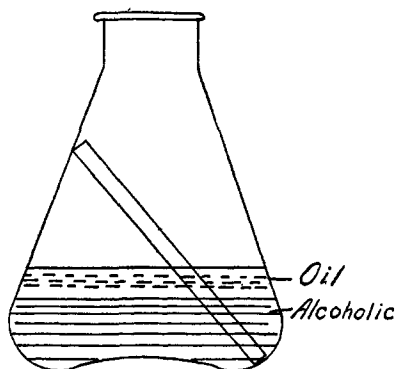


is completely overcome and boiling may be conducted quite rapidly without any loss. The accompanying sketch shows about the proportionate length of tube that is desirable.

If the work is done in a beaker the vessel should be covered by a beaker cover because when boiling is fairly rapid short columns of the alcoholic liquor may be projected up the open tube and lost.

H. SPURRIER.



NEW BOOKS.

The Relations between Chemical Constitution and Some Physical Properties. By SAMUEL SMILES, D.Sc., Fellow of University College, and Assistant Professor of Organic Chemistry at University College, London University. (One of the series of "Text-books of Physical Chemistry" edited by SIR WILLIAM RAMSAY, K.C.B., F.R.S.) London, New York, Bombay and Calcutta: Longmans, Green & Co. 1910. Crown 8vo., pp. xiv + 583. 14s.

This volume is the portliest member of the Ramsay series, so far, at least, as they have yet appeared. Why it has been longer in preparation than have some of the others will readily be understood by any one who considers the extent and variety of the matter that is dealt with. Even so, certain physical properties have been wittingly omitted from consideration; crystallin form would require a separate volume; optical rotatory power, electric conductivity and heat of combustion have been dealt with in other volumes of this series; while solubility, dielectric constant, magnetic susceptibility and other properties have been omitted from discussion as not yet exhibiting sufficiently well defined relationships with chemical constitution to merit special treatment.

The subjects treated are grouped under the heads of capillarity, viscosity, volume relations, specific heat, fusibility, boiling point, refractive and dispersive power, absorption of light, fluorescence, magnetic rotatory power, and anomalous electric absorption. Each of these topics is introduced to the reader by reminding him of the fundamental definitions and groundwork of the subject and of the methods of measurement. The relationships proposed are supported by very many tables, which, as the author points out, are indispensable although detracting from the easy readability of the text. Finally, a clear statement is given in each case of the application that can be made of measurement of each physical property, and thus of its utilitarian value to the research chemist. There are three indexes—of authors, of subjects and of substances.

In a work like this there may be errors and there may be omissions (as, for instance, in reference to certain work done in this country); the negative value contributed by these, however, is an altogether negligible quantity in comparison with the positive value of the work as a whole. Here we have presented from a modern viewpoint, in English and in a convenient and assimilable form, a collection of relationships and a coherent review of the scattered results of research that must prove a boon to every progressive chemist. This book also should be added to our private libraries.

ALAN W. C. MENZIES.

Physico-chemical Tables. Volume 2, Physical and Analytical Chemistry. By JOHN CASTELL-EVANS, F.I.C., F.C.S., Superintendent of the Chemical Laboratories and Lecturer on Inorganic Chemistry and Metallurgy at the Finsbury Technical College. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 24x16 cm., xiv + 686 pp. \$12.00 net.

The first volume of this work appeared in 1902, and has already been reviewed in these pages (*THIS JOURNAL*, 25, 657 (1903)). The present volume continues Part III, "Physics," embraces the whole of Part IV, "Analytical Chemistry," and contains a few pages of Supplementary Tables of Weights and Measures based on the relative values of metric and imperial units as legally fixed in 1907 by the Board of Trade from the results of careful comparison of the standards.

The tables in Part III are divided into four groups: The first of these, *Molecular Dynamics*, embraces tables of such constants as molecular speeds, free path and molecular magnitude in gases; speed of sound in various media; viscosity of gases; viscosity of liquids, mixed liquids, and solutions (73 pp.); molecular volumes of liquids and vapors, etc. The second group, *Capillarity and Surface Tension*, contains tables of the values of these constants for various liquids, with their relation to temperature, and similar data for solutions and for fused substances. Later pages tabulate relationships of surface tension with other physical properties and with chemical constitution. The third group, *Physical Properties of Solutions*, contains tables of the boiling points of various aqueous solutions (11 pp.), followed by extensive tables of specific gravity of solutions, chiefly aqueous (113 pp.). Then follow tables of solubility in water (32 pp.) and in alcohol, solubility data for "mixed solutions and solutions in mixed solvents," etc. The fourth group of tables in Part III, *Molecular Weights*, contains values for molecular freezing point depression and boiling point elevation as calculated and as observed; and tables of the lowering of vapor pressure of water and of mercury due to the presence of a solute.

Part IV, "Analytical Chemistry," contains an assortment of tables whose character is sufficiently indicated by the heading. In the com-

putation of analytical factors, the International Atomic Weight Table of 1904 was used.

It is indeed fortunate that the late Dr. Castell-Evans was able to complete this work, for which English-speaking chemists and physicists must alike stand in his debt. The statistical temperament in such a high degree is not given to many. For the collection of such data in the future, however, we are able to look forward to the International Annual Table of Constants beginning from 1910. Time must test the accuracy of quotation and recalculation of Castell-Evans's work; but, however the test may result, it must be true for this, as for the earlier volume, that the searcher will often here be led to data which were missed in other tables. Verification by reference to the original literature must follow in any case, and it is to be regretted that the references given in this work are not more complete. Some may think that the instinct for tabulation has sometimes led the author rather too far: for example, whenever called upon to titrate with columbium pentafluoride, many analysts might prefer to spend some moments in computing their own analytical factors from the atomic weight table of 1911 rather than to turn up the factor here tabulated (to *seven* places of logarithms) from the atomic weights of 1904. Any minor blemishes, however, will be gladly overlooked in view of the undeniable value of the work as a whole. In the absence, especially, of any large text-book of physics, works of this character in English have been all too few.

ALAN W. C. MENZIES.

RECENT PUBLICATIONS.

- BARAGIOLA, W. J.: **Weinfälschung.** Verlag der Schweizer Wein-Zeitung. 24 pp
- BILLITER, J.: **Die electrochemischen Verfahren der chemischen Gross-industrie.** Halle a/S, 28.50 M.
- BLANC, C. AND TOUBEAU, M.: **Fraudes commerciales.** 8°, 130 pp., 5 Fr.
- BLOUNT, B. AND BLOXAM, A.: **Chemistry for Engineers and Manufacturers.** Vol. 2. **Chemistry of Manufacturing Processes.** London: C. Griffin. 8°, 530 pp., 16 s.
- BOUCHONNET, A.: **Zink, Cadmium, Kupfer, Quecksilber.** Paris: 402 pp., 5 Fr.
- BRAUNS, D. H.: **Theory of the Rotation of the Plane of Polarization.** Detroit: 8°, 21 pp.
- BUCHHEISTER, G. A.: **Handbuch der Drogisten-Praxis.** Berlin: J. Springer, 8°, 1248 pp., 13.40 M.
- CAMERON, A. T.: **Radiochemistry.** New York: Appleton. 12°, 174 pp., \$1.00.
- CANNIZZARO, S.: **Sketch of a Course of Chemical Philosophy.** Chicago: Univ of Chicago. 55 pp., 45 cents.
- CASTELL-EVANS, J.: **Physico-chemical Tables for the Use of Analysts, Physicists, Chemical Manufacturers and Scientific Chemists.** Vol. I. **Chemical Engineering and Physical Chemistry.** \$8.00. Vol. II. **Physical and Analytical Chemistry.** \$12.00. Philadelphia: Lippincott.