media of many of the colorimetric solutions, is rapidly disintegrated, and the tube will have to be replaced by another until repaired. When a colorimeter is in almost continued use, this loosening of the cement is very troublesome and the more faulty tubes with permanent glass bottoms above described have been found on the whole to be the most satisfactory for routine work in the laboratory and especially so for the field work, reserving the more perfect tubes with cemented bottoms for use in occasional research problems in the laboratory.

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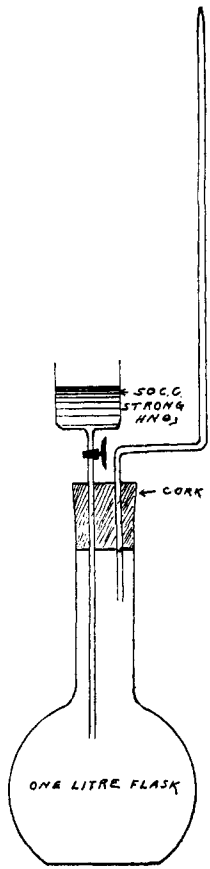
NOTES.

Note on the Gravimetric Determination of Sulphur in Iron and Steel.—In the gravimetric method for the determination of sulphur in iron and steel, the well-known danger of escape of unoxidized sulphur during the period of the violent action of the solvent nitric acid on the drillings may be obviated by the following method of solution.

Five grams of drillings are placed in a liter flask fitted with a doubly perforated cork. In one perforation is fitted a funnel-tube with a stop-cock. In the other is fitted a piece of quarter-inch glass tubing which extends about eighteen inches above the flask and is drawn to a point at the end out of the flask. The stop-cock being closed, introduce about 50 cc. strong nitric acid into the funnel tube. Open the stop-cock so that the acid runs into the flask at a rate not greater than two drops per second. When all the acid has passed into the flask, shut the stop-cock and heat the flask gently until solution is complete. The solution is then transferred to a dish. It is advisable to char the cork on its smaller end to prevent the oxides of nitrogen from acting on it.



After solution is complete the contents of the flask are transferred to a porcelain dish, the flask rinsed with concentrated hydrochloric acid, and the solution brought just to dryness, *not baked,* over a low flame. The residue is dissolved in 40 cc. of concentrated hydrochloric acid, evaporated nearly to dryness, diluted and filtered. The filtrate is heated to incipient boiling and 10 cc. of a 10 per cent. solution of barium chloride are added. The solution is again evaporated till crystals of ferric chloride appear, diluted with 175 cc. of cold water and allowed to stand six hours at room temperature or two hours in running water. We have found this precaution very necessary because of the solvent action of an acid solution of ferric chloride upon the barium sulphate.

In our experience, when the drillings are fine and solution is effected quickly, the evolution method gives with *foundry* irons results which agree very closely with those obtained by the gravimetric method.

The following results illustrate the concordance of the two methods:

	Evolution method. Titration with iodine of theoretical strength.	Gravimetric method as described.
1	0.078	0.079
2	0.083	0.083
3	0.108	0.109
4	0.073	0.072

The same agreement cannot, of course, be obtained with mottled or white irons.

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Note on the Atomic Weights of Carbon and Beryllium.—At the Philadelphia meeting of the American Chemical Society, Prof. F. W. Clarke, chairman of the International Committee of Atomic Weights, called my attention to the fact that my determinations of the equivalent of beryllium[1] being made on two compounds containing the same elements could be calculated entirely independent of the accepted factor for carbon; that the atomic weight of carbon could likewise be obtained independent of that of beryllium from the general average of the same determinations; that then both would depend solely upon the accuracy of the work itself and upon the accepted ratio between hydrogen and oxygen, and that a good value thus obtained for carbon would be excellent confirmation of the accuracy of my results on beryllium.

[1] This Journal, **26**, 721.