

will not separate out but will interfere considerably with the electrolysis later; it will in that case not only settle out at the anode, but will in fact contaminate the nickel on the cathode, not as loosely settled dioxide but alloyed with the nickel. When, on the other hand, the manganese is precipitated by ammonia in the hot solution, the nickel is to a small extent carried along with the manganese, but I have in all my experiments never found the nickel, lost in that way, amount to more than one to one and a half per cent. of the amount of nickel present in the steel.

How this modification of the old process compares with the original a few results will show.

In a nickel-steel, containing 3.50 per cent. nickel, determined by the old process, the amount found by the modified process in five different analyses was: 3.42 per cent.—3.51 per cent.—3.48 per cent.—3.51 per cent.—3.43 per cent., and in another steel containing 0.19 per cent., the following amounts were found: 0.18 per cent.—0.19 per cent.—0.19 per cent.

The time necessary for analysis of this kind I have found to be about eight hours. Thus, if the analysis is commenced at 8 A.M. the solution will be ready for electrolysis at twelve o'clock, or before; with seven or eight Grove cells in good condition the analysis should be concluded at 4 P.M. I have invariably commenced at noon and left my cylinder over night on four Grove cells, the separation of iron from nickel being completed about four o'clock, or sometimes a little later.

A CORRECTION.

BY H. L. PAYNE.

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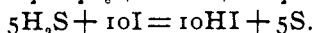
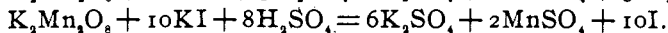
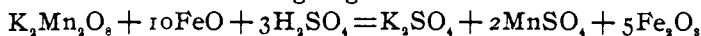
IN the *Journal of Analytical and Applied Chemistry* for September, 1892, 6, No. 9, I published 'A Method for the Preparation of a Standard Iodine Solution,' and on page 482 I have taken the molecular weight of two atoms of iron as 128 instead of 112. This singular error which vitiates the entire calculation following it, has been called to my attention by several readers and I desire to correct the mistake and again call attention to the method itself. If any one has been unfortunate

enough to take the figures just as I gave them, he has no doubt been disappointed with the method. To such I make a humble apology and ask that they try again using the following changes.

The relation between the iron and the sulphur value of a permanganate solution is 112 to 32 or 7 to 2 instead of 8 to 2 and of a phosphorus permanganate solution with an iron value 6, 141, 285 cc. should be taken to make one liter of iodine solution titrating 0.01 per cent. S on five grams iron, instead of 325.7 cc.

To make the whole matter clearer I may state the process of computation in a more general form making use of the atomic weights 56.00 for Fe and 32.06 for S. To make an iodine solution titrating exactly 0.0001 grams S per cc.—0.01 per cent. S per cc. on one gram of substance taken—divide 349.34 by the iron value, *i. e.*, the grams per liter or milligrams per cc., of the permanganate solution to be used. This gives the number of centimeters of such a solution to be used in making one liter of iodine solution. If more than one gram of substance is taken, multiply the number accordingly: thus for a permanganate solution whose iron value is 0.005 grams Fe per cc., take 69.87 cc. to one liter, or if five grams of iron or steel be used in the sulphur determination, take 349.34 cc. per liter.

The reactions in the foregoing method are as follows:



therefore $\text{K}_2\text{Mn}_2\text{O}_8 = 10\text{Fe} = 10\text{I} = 5\text{S}$,

or $2\text{Fe} = \text{S}$.

I hope now that this method has been correctly presented to the readers of THE AMERICAN CHEMICAL JOURNAL, that it will be made of the service which I believe its simplicity and accuracy deserves. I have tried it for over three years and have never had the slightest trouble.

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