

tating its execution and by eliminating the danger of breakage, that it seems worthy of public record.

Another change adopted, following naturally from the first, is the use of a cone-shaped asbestos chimney placed upon the alcohol lamp, to render the flame steady and to render possible the heating of the beaker entirely *over* (instead of partly *in*) the flame, thus avoiding all deposition of soot.

An aluminum beaker of 300 cc. capacity (commonly catalogued as 250 cc.) is used and during the heating is held by a Chaddock clamp or beaker-holder, without rubber covering.

With genuine butters the manipulation is, in a general way, similar to that of the glass tube as described in my former paper; but with renovated butters the beaker is held in a nearly horizontal position, to prevent loss by spattering, and a light glass rod—weighed with the beaker of course—is used for breaking up the lumps of curd that tend to form. In this way the curd is entirely freed of water with little or no discoloration.

Ten grams of butter are sufficient for a charge, and a cream testing balance sensitive to 10 mgms. is sufficiently accurate for the weighing, if protected from air currents.

Following are a few fairly representative results taken from the many I have obtained on both creamery and renovated butters.

Creamery Butters.		Renovated Butters.	
Al. Beaker Method.	Official Method.	Al. Beaker Method.	Official Method.
14.40	14.38	13.20	13.14
13.55	13.32	13.40	13.33
18.60	18.64	16.30	16.25
18.75	18.63	11.30	11.25
12.90	12.97	12.60	12.66
13.40	13.41	16.70	16.55
12.75	12.85	10.40	10.25

DAIRY LABORATORY, BUREAU OF CHEMISTRY,  
Washington, D. C.

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G. E. PATRICK.

## NEW BOOKS.

THE ELECTROLYTIC DISSOCIATION THEORY. PROF. A. ABEGG. Translated by Dr. Carl von Ende. 180 pages. Price \$1.25. Wiley & Sons, New York.

This little book gives a resumé of the electrolyte dissociation theory. The introduction gives the evidences for dissociation in solution, then follows a chapter on equilibria among the ions. Seventy-five pages are devoted to equilibrium among several electrolytes and to hydrolysis. Non-aqueous solutions, influence of temperature and pressure on dissociation and the ionization tendency of the elements make up the last chapters.

We find here the useful and favorable side of the electrolytic dissociation theory presented in a logical order. The serious discrepancy

between the dissociation of strong electrolytes and the requirements of the law of mass action are considered at the end of the chapter on equilibria among several electrolytes and the various attempts to account for this are given. The idea, that the methods of determining the amount of dissociation are at fault, does not harmonize with the previous attempts to show that the various methods of determining the dissociation give concordant results. The last chapters touch on some of the difficulties encountered by the theory in non-aqueous solutions, many cases of instantaneous reactions are known although the solutions show no measurable conductivities. It is pointed out that the ions have a very great capacity for reaction so only small dissociation is needed and in view of the great influence of water on the rate of a chemical reaction, it is necessary to show in these cases that this substance is really absent. To the opponents of the theory it is suggested that "we are not accustomed to tearing down a habitable house and putting ourselves out on the street because a few rooms are illy lighted, unless it be we can move into a better one."

As collateral reading for a course of lectures or for students in analytical chemistry this little book should find a place. The equations are developed very simply and the beginner will find here explanations of many things which would otherwise be "rule of thumb." If the beginner lacks a sufficient knowledge of electrochemistry to comprehend some of the points, it is probable that too much detail would cause him to lose interest or miss the main relations. If it appears to some that undue prominence is given to the favorable side of the theory at first, it is to be remembered that this is more or less customary. The beginner learns for example that the volume of a gas is inversely proportional to the pressure to find later that this holds only for restricted domains of a comparatively few gases. The translation seems to have been well done. It is more usual to use the term "cell" than a literal translation of the german "kette."

Geo. A. Hulett.

ELECTROCHEMISTRY. H. DANNEEL. Translated by Dr. E. S. Meriam. 181 pages. Price \$1.25. Wiley & Sons, New York.

The author considers that theoretical chemistry and electrochemistry are so intimately related that a knowledge of one presupposes a knowledge of the other. In treating the subject from this standpoint the author has emphasized the fact that the development of electrochemistry has materially affected our chemical theories and that it is an important aid in the investigation of chemical problems.

Work, current and energy are the first subjects treated. Seventy pages are devoted to a consideration of chemical equilibrium, the theory of electrolytic dissociation and conductivity. The treatment of these subjects is necessarily brief. The beginner must take much for granted, particularly in the development of equations, but there is here a good review for the