

These are some of the advances the year has brought forth. The prevailing demand for material of every description in the arts is encouraging and must stimulate further progress, and we may reasonably believe that the near future will be fruitful in new discoveries.

WM. MCMURTRIE.

NOTES.

*Chemical Detection of Vegetable Fibers.*¹—This process rests on the property which cellulose possesses of transforming itself under the action of sulphuric acid into carbohydrates, possessing an aldehydic function, which can easily be detected by the colored reaction it gives with the phenols.

The sample to be examined—suppose it to be a piece of woollen goods in which the cotton is to be detected—is, after careful washing, treated by sulphuric acid at 20° B. and heated one-half hour over the water-bath. The imperfect solution is then diluted and the carbohydrates looked for in the following way: In a test-tube about one centigram of a phenol—say resorcine—is introduced, one or two cc. of the preceding solution added, and concentrated sulphuric acid perfectly free of nitrous products poured along the side of the tube, so as not to mix it with the solution therein. The heat evolved is generally sufficient to develop a coloration at the plane of separation, and the intensity of this color can be increased if necessary by gentle heating in the water-bath. If this product resulting from the treatment of cotton is brought up to 1 part in 1000, the resorcine will give an orange, the alpha-naphthol a purple, the gallic acid a green, becoming gradually violet down in the acid, the hydroquinone and the pyrogallol a brown, the morphine and codeine a nice lavender, the thymol and menthol a pink color, etc.

The extreme sensitiveness of these reactions allows us to characterize cotton, even in dyed goods, using bone-black to decolorize the solution if absolutely necessary. An approximation as to the quantity of cellulose can be obtained by comparing the intensity of the coloration to the one given by a solution of cotton of a known strength.

As we have lately indicated, the oxycellulose, owing to its aldehydic function, gives, too, with the phenols, colored reac-

¹ Read before the Rhode Island Section, June 15, 1899.

tions and could be used to characterize the cellulose, but in the presence of wool, the formation of oxycellulose is more difficult than the transformation of cellulose into carbohydrates.

EDM. JANDRIER.

Repairing Beckmann Thermometers.—It often happens that a Beckmann thermometer is broken, leaving the inner tube, containing the mercury, intact.

I have repaired such breaks as follows:

Select a piece of glass of the same kind as is used in the thermometer (usually Jena glass) of sufficient length to take the full length of the scale, plus the length necessary to make the joint come below the scale. This is necessary in order to avoid a joint opposite the scale which would make the reading inaccurate or impossible.

Cut off the broken end at the proper point, and wrap the inner tube with a piece of asbestos three or four inches long, tying it on with a piece of wire. Slide the asbestos down until the middle of it is opposite the place where the joint is to be. Slip the large tube over the inner tube and make the joint with a small flame from a blast-lamp. Cool, and dissolve the wire from the asbestos in a suitable acid. Wash out the asbestos, and dry with alcohol and ether. Insert the scale and put on the cap.

The thermometer is practically as good as new if the joint has been properly made. Anyone who can make a *good* joint can repair a thermometer in this way.

J. C. CHRISTENSEN.

NEW BOOKS.

INDICATORS AND TEST-PAPERS: THEIR SOURCE, PREPARATION, APPLICATION AND TESTS FOR SENSITIVENESS. A *Résumé* of the Current Facts regarding the Action and Application of the Indicators and Test-papers which have been Proposed from Time to Time, and are in Present Use in Chemical Manipulations, with a Tabular Summary of the Application of Indicators. Designed for the use of Chemists, Pharmacists, and Students. BY ALFRED I. COHN, PH.G. New York: John Wiley & Sons. 1899. pp. ix + 249. Price, \$2.00.

A practically very useful compilation of the methods of preparation, uses, and tests for a very large number of indicators and