shape and the ends introduced into the glass tubes. These are then gently heated until the wax melts. The ends of the steel wire should reach down as far as possible into the glass tubes to insure strength.

GRASSELLI, N. J., Feb. 18th, 1907. IVAR HOEL.

A Rapid Method for the Estimation of Acetone.—In order to be able to estimate rapidly the acetone content of the distillate from crude wood naphtha during rectification, the author has adapted the well-known Messinger method (*Ber.*, **21**, 3368; see also Kebler, This Journal, **19**, 316 (1897),) so that the burette readings give the number of grams of acetone in 100 cc. (sometimes expressed as per cent.) directly.

Procedure.—Put 10 c.c. of 2N sodium hydroxide solution into a wide-mouth glass-stoppered bottle, then add exactly 1 c.c. of the alcohol to be examined, shaking; next add 50 c.c. of the standard iodine solution while shaking; after three minutes acidify with dilute sulphuric acid (use about 2N H_2SO_4); now add starch indicator and titrate back with standard thiosulphate solution. The number of cubic centimeters of iodine solution used by the acetone gives the number of grams of the latter in 100 c. c.

For the back titration the writer uses a burette graduated from 0 to 50 c. c. in $^1/_{10}$, beginning at the bottom; after titration, the burette reading gives grams of acetone in 100 c.c. directly, avoiding a subtraction of the reading from 50.

In accordance with the equation:

$$(CH_3)_2CO + 3I_2 + 4KOH = CHI_3 + K(C_2H_3O_2) + 3KI + 3H_2O.$$

0.01g of acetone requires 0.1312 g. of iodine. A standard iodine solution is, accordingly, prepared to contain 131.2 g. of iodine in one liter; the standard thiosulphate solution is prepared of equivalent strength.

This method is intended for spirits in which the acetone is high, but does not exceed 50 %. In cases where the acetone does not run over 25 %, a 25 c.c. burette, graduated from the bottom, should be used for the thiosulphate solution, and of course only 25 c.c. of the iodine solution are used. For solution containing 5 % or less of acetone, 10 c.c. of the sample may be taken, using the 50 c.c. burette; readings in this case are 0.1 % for each c.c. iodine used. ALBERT P. SY.

UNIVERSITY OF BUFFALO.

The test for formaldehyde in milk by Leach's modification of the hydrochloric acid and ferric chloride test.—Recently the government inspector took some samples of milk from our house and had them examined by the government pure food chemist. He reported that he found formaldehyde in the milk. We tested some of the milk from the same source (but not the same lot) and found no formaldehyde. Later he reported

formaldehyde again and asked me to step over to the laboratory and see the results. The milk was clotted but sweet, and I found that salt had been added by ourselves to prevent the milk from freezing and to keep it from being used for drinking purposes. The proportion was about four pounds to ten gallons of milk, but I think more than that was present. On performing the regular test by taking 10 c.c. of the milk and 10 c.c. of the hydrochloric acid containing the small amount of ferric chloride, and heating them together, it was noticed that the curd did not dissolve as well as usual and floated on top of the mixture. At the time when the coloration should appear it did appear *in the floating curd* but not throughout the body of the liquid. The regular violet coloration was obtained in the curd and what stuck to the sides of the casserole, but the main solution remained a brownish color. I then returned to my own laboratory and made some experiments the results of which clearly show that milk free from formaldehyde and which gives no suspicion of a violet coloration, when mixed with sufficient salt and then the test performed, gave a strong violet coloration in the curd or floating particles, but not throughout the solution. Such coloration would usually be interpreted to mean adulteration with formaldehyde. I presume the salt raises the boiling point and also makes a more concentrated solution, but, however that is, chemists should be on their guard about reporting or interpreting any test as indicating formaldehyde, unless the whole solution is violet colored and unless the curd is all dissolved. Other things besides salt may cause the same conditions. WILSON H. LOW.

A One-piece Test-tube Stand.—The test-tube stand described in the accompanying drawing is the result of a series of modifications of one originally designed by Prof. J. H. Appleton, of Brown University. It has been in use for several years and has many advantages over the usual form.

There are several objections to the test-tube rack in common use. The principal ones, probably, are cost ; weight, which may account for its well-known and often exasperating habit of falling over when loaded, and the tendency to go to pieces under the influence of misplaced drops of various reagents.

This stand is made in one piece, of either pine or poplar, but any sound wood will answer, and weighs from 700 to 1,000 grams. After planing long pieces to the desired size, the holes were made with a gang-drill, the grooves cut on a moulding machine, then the stand cut off after every sixth hole and dipped once in shellac.

Little further description is necessary, as all the dimensions are indicated in the drawing. The large opening M, at the sides, permits a clear