centrifuging 1 to 2 minutes after the precipitation with sulfosalicylic acid, the great bulk of protein can be removed, and if the supernatant liquid is shaken with a little talcum to cause agglutination of any remaining suspended protein, a perfectly clear filtrate can be obtained in 5 to 10 minutes without boiling.

VII. It has been shown that 5 volumes of Greenwald's reagent (5%) for the removal of blood protein is equally efficient, and that it has the advantage that it forms with ammonia no yellow color.

VIII. An outline of the technic for the estimation of purine bases in blood is given.

NEW BOOKS.

Surface Tension and Surface Energy and their Influence on Chemical Phenomena. By R. S. WILLOWS AND E. HATSCHEK. Pp. viii + 80; 17 illustrations. P. Blakiston's Son & Co., 1915. Price, $1.00 net.

This book, which is based upon a course of lectures delivered as a continuation of another set on colloidal chemistry, has for its object the consideration of the theory of those surface interactions which are evidenced experimentally by the phenomenon of adsorption. In the main, the treatment is excellent, and the book will be found an especially valuable résumé of the subject by those who are interested in the chemistry of colloids, whether from the biological or from the purely chemical side.

Unfortunately, by an oversight, it is made to appear on page 5 that the surface tension, itself of a liquid, is related to its critical temperature in the same way as Ramsay and Shields have found the more complicated function—surface tension times the two-thirds power of molecular weight over density—to be. This was proven long since to be incorrect, and in fact was the reason why the classical work of Ramsay and Shields was undertaken. J. L. R. MORGAN.

The Electrical Nature of Matter and Radioactivity. By HARRY C. JONES. Pp. viii + 212. Third Edition. Completely Revised. New York: D. Van Nostrand Company, 1915. Price, $2.00 net.

The viewpoint of this book is essentially that of about 1905, despite the two revisions which the work has undergone. The important work of Fajans on the electrochemical properties of the radioelements, and Soddy's rules for the effect of alpha and beta ray changes on the valence of the radioelements, have thrown much light upon the chemical nature of these elements, have made it possible to fit them into the periodic table and have given us a new notion in regard to certain elements—isotopes, as Soddy has called them. For example, thorium and ionium are isotopes, as are also radium B, radium D, radium G, and lead. These elements, of different atomic weight, are chemically and spectroscopically

identical. This work which, with the resulting hypotheses, has brought order to our understanding of the chemical properties of the radioelements, is second only in importance to the disintegration hypothesis of Rutherford and Soddy, which brought an explanation for the production and decay of radioactive substances. Soddy's and Fajan's work is not even mentioned in the last edition of Prof. Jones' book. The important work of Moseley, and Rutherford and Andrade on X-rays and gamma rays is not mentioned, and treatment of the more recent views as to the nature of the atom is limited to two paragraphs of eleven lines.

Data are still quoted which are now known to be incorrect (heat produced by radium, pp. 110 and 117; and the volume of a curie of emanation). Many pages are devoted to the discussion of subjects about which there is now not the uncertainty that prevailed in 1905. For example, the general reader may find it somewhat confusing to read several pages of argument and hypothetical reasoning which prove that Runge and Precht's calculated value for the atomic weight of radium, 257.8 (which is based on the spectrum lines of radium and certain relations between the series spectrum lines of elements and their atomic weight) is correct, while the directly determined value, of about 225, is incorrect, and then find in the last six lines at the end of the chapter, the results obtained by Mme. Curie, Thorpe, Gray and Ramsay, and Hoenigschmidt, all of which go to show that the lower atomic weight is correct. Errors have crept through uncorrected, as for example p. 96 (cf. also p. 115), where it is stated that "the alpha particle has a mass of the order of magnitude of about twice that of the hydrogen ion," and (pp. 73–96) the general statement that all of the radioactive substances give off alpha rays. This last statement is later qualified when specific radioelements are discussed.

The reviewer found many points to which exception could be taken. While the book contains much interesting matter for the general reader, there is much which is now superfluous, and the inadequate revision has been such as to lead to the possibility of confusion to the reader. It is no simple task to revise such a work so as to bring it down to date, and the method which has been adopted in this book of adding a few lines at the end of the chapter is exceedingly poor. It is the reviewer's opinion that this work as presented in the first edition is far better than in this so-called revised edition, since in a "revised edition" one would infer that the work had been revised, and this is decidedly not the case.

C. H. VIOL.