includes organic polymers along with graphite, silicates, and other inorganic polymers.

This text appears to be best suited for use in a "terminal" course in general chemistry, intended for those students who do not intend to continue in science.

A blurb on the dust jacket of *Fundamental Chemistry* hails it as the first chemistry text to meet the requirements of students who have completed such new high school curricula as those developed by the Chemical Education Materials Study (CHEM), the Chemical Bond Approach Committee (CBA), and the Physical Science Study Committee (PSSC). The book attempts to meet what is probably the most serious problem facing today's teacher of elementary college chemistry: that of the great disparity in high school science and mathematics training among the students. Thus the early chapters deal with such basic topics as the nature of a model, large numbers, significant figures, and even some elementary calculus. But the pace accelerates enormously, and the student is soon confronted with the Boltzmann distribution (chapter 8), transition state theory (chapter 14), and crystal field theory (chapter 25).

There are few innovations in the presentation; rather I would characterize the book as a traditional treatment of much of the material ordinarily included in courses in (i) general chemistry, (ii) undergraduate physical chemistry, and (iii) a senior course in inorganic chemistry. What is *not* traditional is the attempt to treat this enormous scope in one text. Treating so many ideas necessitates that, in many cases, they be presented as full-blown concepts, rather than as a logical development. For example, the student may wonder why it is "reasonable to assume" that the increase in bond energy due to polarity is related to the square of the difference in electronegativities of the bonded atoms (page 158). In spite of the condensation of the presentations, the writing is lucid and accurate.

The elements of thermodynamics are introduced in chapter 12, and these concepts are then employed extensively in chapter 13 (on chemical kinetics), chapter 14 (on equilibrium), and to a limited extent in chapter 16 (on electrochemistry). Tabulation and discussion of thermodynamic properties make up major portions of the chapters on the descriptive chemistry of the elements. Descriptive chemistry comprises chapters 18, 19, 20, 23, and part of 21, roughly 140 of the 772 pages of text. Crystal structure and stereochemistry are treated in a separate chapter, and these aspects are not given prominence in the descriptive chapters. Chapter 24 (on metals and alloys) gives a nice discussion of metallic packing and bonding, with brief mention of electron-deficient molecules and phase diagrams. Chapter 25, on complex ions, deals with stereo and optical isomerism, magnetism, and crystal field theory, all in 19 pages. The extensive sets of problems are chiefly of the physical chemistry type and should be a challenge to any class.

Summing up, I would say that *Fundamental Chemistry* is definitely a text for the superior student, or, at least, the better-prepared-than-average student, such as, perhaps, the CHEM, CBA, and PSSC alumni. It should be fine for those sophomore general chemistry courses that enroll students who have completed college physics. It is definitely *not* a book for self-study. The great number of ideas presented, and presented so tersely, will require much amplification and explanation in lecture and recitation. In this regard, I suspect a lecturer might find himself more circumscribed by this text than by most.

Both of these books are handsomely illustrated and well printed on good paper; the pages have adequate, but not generous, margins.

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New Books

General

An Alternative to War or Surrender. Charles E. Osgood. Univ. of Illinois Press, Urbana, 1962. 183 pp. Paper, $1.45.

Automation. Implications for the future. Morris Philipson, Ed. Random House, New York, 1962. 456 pp. Paper, $1.95.

Axiomatics. R. Blanche. Translated by G. B. Keene. Free Press of Glencoe (Macmillan), New York, 1962 (reprint of 1959 ed.). 70 pp. Paper, $1.25. A translation of the first three (of five) chapters of *L'Axiomatique*, ed. 2, 1959.

Camp Century. City under the ice. Walter Wager. Chilton, Philadelphia, 1962. 151 pp. Illus. $3.95. An account of the camp constructed by the U.S. Army Corps of Engineers 138 miles east of Thule.

The Case of the Missing Link. Eleanor Clymer. Basic Books, New York, 1962. 118 pp. Illus. $3.75 (juvenile book).

The Cholera Years. The United States in 1832, 1849, and 1866. Charles E. Rosenberg. Univ. of Chicago Press, Chicago, 1962. 267 pp. $5.95.

Elementary Teachers Guide to Free Curriculum Materials. Patricia H. Suttles, Ed. Educators Progress Service, Randolph, Wis., ed. 19, 1962. 353 pp. $7.50.

Engineering as a Career. Ralph J. Smith. McGraw-Hill, New York, ed. 2, 1962. 404 pp. Illus. Paper, $4.40; cloth, $5.95.

Environmental Engineering and Metropolitan Planning. Proceedings. John A. Logan, Paul Oppermann, and Norman E. Tucker, Eds. Northwestern Univ. Press, Evanston, Ill., 1962. 279 pp. $7.50. Proceedings of the first conference on environmental engineering and metropolitan planning held at Northwestern University.

A Guide to ALGOL Programming. Daniel D. McCracken. Wiley, New York, 1962. 114 pp. Illus. Paper, $3.95.

High in the Thin Cold Air. The story of the Himalayan expedition led by Sir Edmund Hillary. Sir Edmund Hillary and Desmond Doig. Doubleday, Garden City, N.Y., 1962. 263 pp. Illus. $6.95.

How To Prepare Effective Engineering Proposals. Emerson Clarke. TW Publishers, River Forest, Ill., 1962. 221 pp. Illus. $6.95.

Kill and Overkill. The strategy of annihilation. Ralph E. Lapp. Basic Books, New York, 1962. 197 pp. $4.95.

The Man Who Conquered Pain. A biography of William Thomas Green Morton. Grace Steele Woodward. Beacon Press, Boston, 1962. 189 pp. Illus. $3.50.

The Mars Project. Wernher von Braun. Univ. of Illinois Press, Urbana, 1962 (reprint of 1952 ed.). 99 pp. Paper, $0.95.

Medicines for the Union Army. The United States Army laboratories during the Civil War. George Winston Smith. American Inst. of the History of Pharmacy, Madison, Wis., 1962. 124 pp. Illus. Paper, $2.75.

Music, Acoustics, and Architecture. Leo L. Beranek. Wiley, New York, 1962. 586 pp. Illus. Until 25 December, $15; $17.50.

Queen Rearing. Harry H. Laidlaw, Jr. and J. E. Eckert. Cambridge Univ. Press, London; Univ. of California Press, Berkeley, ed. 2, 1962. 173 pp. Illus. A chapter on ailments of the queen bee has been added in this edition.

Relativity in Illustrations. Jacob T. Schwartz. New York Univ. Press, New York, 1962. 117 pp. Illus. $5.

Rivers in Harness. The story of dams. Allan H. Cullen. Chilton, Philadelphia, 1962. 180 pp. Illus. $3.95.

The Search for Planet X. Tony Simon. Basic Books, New York, 1962. 118 pp. Illus. $3.75 (juvenile book).

A Short History of Scientific Ideas. To 1900. Charles Singer. Oxford Univ. Press, New York, 1962 (reprint of 1959 ed.). 543 pp. Illus. Paper, $2.45.

Stars, Mosquitoes, and Crocodiles. The American travels of Alexander von Humboldt. Millicent E. Selsam, Ed. Harper and Row, New York, 1962. 192 pp. Illus. $3.50.