

to measure the total gas production, and no main long enough to give satisfactory Pitot tube readings, it was impracticable to do more than estimate the gas handled by the number of tons of coal used per day. An approximate check, also, was obtained from comparing the total tar produced with that collected in the treater. Assuming that 60 per cent. of the total tar comes down in the collecting main, the rate of tar collection in the treater indicated that it, the treater, would satisfactorily clean the gas produced from between 100 and 125 tons of coal per day. Taking 1,500,000 cubic feet as the total gas volume, this means a production of between 12,500 and 15,000 cubic feet of gas per ton of coal in the ovens. Average gas analyses indicate that this is approximately correct. It is not to be recommended that any installation should be made in which each pipe is required to handle more than a million feet per day.

Filtration measurements were made to determine the percentage efficiency of the cleaning, as compared with that given by the tar extractors of the plant; taking two milligrammes of carbon per cubic foot of gas as a satisfactory maximum, it was found that gas from the treater contained from one to three milligrammes per cubic foot, whilst gas from the outlet of the tar extractors showed from eight to nineteen milligrammes per cubic foot.

Character of By-products Collected.

The liquor collected in the treater consisted of tar at approximately 25 per cent water. The amount of water thus collected could be reduced, or possibly eliminated, by insulating the treater pipe, as the gas was well above the temperature at which the water vapour present would saturate it. After settling, the tar contained about $7\frac{1}{2}$ per cent of water.

The light-oil content of the tar collected in the treater was identical with that collected in the plant. Hence it appears, as was expected, that tar fog particles will not absorb appreciable quantities of light oil in cooling from 85°C. to 30°C. Presumably this statement does not apply to the smaller quantities of benzol present; this, however, would be saved in the benzol recovery plant.

The ammonia liquor collected in the cooler handling the treater gas was very much lighter than that produced ordinarily in the plant. The latter liquor contained an appreciable quantity of finely divided tar, that would settle if the liquor were undisturbed for any length of