Mass Spectroscopy in Research; Mass Spectroscopy of Inorganic Compounds; New Instruments and Techniques; Mass Spectroscopy of Organic Compounds (pt. 1, Theory and correlation of spectra; pt. 2, Mass spectra and analysis); and Ionization and Dissociation. The individual papers are followed by comments and discussion. The volume also contains a rather complete bibliography on work in mass spectroscopy during the period 1958 through 1960.

A substantial portion of the volume is devoted to problems of chemistry, reflecting in part the interests of the sponsors of earlier similar conferences and in part the fact that the mass spectrometer is a powerful tool for conducting studies in physical chemistry or making chemical analyses. Nevertheless, there are interesting papers on new instruments and on applications to fields other than chemistry. Those interested in chemical kinetics, ion-molecule reactions, and other fields where mass spectroscopy can be used as a tool will find the volume quite valuable. Others will find it valuable as a means of keeping abreast of some of the latest developments in instrumentation and in the application of techniques to a variety of fields. Interesting points are brought out in the discussion that follows the papers.

Since the book consists of both invited and contributed papers, with the authors having liberty to choose their own topics, it lacks the cohesion and organization one would find in a book written by one person. On the other hand, the papers and discussions by so many outstanding authorities give the reader an opportunity to gain a feeling for some of the latest work and thinking in parts of the field. The production of the book is well done, and the numerous figures and photographs are excellent.

ALFRED O. NIER

School of Physics,
University of Minnesota

Note

Mathematics

Twenty-one papers published between 1953 and 1961 are reprinted in this volume, **The Mathematical Works of J. H. C. Whitehead**: vol. 4, *Algebraic and Classical Topology* (Pergamon, London; Macmillan, New York, 1963. 361 pp. $12.50), edited by I. M. James. Although a wide variety of subjects is covered, one can distinguish several connected "blocks." One such block (consisting of papers Nos. 64, 79, 74, 78, 87, and 82 of the general list) deals with work (carried out in collaboration with E. H. Spanier) concerned with S-theory and duality. This theory is an attempt to achieve greater regularity and more algebraic structure in homotopy theory by passing to direct limits under suspensions. Another block of papers (Nos. 69, 70, 71, and 72), mainly in collaboration with I. M. James, is devoted to fiber spaces and fiber bundles.

In 1958, Whitehead, stimulated by the successes of Bing and Papakyriakopoulos, regained his interest in classical topology of Euclidean spaces and combinatorial manifolds. The results are presented in another block of papers (Nos. 81, 83, 84, 86, 88, and 90). Of these papers, No. 84 (with Arnold Shapiro) is a priceless gem. Of the remaining five papers, special mention should be given to No. 89. It is a substantial paper in differential topology, a subject exceptionally dear to Henry's heart. There is not much doubt that, had his life not been so suddenly interrupted, this is the direction in which his energies would have been applied.

S. EILENBERG

Department of Mathematics,
Columbia University

New Books

General

Ancient and Medieval Science. From the beginnings to 1450. René Taton, Ed. Translated from the French edition (Paris, 1957) by A. J. Pomerans. Basic Books, New York, 1964. 572 pp. Illus. $17.50.

The Atlas of Britain and Northern Ireland. Planned and directed by D. P. Bickmore and M. A. Shaw. Oxford Univ. Press, New York, 1963. 234 pp. Plates. $100.

Atomic Energy Encyclopedia in the Life Sciences. Charles Wesley Shilling, Ed. Saunders, Philadelphia, 1964. 500 pp. Illus. $10.50.

Biology of Birds. Wesley E. Lanyon. Doubleday, New York, 1964. 187 pp. Illus. $3.95. A popularization published for the American Museum of Natural History.

The Brain as a Computer. F. H. George. Pergamon, London; Addison-Wesley, Reading, Mass., 1962. 421 pp. Illus. $9.

Cereal Crops. Warren H. Leonard and John H. Martin. Macmillan, New York, 1963. 832 pp. Illus.

Chemistry of Life. Katherine B. Hoffman. Natl. Science Teachers Assoc., Washington, D.C., 1963. 128 pp. Illus. Paper, 50¢.

Coffee Processing Technology. vols. 1 and 2. vol. 1, *Fruit, Green, Roast, and Soluble Coffee*. Michael Sivetz and H. Elliott Foote (614 pp., $17.25); vol. 2, *Aromatization, Properties, Brewing, Decaffeination, Plant Design*. Michael Sivetz (391 pp., $12.50). Avi Publishing Co., Westport, Conn., 1963. Illus.

Dairy Cattle Management. Principles and applications. James M. Wing. Reinhold, New York; Chapman and Hall, London, 1963. 367 pp. Illus. $9.75.

Elsevier's Lexicon of International and National Units. English-American, German, Spanish, French, Italian, Japanese, Dutch, Portuguese, Polish, Swedish, and Russian. Compiled and arranged by W. E. Clason. Elsevier, New York, 1964. 84 pp. $4.95.

The Encyclopedia of Management. Carl Heyel. Reinhold, New York; Chapman and Hall, London, 1964. 1111 pp. Illus. $25.

Error and Eccentricity in Human Belief. Joseph Jastrow. Dover, New York [reprint of *Wish and Wisdom, Episodes in the Vagaries of Belief* (1935)] 1963. 410 pp. Illus. Paper, $1.85.

Essays on Creativity in the Sciences. By Associates of the Creative Science Seminar, Division of General Education, New York University. Myron A. Coler, Ed. New York Univ. Press, New York, 1963. 255 pp. $6.50. Essays by Ellis Blade, Mary-Frances Blade, M. A. Coler, H. Herbert Fox, Nicholas E. Golovin, Harold K. Hughes, Harold W. Mohrman, Anne Roe, Sidney G. Roth, Russell F. W. Smith, and Morton I. Teicher.

Exploration of the Moon. Franklyn M. Branley. Doubleday, New York, 1964. 139 pp. Illus. $3.50. A popularization published for the American Museum of Natural History.

Families of Flowering Plants of Southern Africa. Herbert Parkes Riley. Univ. of Kentucky Press, Lexington, 1963. 287 pp. Illus. $14.

Field Archery and Bowhunting. Arnold O. Haugen and Harlan G. Metcalf. Ronald, New York, 1963. 221 pp. Illus. $6.

Fifty Years of Science in India. Progress of botany. P. Maheshwari and R. N. Kapil. Indian Science Congress Assoc., Calcutta, 1963. 186 pp. Illus. Paper.

The First New Nation. The United States in historical and comparative perspective. Seymour Martin Lipset. Basic Books, New York, 1963. 384 pp. $5.95.

The Foundation Directory. Prepared by the Foundation Library Center. Ann D. Walton and Marianna O. Lewis, Eds. Russell Sage Foundation, New York, ed. 2, 1964. 1000 pp. $10. Provides information on 6007 foundations. For each foundation the information included covers (insofar as available) the corporate name and address; the name of donor or donors; the general purpose and activities, together with any special limitations; the assets, gifts received, and grants (the most recent available information); and names of officers and trustees.

A History of Chemistry. Charles-Albert Reichen. Hawthorn, New York, 1963. 112 pp. Illus. $5.95.