IRON AND STEEL.

EDITED BY P. W. SHIMER.

A MODIFICATION of the stannous chloride method for iron titrations has been proposed by R. W. Mahon (*Am. Chem. J.*, **15**, 360): If mercuric and platinic chlorides are added to a solution of ferric chloride, strongly acid with hydrochloric acid, at or near the boiling point, stannous chloride reduces all the iron first, and the first drops in excess cause the formation of a faint cloud of mercurous chloride, darkened and rendered instantly perceptible by finely divided mercury and platinum which are precipitated at the same time. A very minute trace of platinic chloride present in solution is sufficient to bring about this reaction. This mixture, then, of mercuric and platinic chlorides, is an indicator which can be used to advantage in titrations of iron by stannous chloride. The indicator can be made from solutions of platinic chloride and mercuric chloride to contain in one liter, 0.05 gram metallic platinum and 34.0 grams mercuric chloride. Fifteen cc. is a suitable quantity to be used in each estimation.

The standard solution of ferric chloride is advantageously made of such strength that one cc. contains 0.01 gram iron, the stannous chloride solution of approximately the same strength. The determination of iron in its ores is made as follows: Weigh accurately about one gram of ore into a 250 cc. beaker. Cover with a watch glass and digest in twenty cc. hydrochloric acid of 1.20 sp. gr. until decomposed. Add now 0.3 gram of potassium chlorate and digest a few minutes longer. The glass and rim of the beaker are washed down into the solution, which should now be about forty cc. in volume. It is filtered and washed into an Erlenmeyer flask; twenty to thirty cc. hydrochloric acid of 1.20 sp. gr. are added to the solution bringing its volume up to about 125 cc. Now add fifteen cc. of the indicator solution and it is ready for titration. Heat the covered solution to boiling. The trace of chlorine remaining escapes. Lower the light and titrate at incipient boiling. The burette should be of 100 cc. capacity.

The residue is prepared for titration by fusing with sodium carbonate, extracting with water and acid, and adding fifteen cc. indicator.