon and A. Strathdee, Eds. American Institute of Physics, New York, 1972. xiv, 838 pp., illus. \$14.75. AIP Conference Proceedings, No. 9.

Data Communications and Business Strategy. A Working Sourcebook for the

Modern Manager. A conference, New York, Oct. 1971. John J. Tarrant, Ed. Auerbach, Princeton, N.J., 1972. x, 146 pp. \$9.95.

Death and Attitudes toward Death. Proceedings of a symposium, Minneapolis, Jan. 1972. Stacey B. Day, Ed. University of Minnesota Medical School Bell Museum of Pathology, Minneapolis; Batesville Casket Co., Batesville, Ind., 1972. 94 pp. \$5.50.

Dictionary of Scientific Biography. Vol. 6, Jean Hachette—Joseph Hyrtl. Charles Coulston Gillispie, Ed. Scribner, New York, 1973. xvi, 620 pp. \$35.

Dielectric and Related Molecular Processes. Vol. 1, A Review of Selected Developments in the Period 1966–1971. Mansel Davies, senior reporter. Chemical Society, London, 1972. xvi, 394 pp., illus. £8. Specialist Periodical Report.

Dr. Robert Broom. Palaeontologist and Physician, 1866–1951. A Biography, Appreciation and Bibliography. G. H. Findlay. Balkema, Cape Town, South Africa, 1972. xvi, 158 pp. + plates. R7.50. South African Biographical and Historical Studies, vol. 15.

Dynamics of Health and Disease. Carter L. Marshall and David Pearson. Appleton-Century-Crofts, New York, 1972. xiv, 458 pp., illus. \$8.50.

Enzyme, Moleküle, Lebenserscheinungen. F. Brunó Straub. Akadémiai Kiadó, Budapest, 1972. 126 pp., illus. Paper, £1.

The Epidemiology of Posttransfusion Hepatitis. Basic Blood and Plasma Tabulations. J. Garrott Allen. Published by the author, Stanford, Calif., 1972. xvi, 360 pp., illus.

Experimental Meson Spectroscopy—1972. A conference, Philadelphia, Apr. 1972. Arthur H. Rosenfeld and Kwan-Wu Lai, Eds. American Institute of Physics, New York, 1972. xiv, 490 pp., illus. \$11. AIP Conference Proceedings, No. 8. Particles and Fields Subseries, No. 3.

Experiments in Physiology and Biochemistry. Vol. 5. G. A. Kerkut, Ed. Academic Press, New York, 1972. xvi, 346 pp., illus. \$19.50.

Explorations in Basic Biology. Stanley E. Gunstream and John S. Babel. Burgess, Minneapolis, 1973. xii, 242 pp., illus. Spiral bound, \$5.50.

Families of Frequency Distributions. J. K. Ord. Hafner, New York, 1972. viii, 232 pp., illus. Paper, \$14.95. Griffin's Statistical Monographs and Courses, No. 30.

Graphic Languages. Proceedings of a conference, Vancouver, Canada, May 1972. F. Nake and A. Rosenfeld, Eds. North-Holland, Amsterdam, 1972 (U.S. distributor, Elsevier, New York). viii, 442 pp., illus. \$23.85.

History of Science. An Annual Review of Literature, Research and Teaching. Vol. 10, 1971. A. C. Crombie and M. A. Hoskin, Eds. Heffer, Cambridge, England, 1972 (U.S. distributor, Neale Watson, New York). vi, 138 pp. \$11.

Intellectual Functioning in Adults. Psychological and Biological Influences. Two symposia, San Francisco (1968) and Miami (1970). Lissy F. Jarvik, Carl Eisdorfer, and June E. Blum, Eds. Springer, New York, 1973. xiv, 178 pp., illus. \$7.50.

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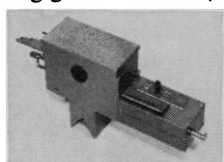
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Allen T. Dittmann. Springer, New York, 1973. viii, 232 pp., illus. \$7.95.

**Learning to Be.** The World of Education Today and Tomorrow. Edgar Faure and six others. Unesco, Paris; Harrap, London, 1972 (U.S. distributor, Unipub, New York). xi, 314 pp. Paper, \$6.

**Metal-Ammonia Solutions.** William L. Jolly, Ed. Dowden, Hutchinson, and Ross, Stroudsburg, Pa., 1972. xvi, 440 pp., illus. \$20. Benchmark Papers in Inorganic Chemistry.

**Metallurgical Stereographic Projections.** J. S. Smaill. Halsted (Wiley), New York, 1972. viii, 262 pp., illus. \$22.75.

**Microbiology.** A Programmed Presentation. William J. Payne and Dean R. Brown. Mosby, St. Louis, Mo., ed. 2, 1972. xii, 284 pp., illus. Spiral bound, \$6.75.

**The Minor Structures of Deformed Rocks.** L. E. Weiss. Springer-Verlag, New York, 1972. viii, 432 pp., illus. \$29.80.

**The Molecular Basis of Antibiotic Action.** E. F. Gale, E. Cundliffe, P. E. Reynolds, M. H. Richmond, and M. J. Waring. Wiley-Interscience, New York, 1972. xviii, 454 pp., illus. \$23.50.

**Multiple Factors in the Causation of Environmentally Induced Disease.** A workshop, Bethesda, Md. Douglas H. K. Lee and Paul Kotin, Eds. Academic Press, New York, 1972. xx, 226 pp., illus. \$7.50. Fogarty International Center Proceedings, No. 12. Environmental Sciences.

**Natural Ecosystems.** W. B. Clapham, Jr. Macmillan, New York, 1973. viii, 248 pp., illus. Paper, \$3.95.

**Scientific and Technical Books in Print, 1972.** Subject Index, Author Index, Title Index. Bowker, New York, 1972. xii, 1576 pp. \$28.50.

**The Selection of Design.** Gordon L. Glegg. Cambridge University Press, New York, 1972. 84 pp., illus. \$6.95.

**Solar Wind.** Proceedings of a conference, Pacific Grove, Calif., Mar. 1971. C. P. Sonett, P. J. Coleman, Jr., and J. M. Wilcox, Eds. National Aeronautics and Space Administration, Washington, D.C., 1972 (available from the Superintendent of Documents, Washington, D.C.). xii, 718 pp., illus. \$6. NASA SP-308.

**Sonographs of the Sea Floor.** A Picture Atlas. R. H. Belderson, N. H. Kenyon, A. H. Stride, and A. R. Stubbs. Elsevier, New York, 1972. viii, 186 pp. \$27.75.

**Space Physics and Space Astronomy.** Michael D. Papagiannis. Gordon and Breach, New York, 1972. xvi, 294 pp., illus. \$14.50.

**Stålfelt's Plant Ecology.** Plants, the Soil and Man. Translated from the Swedish edition (1960) by Margaret S. Jarvis and Paul G. Jarvis. Longman, London, 1972. xii, 592 pp., illus. Paper, £5.50.

**Statistical Decomposition Analysis.** Henri Theil. North-Holland, Amsterdam; Elsevier, New York, 1972. xvi, 338 pp., illus. \$22.50. Studies in Mathematical and Managerial Economics, vol. 14.

**Strains of Human Viruses.** Mirko Majer and Stanley A. Plotkin, Eds. Karger, Basel, 1972 (U.S. distributor, Phiebig, White Plains, N.Y.). x, 272 pp. \$27.45.

**The Structure and Function of Muscle.** Vol. 1, Structure Part 1. Geoffrey H. Bourne, Ed. Academic Press, New York, ed. 2, 1972. xx, 576 pp., illus. \$33.

**The Structure and Function of Nervous Tissue.** Vol. 6, Structure IV and Physiology IV. Geoffrey H. Bourne, Ed. Academic Press, New York, 1972. xvi, 500 pp., illus. \$29.

**Victims of Groupthink.** A Psychological Study of Foreign-Policy Decisions and Fiascoes. Irving L. Janis. Houghton Mifflin, Boston, 1973. viii, 278 pp., illus. \$7.95.

**The Vitamins.** Chemistry, Physiology, Pathology, Methods. Vol. 5. W. H. Sebrell, Jr., and Robert S. Harris, Eds. Academic Press, New York, ed. 2, 1972. xviii, 468 pp., illus. \$27.

**The Work of the Science Film Maker.** Alex Strasser. Hastings House, New York, 1972. 308 pp., illus. \$17.50. Library of Film and Television Practice.

**The World Encyclopedia of Animals.** Maurice Burton, Ed. World, New York, 1972. 400 pp., illus. \$20.

**Zinsser Microbiology.** Wolfgang K. Joklik and David T. Smith, Eds. Appleton-Century-Crofts, New York, ed. 15, 1972. xx, 1120 pp., illus. \$23.75.

## New Journals Received

**Collective Phenomena.** An International Journal of Discussion and Speculation. Vol. 1, No. 1, Aug. 1972. Four issues per volume. American editor: F. Cummings (University of California, Riverside). Gordon and Breach, Inc., 440 Park Ave. South, New York, N.Y. 10016. To individuals, \$15; to institutions, \$45.

**Communications in Statistics.** Vol. 1, No. 1, 1973. Six issues a year. Editor: D. B. Owen (Southern Methodist University). Marcel Dekker, Inc., 95 Madison Ave., New York, N.Y. 10016. To individuals, \$15; to institutions, \$35.

**Environmental Affairs.** Vol. 1, No. 4, Mar. 1972. Quarterly. Editor: Edward A. Haffer. Environmental Affairs, Inc., Environmental Law Center, Boston College Law School, Brighton, Mass. 02135. \$18.

**Geometriae Dedicata.** Vol. 1, No. 1, Nov. 1972. Quarterly. U.S. members of editorial board: L. Auslander (New York), B. Grünbaum (Seattle), D. G. Higman (Ann Arbor), and J. A. Wolf (Berkeley). D. Reidel Publishing Co., P.O. Box 17, Dordrecht, Holland. To individuals, \$24.75; to institutions, \$41.25.

**International Journal of Environmental Analytical Chemistry.** Vol. 1, No. 4, May 1972. Four issues per volume. Editors: Roland W. Frei (Dalhousie University, Halifax, Nova Scotia) and Brian W. Bailey (State of N.Y. Dept. of Health, Albany). Gordon and Breach, Inc., 440 Park Ave. South, New York, N.Y. 10016. To individuals, \$14.50; to institutions, \$41.50.

**Journal of Structural Mechanics.** Vol. 1, No. 1, 1972. Four issues a year. Editor: E. F. Masur (University of Illinois, Chicago). Marcel Dekker, Inc., 95 Madison Ave., New York, N.Y. 10016. \$55.

**Separation and Purification Methods.** Supplement 1 of Separation Sciences. Vol. 1, No. 1, 1972. Semiannual. Editors: Edmond S. Perry (Eastman Kodak Co., Rochester, N.Y.), and Carel J. Van Oss (State University of New York at Buffalo). Marcel Dekker, Inc., 95 Madison Ave., New York, N.Y. 10016. \$19.50.