

Another run of the generator was made, and the gas this time tested by Mr. J. Walter Wells. The analytical work was conducted at the gas works, but for the calorimeter determinations samples of the gas were taken in a large aspirator can from the gas-holder and tested at the School of Practical Science laboratory in the same Junker's calorimeter as was used at the works by Dr. Ellis in the experiments previously described.

In forcing the gas out of the can by in-running water some of the tarry vapors were lost by condensation, as was apparent on examination of the water from the aspirator. In all other respects, however, the method and apparatus worked admirably.

In the accompanying table of analyses on page 40, samples Nos. 1 to 11 are of the water-gas type, made by injecting a large excess of steam with a moderate air blast over the hot peat in the generator. Samples Nos. 12 to 16 are of producer-gas made in reheating the furnace charges, which were cooled by the flow of steam for the water-gas, by reversing the direction of the air blast through the generators and shutting off all steam. On leaving the holders this gas smelt very strongly of tar and contained considerable vapors.

Another similar Merrifield peat-gas generator was installed at the Trent Valley Peat Fuel Company's works, Kirkfield, to produce fuel gas for the dryer, but no tests were made with it, which is to be regretted, since it is said to have worked satisfactorily.

The original Merrifield generator, first set up at Toronto Junction, on which the above experiments were conducted, has since been removed and reinstalled at the Welland peat works, where, if desired, test runs may be made with it. Later the intention is to incorporate it as part of the peat works, to furnish fuel gas for boilers and dryers.

COST OF GAS PLANT.

From the prospectus of Peat Industries, Limited, concerning this method and all necessary apparatus for the production by it of peat gas the following is quoted:

"From one ton of compressed peat, analysing approximately: moisture 15 per cent., ash 7 per cent., fixed carbon 21 per cent., volatiles 57 per cent., valued at \$1.50 per ton delivered at gas retort, figuring wages at 20 cents per hour, and yearly depreciation at 6 per cent. upon value of machinery, and in a plant capable of producing 40,000 cubic feet of gas hourly, a yield will be had of not less than 100,000 cubic feet of fixed gas, carrying not less than 150 B.T.U. per cubic foot, at a cost not exceeding $2\frac{1}{2}$ cents per 1000 cubic feet. We will supply all apparatus and material for a plant producing not less than 20,000 cubic feet of gas per hour for \$5,000, exclusive of freights, cartage to site and erection; larger plants proportionately. Peat carrying up to 30 per cent. moisture may be used, but the yield of gas will be reduced about 1,000 cubic feet for every additional 1 per cent. moisture."

This estimate was made for gas plants situated at a distance from the bogs, to which the peat would have to be shipped, and which therefore must first be manufactured into compressed fuel. If the use of cut-peat be made possible by locating the gas works at the bog, or only at such distance that the peat could be economically transported thereto as cut peat, the cost of the fuel should not exceed 50 to 75 cents per ton.

The above experimental runs with the Merrifield generator were made on cut peat, and the analytical tests show that it gives high results. With compressed peat briquettes the advantages over cut peat would be smaller bulk and therefore less frequent handling, lower moisture content and consequently a higher calorific value.

There are many advantages to be gained in the use of peat by converting it into gaseous fuel, many of them appertaining equally to other gaseous fuels. While the consumption of the solid fuel involves a loss of heat of 25 to 30 per cent. or more, this loss, if the fuel be