NOTES

Historical Note on the Equilibrium between Methanol and its Decomposition Products.—In a recent paper[1] Messrs. B. S. Lacy, R. G. Dunning and H. H. Storch state that my determinations of the equilibrium constants of the reactions

$$2H_2 + CH_3OOCH \longrightarrow 2CH_3OH \quad (1)$$

and

$$CO + CH_3OH \longleftarrow CH_3OOCH \quad (2)$$

were carried out later than 1922.

May I be allowed to state that the work contained in my paper[2] published in 1926 on Reaction 1 was carried out during the spring of 1917 by myself, and the work on Reaction 2 during the spring of 1918 by Mr. Arne Olsen and myself.

I may perhaps add that my equations are expressions of the concentration constants and thus may be easily transformed into equations for the pressure constants without recalculation of the single experimental values and finally that Lacy and co-workers have included in their Fig. 1 my experiments Nos. 16 and 17, which as stated in my paper, ought not to be included on account of obvious loss in activity of the catalyst.

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A Note on the Preparation of Silver-Free Copper.—The preparation of standard solutions for the estimation of small amounts of silver in copper spectrographically requires silver-free copper. A number of commercial samples of copper were tested and all contained silver. Even one obtained from England which the vendors stated was apparently silver-free gave a spectrogram which showed distinct silver lines. It was therefore deemed advisable to experiment on the separation of the last spectrographic traces of silver from copper. The following procedure successfully accomplished this result.

Commercial copper sulfate was recrystallized three times and a spectrogram made from it showed only a small amount of silver (about 0.004% was found later). Four hundred grams of this recrystallized sulfate was made up to two liters with 5% nitric acid, the solution divided into eleven portions and electrolyzed for one hour between platinum electrodes with a current of 0.05 ampere at seven volts. The electrodes were removed from the solution, washed, and the small deposit was dissolved in nitric acid. The clean electrodes were put back into the solutions and the electrolysis con-

[1] Lacy, Dunning and Storch, THIS JOURNAL, **52**, 926 (1930).
[2] Christiansen, *J. Chem. Soc.*, 413 (1926).