

approximation to the true specific rotation was got in each instance by determining with Fehlings's liquor how much sugar was contained in 100 cc. of the impure product of the hydrolysis and calculating from this factor and the observed angle of rotation an approximation of the specific rotation, called by the author "*quasi* (α)," The values thus obtained fall somewhat higher than the true specific rotatory powers. As the result of many trials, no other sugars than xylose and dextrose were detected; but it was observed when the woods or the cotton were first treated with strong sulphuric acid, that considerable quantities of the wood dextrin of Bechamp (subsequently studied by Honig and Schubert and others) was formed, and that this dextrin is not readily changed to sugar by hydrolysis. Serious doubts are thus cast on the conclusions of those chemists (notably Fleschig and Winterstein) who have claimed that cellulose may be readily and completely changed into dextrose by treating with strong sulphuric acid and subsequent hydrolysis after diluting with water.

ASSAYING.

H. O. HOFMAN, REVIEWER.

The Calkins Empire Ore Sampler. BY THE EDITOR. *Eng. Min. J.*, 71, 534.—This continuous sampling machine consists of two buckets, one above the other, revolving in opposite directions. Each bucket has a central cone from which four radial partitions extend to the sides, thus giving four sectorial divisions, of which two are closed and two open at the bottom. Of 16 pounds of ore fed into the machine, 8 pounds remain in the upper bucket, 4 pounds go into the lower bucket and 4 pounds pass as sample into the receiver below. The machine is 3 feet, 7 inches high and weighs 55 pounds; it is easily cleaned. The claims made for it are too great, since its use must be limited, as is the case with all continuous sampling machines.

The Use of Iron in Assaying. BY R. W. LODGE. *Eng. Min. J.*, 71, 329-330.—The author corrects the statement made editorially in a previous issue of the same journal (70, 734) that iron sulphide, formed in assaying sulphurous ores, is oxidized and fluxed. He shows that the amount of matte which will separate out is governed by the amount of alkali added to the charge; in fact, that with a sufficient amount of alkali, the whole of the matte will be held in solution or suspension. In the assay, all the sulphur, however, does not combine with the iron and the alkali; part of it is oxidized and passes off into the air.

Braun's "Coronet Rolls." BY THE EDITOR. *Eng. Min. J.*, 71, 435-436.—These rolls, $2\frac{1}{2}$ inches in diameter and $1\frac{1}{4}$ inches wide, are made of hardened steel and run in phosphor-bronze

boxes; both rolls are operated by one crank; a feed plate at the front facilitates the insertion of a small button and a second plate at the back, closely wiping the bottom roll, prevents the cornet from dropping on the floor. The net weight of the machine is 57 pounds and the weight, when boxed for shipping, is 85 pounds.

TECHNICAL CHEMISTRY.

F. H. THORP, REVIEWER.

The Chemistry of Insecticides. BY F. T. SHUTT. *Canada Exp. Farms Rept.*, 1899, 148-149.—An analysis of a sample of Paris green indicated 44.2 per cent. of arsenious acid, of which 4.56 per cent. was soluble in water. An emulsion of kerosene and crude carbolic acid with some soap, was found effective in destroying borers and bark lice. The addition of copper sulphate to the emulsion caused separation of the emulsion constituents and is not to be recommended. Addition of a strong tobacco decoction to Bordeaux mixture caused separation of the constituents, but only after standing some time. If used fresh, this would not injure the Bordeaux mixture.

Comparative Hide-Powder Tests. BY W. H. KRUG. *Leather Mfr.*, 12, 10-11.—The hide-powder made by the Vienna Experiment Station having given unsatisfactory results recently, and being found acid in its character, the author and two others, undertook test analyses on quebracho extract, using the same sample, and employing hide-powder of the above-named make. Trials were made with the powder as furnished (*i. e.*, acid), and also after neutralization with sodium carbonate. The tabulated results show close concordance with the unneutralized powder; but after neutralization the absorption power of the powder decreases; the filtrate is turbid and contains tannin. After neutralization, twice as much powder is required in order that the filtrate may be free from tannin. A method of neutralizing and washing the powder is also described.

Comparison of the International Filter-Tube Method and the Official Hide-Powder Method. BY H. W. WILEY AND W. H. KRUG. *Leather Mfr.*, 12, 9-10.—Test analyses on identical samples of oakwood extract, chestnut extract, mimosa extract, solid quebracho extract, valonia, and mimosa bark, were carried out by the filter-tube method in Prof. Procter's laboratory, and by the official method in the laboratory of the U. S. Dept. of Agriculture. The results of both series of tests are tabulated and show that the filter method gives lower non-tannins than the official method, and correspondingly higher tannins.

Concerning Retene, Petrolene, and Asphaltene. BY S. F.