

are capable of manufacturing 4,500 tons of aluminium per annum.

Various other metals claim moderate consideration. Thus, of calcium it is said to be "of great value in various industries as a reducing agent, the only drawback to its wide-spread use being its comparatively high market value." The schemes developed by Borchers and by Arndt for making electrolytic calcium are the only processes described. The plan of Rathenan and that of Goodwin appeared after the author had passed his manuscript to the publisher, so in that way their absence is explained. By these latter methods, so much alike, yet developed independently of one another, it would seem that the problem of calcium manufacture has really been solved. The applications of the metal now await development. It will be of interest to learn how well strontium and barium can be isolated electrolytically.

The concluding sections consider the application of the electric furnace to scientific research, tube furnaces, electrodes, efficiency and theoretical considerations, measurement of furnace temperatures, etc.

The book is an excellent compilation. It will be read with great interest by all chemists and will surely suggest new ideas and possibilities to the student of theoretical and practical electrochemistry. Its appearance is very timely.

EDGAR F. SMITH.

THE SESQUITERPENES. A monograph. BY OSWALD SCHREINER, with a preface by EDWARD KREMERS. 130 pp. Pharmaceutical Review Pub. Co., Milwaukee, Wis., 1904. Price, \$1.00.

This is Monograph No. 9 in the Pharmaceutical Science Series, edited by Dr. Kremers. Numerous investigations have been conducted in the field of terpene chemistry during the past twenty years, and yet but little knowledge has been accumulated concerning the chemical character of the so-called "sesquiterpenes," $C_{15}H_{24}$. The author has collected, classified and arranged, in convenient and readily accessible form, the scattered facts on record about this interesting group of compounds, and the resulting monograph constitutes a concise resumé of our knowledge of the subject. The arrangement of the matter is as follows: I, Introduction. II, General Part—(1) The position of the sesquiterpenes in the various systems of classification of terpenes at large (C_8H_8)_x; (2) The position of the sesquiterpenes in the modern rational system of classification of hydrocarbons; (3) classification and com-

parison of the better known sesquiterpenes and discussion of possible constitution and synthesis; (4) the occurrence of sesquiterpenes in the vegetable kingdom. III, Special Part.—The classification based upon the "modern rational system" referred to above (II, 2) takes cognizance of the fact that the $C_{15}H_{24}$ hydrocarbons belong to the C_nH_{2n-6} class, and may, therefore, exist in the following structural forms: (1) Straight chain compounds with four unsaturations; (2) Monocyclic compounds with three unsaturations; (3) Dicyclic compounds with two unsaturations; (4) Tricyclic compounds with one unsaturation; (5) saturated tetracyclic compounds. It is then shown (II, 3) how the various sesquiterpenes may be marshaled under these five headings. The Special Part (100 pages) takes up the individual sesquiterpenes alphabetically and discusses them in detail. Full references to the literature are given and a good Index concludes the work.

The author has done a real service to organic chemists in the compilation of this monograph, and it should prove of special value to all interested in the chemistry of the essential oils.

M. T. BOGERT.

CHEMICAL STATICS AND DYNAMICS. BY J. W. MELLOR. Longmans, Green & Co. 1904. viii + 528 pp. Price, \$2.00.

The book opens with a historical sketch, "from the beginning" to the year 1771, followed by illustrations of the meaning of "velocity" and an explanation of the use of mathematics in chemistry; the Introduction closes with 9 pages of energetics of the usual vague type.

The next four chapters are devoted to the rate of chemical change in homogeneous systems, including parallel, opposing and consecutive reactions; Chapter VI is "on the beginning of a chemical reaction," Chapter VII on "heterogeneous" reactions, and Chapter VIII on chemical equilibrium. The remainder of the book, rather more than half, contains chapters on Electrolytic dissociation, Catalysis and theory of chemical change, Fermentation, the Influence of temperature and pressure on rates and equilibrium, and Explosions.

The calculus is employed throughout, the best settings of various differential equations are discussed, and numerical examples are worked out in illustration; but though evidently of the opinion that "ere long mathematics will be as useful to chemists as the