

TABLE III.

No.	Material	Chlorinations	Per cent. of Cellulose
1	White oak, sapwood.....	1 hour, 20 minutes and to bleach	55.90
2	" " " .....	" " " " " "	56.34
3	" " " .....	" " and to bleach	56.40
4	" " " .....	" " " " " "	54.79
5	Red cedar, " .....	30 minutes and to bleach	42.04
6	" " " .....	" " " " " "	41.51
7	" " heartwood.....	" " " " " "	42.52
8	" " " .....	" " " " " "	43.00
9	Red spruce " .....	10 minutes and to bleach	58.95
10	" " " .....	" " " " " "	58.60
11	Cherry, sapwood.....	" " and to bleach	54.72
12	" " " .....	" " " " " "	54.43

The final products were all pure white, and none of them gave the lignin reaction with phloroglucinol and hydrochloric acid.

In conclusion, we desire to acknowledge our indebtedness to Mr. D. C. Parmelee for valuable assistance given us in the analytical work.

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### NOTES.

*On the Determination of Fluorine.*—When fluorine is determined by the Berzelius<sup>1</sup> method the results vary and are considerably too low. Seven determinations gave 76 to 94 per cent. fluorine as calcium fluoride. I repeated the work of Seeman<sup>2</sup> but without being able to find where the loss occurred. Fusing the fluoride with sodium peroxide in a nickle crucible gave no better results. Fourteen determinations, gave 81.4 to 94 per cent. of calcium fluoride taken. I am led to believe that some of the fluorine is retained in the fusion residues as a complex fluoride<sup>3</sup>, probably in combination with silica.

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*The Rapid Determination of Water in Butter. Aluminum Beaker Method.*—In the November (1906) Journal,<sup>4</sup> I described a method for the rapid determination of water in butter, of sufficient accuracy for factory purposes, which consisted merely in boiling the water off from a weighed portion of butter contained in a wide test-tube heated by the naked flame of an alcohol lamp. Very shortly thereafter I made a seemingly slight modification in the method, by adopting the use of an aluminum beaker in place of the test-tube—a mere change in utensil, but a change which so greatly improves the method, both by facili-

<sup>1</sup> Pogg. ann. 1, 169; Schweigg. Jsb., 16, 426; and Treadwell: Kurges Lehrbuch d. Analyt. Chem., Bd. II, 2te, Auf., p. 326.

<sup>2</sup> Z. Anal. Chem., 44, 369 (1905).

<sup>3</sup> Z. Anal. Chem., 33, 505 (1904); Z. Anorg. Chem., 51, 168 (1906).

<sup>4</sup> This Journal, v. 28, 1611.

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

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### 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