The analysis of the Fuel Gas by volume is :

CO_2	5.0 per cent.
O	0.5 "
CO	37.5 "
CH_4	.9 "
H	48.0 "
N	7.1 "

Such gas supplied to consumers is practically odorless.

WILLIAM P. MASON.

RENSSELAER POLYTECHNIC INSTITUTE.

December 1, 1888.

METHOD OF DETERMINING INDIGOTINE FOR COMMERCIAL PURPOSES.

By F. A. OWEN. (Communicated by A. H. SABIN.)

Shave from the sample two or three grms. fine enough so that 1 grm. can be weighed with exactness ; place this 1 grm. on a watch glass and dry at 100° C. When dry, transfer it to a glass mortar and grind as fine as possible dry, then add water and grind to a very thin paste, which is then washed into a 250 c.c. flask. To this add 3 grms. zinc dust and about 6 grms. NaOH, and fill a little above the mark, as the volume diminishes, in an hour or two. The reduction takes place in half an hour to two hours ; the flask should be shaken occasionally and when the solution has become green the reduction is complete. If allowed to go too far reddish or brownish streaks appear, which indicate a loss of indigotine. Hydrogen is not given off until the reduction is completed, and froth indicates too much zinc. When the reduction is complete, draw off 50 c.c. of the clear liquor, let it stand exposed to the air half an hour, acidify with HCl, filter through a carefully washed filter, dry at 100° C. and weigh. It is not necessary to take any special care to prevent absorption of moisture in the balance pan. Indigo often loses 20 per cent. in drying, and dry indigo is of good quality if it yields 60 to 62½ per cent., but samples are met with yielding 80 per cent. after drying. The results of this method are in agreement with those obtained in a lime and copperas vat under good management.