

unionized state are really unlike seems very improbable to the writer of this review.

The phenomenon of auto-racemization so characteristic of the optically active ammonium salts has been investigated by E. Wedekind and his co-workers.¹ They have shown that when the active halogen salts are dissolved in chloroform the iodides racemize the most rapidly, the bromides next, and the chlorides are the most stable. This auto-racemization they proved to be due to the splitting of the ammonium salt into an alkyl halide and a tertiary amine, both of which are non-active.

Stieglitz and Hilpert² have isolated two forms of the chloroimido esters of several nitrobenzoic acids. These forms differ distinctly in physical properties, yet all of their reactions indicate that they are structurally identical. They must, therefore, be stereoisomers, probably geometrical isomers, of which one is the syn- and the other the anti-form:



This is the first example of geometrical isomerism among derivatives where the nitrogen is attached on one side to a single element.

The limited space allotted for this review makes it impossible to even mention a great many of the valuable results obtained in organic chemistry during the past eighteen months. In view of the recent paper in *THIS JOURNAL* by W. A. Noyes³ on "Molecular Rearrangements" that subject, which is at present receiving as much attention as any one field of organic chemistry, has not been discussed. Discussions of the special applications of general reactions, as Grignard's, and Friedel and Crafts' reactions, have been omitted, as well as descriptions of the synthesis of a vast number of new compounds belonging to already well-established classes.

UNIVERSITY OF MICHIGAN, ANN ARBOR.

NEW BOOKS.

Einführung in die allgemeine und anorganische Chemie auf elementare Grundlage. von DR. ALEXANDER SMITH, unter Mitwirkung des Verfassers übersetzt und bearbeitet von DR. ERNST STERN, Assistent am Königl. Material-prüfungsamt zu Gross-Lichterfelde-West. Mit einem Vorwort von Dr. FRITZ HABER, ord. Professor an der Technischen Hochschule zu Karlsruhe. G. Braun, Karlsruhe, i. B., 1909, pp. 677. Price, M. 9.

American chemists who owe so much of their advanced training to the German universities cannot fail to note with satisfaction that in reforming their methods of elementary chemical instruction the Germans are taking the American curriculum as a model. The German translation of Alexander Smith's laboratory manual which appeared some years ago has been widely adopted, and this excellent translation of the author's

¹ E. and O. Wedekind, *Ber.*, **41**, 1029 (1908); E. Wedekind and Paschke, *Ibid.*, **41**, 2659 (1908).

² *Am. Chem. J.*, **40**, 36, 150 (1908).

³ *THIS JOURNAL*, **31**, 1368 (1909).

larger work may be expected to achieve an equal success. While the treatment of experimental material has remained unaltered, the theoretical portions of the book have been thoroughly revised by the translator with the coöperation of the author. The book is well introduced to German readers in a preface written by the broadest and surest of German teachers and investigators in chemistry.

In this preface Professor Haber points out the three standpoints from which one may view the great domain of chemical science. The first is based on the comparison of the elements by means of the periodic system, the second on the qualitative representation of substances and reactions through structure formulas, and the third on a quantitative treatment of chemical phenomena according to the fundamental physico-chemical principles. A student who becomes equally familiar with these three methods possesses an immense advantage, comparable with that given by a mastery of several languages acquired in youth. While the use of a single view-point in the teaching of elementary chemistry may be attractive to both teacher and student, yet the more enthusiastically and emphatically the teacher develops this single system, the more difficult the student finds it, when occasion arises, to adopt another point of view. As a result we have physical chemists without the structure-chemical instinct, or organic chemists who lack physico-chemical insight. So misunderstandings arise, and each group seeing only the importance of its own problems forgets that after all there is but one Chemistry, in which the different methods are equally justifiable because equally fruitful. Professor Haber especially commends the book under review for its impartial and thorough treatment of all the general methods of chemistry.

GILBERT N. LEWIS.

General Chemistry for Colleges. By ALEXANDER SMITH, Professor of Chemistry and Director of General and Physical Chemistry in the University of Chicago. New York: The Century Co., 511 pp. Price, \$2.15.

The method of treatment employed by the author in his "Introduction to General Inorganic Chemistry" has proved so satisfactory to large numbers of teachers throughout the country that this shorter course in which a similar method and arrangement are employed cannot fail to find a wide field of usefulness. The theoretical chapters differ materially from those of the larger work, and some of the descriptive matter contained in the latter has been omitted. There can be no doubt that the larger text-books of inorganic chemistry which are in common use contain much more information than can be readily assimilated by the average student in his first year of chemical study. It may be questioned whether this is not still true of the shorter course contained in this book.

GILBERT N. LEWIS.