of a weighing-bottle with a light cap stopper (Fig. 1) ground on outside are various. In weighing by difference nothing can stick to the ground surfaces, and hence several portions can be weighed out successively without the ground joint having to be cleaned, as is necessary with the ordinary form of stopper. This is of particular advantage in the case of hygroscopic substances, and also prevents the stopper from sticking. When weighing a filter, this can project up to the top of the weighing-bottle and completely fill it. Further, no dust can accumulate between the ground surfaces, and the bottle is easily wiped clean. This weighing-bottle may be obtained in various sizes from C. Desaga in Heidelberg, and from Messrs. A. Gallenkamp & Co., and Messrs. Muller, Orme & Co., in London.

The second kind of weighing-bottle (Fig. 2) is of use in drying substances to constant weight in a current of gas, or in determining water of crystallization, etc. The bottle is heated to the desired temperature in a small air-bath, formed of a large porcelain crucible covered with a piece of asbestos board suitably perforated, and a current of dry gas, if necessary, hydrogen or nitrogen is passed through. These little ground-in stoppers to the gas entry and exit tubes close the bottle tightly and are very convenient. They were introduced by Dr. R. J. Seligman, and are also exceedingly useful for Geissler's potash bulbs, and for calcium chloride drying tubes, and as the ground joint is inside, there is no danger of bits of rubber tubing adhering to the outside of the glass tubes.

LEO FRANK GUTTMANN.

NEW YORK.

NEW BOOKS.

THEORIEN DER CHEMIE . . . VON SVANTE ARRHENIUS . . . UEBERSETZT VON ALEXIS FINKENSTEIN Leipzig 1906

This book of VII + 177 octavo pages contains a translation of a course of lectures delivered at the University of California in the summer of 1904. The author had long desired to prepare an account of the development of chemical theories, moved thereto by the fact that recent additions to the science are sometimes regarded, both by their adherents and by their opponents, as something entirely new, with no root or germ in the past; as being the more admirable the more independent they are of the older chemical theories. He hopes to show that in the newer chapters

of theoretical chemistry, the older doctrines have attained a consequent and necessary extension, by the same path as that by which the science has made its advances for a century. Scholars who desire to pull down recent additions to the chemical edifice will learn, thinks the author, that their success would involve in ruin the adjacent walls of the older structure, a result which these scholars regard as neither desirable nor possible. Arrhenius asserts that the material and the workmanship of the chemical builders of the day are worthy of Boyle and Lavoisier and Richter and Dalton. In details, methods of workmanship change, for better tools are available; and in details, the older parts of the edifice undergo an almost unconscious architectural restoration, which brings their aspect into perfect harmony with that of the newer additions.

The great facility with which this adjustment of the older doctrines of chemistry to the more recent takes place is asserted to be the best evidence of the soundness of recent ideas, and the lecturer hopes to prove that the more recent developments of theory sustain this test.

The pages of the little book are readable, suggestive, clear. It would be hard to produce a more valuable short account of chemical theories. The sense of proportion shown throughout is well illustrated by the fact that electrolytic dissociation is treated in less than one-tenth of the whole number of pages.

Even when chemical theory shall have outgrown this treatise, it will still be a valued record of the course of thought pursued by the discoverer of the theory of electrolytic dissociation.

EDWARD W. MORLEY.

THE INFLUENCE OF MOLECULAR CONSTITUTION UPON THE INTERNAL FRICTION OF GASES. By FREDERICK MALLING PEDERSEN. Dissertation. 1906. New York: D. Van Nostrand Co.

After an extensive historical review, the author describes a simple form of apparatus for determining the internal friction of vapors at 100°. At this temperature the coefficient of friction was determined for ten ethers and from the values thus found the author calculates the molecular volumes by means of the formula of L. Meyer. These molecular volumes agree roughly with those calculated by Kopp's method, but while the latter method gives identical values for isomeric ethers, the molecular volumes calcu-