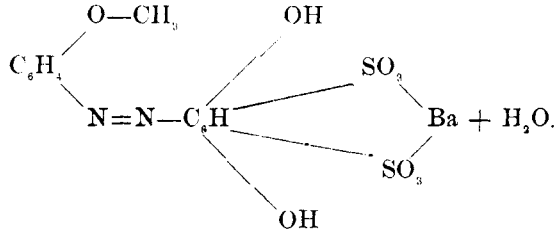
BARIUM SALT.



This interesting salt, was obtained, by dissolving the free acid in hot water and treating with an excess of Ba Cl_2.

The precipitate formed was collected on a filter, washed and dissolved in boiling water, from which it crystallized on cooling in fine, yellow, star-grouped needles.

In transmitted light this salt has a yellow color, but in reflected light a brick-red shade.

It is sparingly soluble in cold, but readily soluble in boiling water, from which it crystallizes with one molecule water of crystallization.

A barium estimation gave :

Barium.....24.56%

THEORY.

Barium.....24.56%

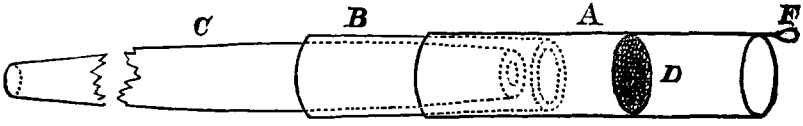
ON A NEW DEVICE FOR DETERMINATION OF CARBON IN CAST IRON.

By A. A. Breneman, S. B.

The carbonaceous residue obtained when cast iron is dissolved is commonly transferred with the mass of asbestos sering as a filter to the combustion tube. To avoid accidents incident to this transfer, and to ensure the combustion of refractory portions of graphite, the writer has adopted the modifications of the process described below. A brief note upon the process was read at the meeting of the American Association in 1879, but the success attending its use since then by students under the writer's direction, as well as the introduction of some minor improvements, has led him to believe that a fuller description of the process might be useful to others. The process depends in the main upon the use of combustion tubes of porcelain, and the employment of a small tube of platinum as a

filtering tube, which is subsequently put with its contents into the combustion tube and heated in a stream of oxygen in presence of cupric oxide in the usual way.

The details of the filtering apparatus will be best understood from the figure.



A is a tube of moderately thick platinum foil, somewhat thicker than that used in blowpipe work. B is a piece of soft rubber tubing fitting snugly within A. C is a piece of glass combustion tubing, tapered at each end as shown, and having a length of about 12 c. m. Other dimensions are as shown in the figure, viz., A 45 × 13 m. m., B 40 m. m. in length. A may vary in dimension according to circumstances.

The apparatus is connected together by pulling or pushing the tube B over the tapering end of C after it has been loosely inserted in A. All pressure upon A is thus avoided. The joint is air-tight. When not in use A is slipped over a piece of glass tubing of proper size to protect it from injury. The loop F serves to introduce a slightly hooked glass rod by which A is moved into the combustion tube or withdrawn from it. The disc D is of platinum foil, perforated, and when in use rests on the end of B within A, and supports the asbestos used in filtration. A small funnel C serves to convey liquids to the filtering tube. The filter with its contents when dry is separated from B and C and introduced into the combustion tube, where it is heated in a current of oxygen as mentioned, in the usual way.

The tube A is easily made in the laboratory, being shaped over a piece of combustion tubing and soldered with gold leaf. It should fit snugly within the porcelain tube, so that oxygen may pass mainly *through* the filter and its contents. It is not difficult to find porcelain tube of a proper size to suit the platinum tube, and in case of difficulty the latter can be enlarged by rubbing it with a stout glass rod while held on a piece of combustion tubing or reduced in size by cutting and resoldering.

The use of porcelain tubes is of advantage not only because of the high temperature attainable, but also because the average *life* of such a tube is greater than that of a quantity of glass combus-

tion tubes costing an equal sum ; with the certainty of perfect combustion that is assured in their use, the convenience of seeing the substance under combustion disappears.

The tubes of platinum seem to suffer little in use. One of them has sufficed for about fifty combustions and is still perfectly good.

ABSTRACTS.

Abstracts from the *Journal of the Chemical Society*, London, by Arthur H. Elliott, Ph. B., F. C. S.

On Oxypropyltoluidine. By H. FOSTER MORLEY, M. A., Fellow of University College. (Vol. XL., p. 387).

Propylene oxide was dissolved in an equivalent of paratoluidine, and heated for hours on a water bath. On distilling no propylene oxide was obtained, but at 285°–288° a liquid was obtained, which afterward solidified and by crystallization from benzene gave the formula $N(C_3H_6O)(C_7H_7)H$. A better yield is obtained when the toluidine solution of propylene oxide is allowed to stand some days at ordinary temperatures. In the latter case 20 grms. of the base were obtained from 46 grms. of toluidine. Oxypropyltoluidine melts at 74° and boils at 293°. It is insoluble in water, soluble in benzene, ether, alcohol, and petroleum. Dissolved in solution of oxalic acid it gives crystals of the formula $C_{10}H_{15}NO,H_2C_2O_4$, which melt at 151°. On heating the oxalate to 150° it melts and gives off water, carbonic oxide, and carbonic acid, leaving a syrup.

Author also gives a description of the distillation of oxypropyltrimethylammonium hydrate. This base (see *J. C. S.*, Vol. XXXVIII., p. 877) resembles neurine when heated giving trimethylamine, propylene-glycol with other liquids, and carbonic acid.

On some Halogen Compounds of Acetylene. By R. T. PLIMPTON, Ph. D. (Vol. XL., p. 391).

The acetylene was obtained by Jungfleisch's method from coal gas. By passing the acetylene through bromine the author obtained the tetrabromide and a solid C_2HBr_3 melting at 174°. By treating the tetrabromide in alcohol with zinc powder the dibromide was made ; it boiled at 110–111 and at 17° was still liquid. Its specific gravity at 0° C. was 2.268. The di-iodide was made by passing acetylene over iodine wet with alcohol. Crystallized from alcohol, it