

OIL.

The oil principally used has been once-refined British shale-oil and once-refined New South Wales shale-oil. Other oils have also been tested, including New Zealand petroleum from the Taranaki District, which latter gave very satisfactory results. It is hoped that soon there will be an ample supply of oil available from New Zealand crude petroleum from Taranaki, and shale-oil from Orepuki, the works for production of which are in a forward state. The landed cost of oil in 1899 was from 8½d. to 9d. per gallon. The average quantity of gas obtained per gallon of oil in 1899 was 74 cubic feet.

COST OF PRODUCTION.

The necessarily intermittent working, and the several small installations, increase the cost of production as against one large central station.

The additional storage capacity now being provided at gasworks will admit of longer periods of continuous gas-making, with correspondingly greater intervals of time at rest. By this means, the relative cost of heating up retorts, and attendance, will be materially diminished per 100 cubic feet of gas produced.

From tests made it is found that each single-burner consumes 0.75 cubic feet, the duplex-burner consumes 1.50 cubic feet of gas per hour, the actual working-expenses of production for each single-burner light of six-candle power costing ¼d. or the duplex-burner ½d. per hour for a steady light equal to twelve-candle power, as compared with the old system of lighting by kerosene lamps, costing ¾d. per hour for a varying light not exceeding eight-candle power. In other words, the Pintsch gas gives a third more light at a third less cost, or to obtain an equivalent volume of light from a kerosene lamp would cost 1½d., as compared with ½d. per hour for gas, the latter showing a proportionate saving of ¾d. per lamp per hour. Pintsch gas as compared with kerosene lighting has a further very distinct advantage, inasmuch as it is unaffected by draughts from open doors and windows.

For all installations during the year under review the average cost of gas per 100 cubic feet in cars was as follows: Exclusive of interest on and depreciation of fixed plant, 2s. 11d.; inclusive of interest on and depreciation of fixed plant the average cost per 100 cubic feet was 4s. 6d.; inclusive of interest on and depreciation of fixed plant, and also gas-fittings in cars, the average cost per 100 cubic feet was 7s. 4¾d.

At the latter rate gas burned in the duplex-burner Pintsch lamps, consuming 1.50 cubic feet per hour, would cost 1.33d. per lamp, or in a car equipped with four such lamps 5.32d. per hour. An equivalent light from kerosene would cost 5.92d. per car per hour, interest on, and depreciation of car equipment included.

Taking the Hurunui-Bluff section separately, as an example, the cost of plant and cost of working is as follows: Cost of two fixed plants and four travelling storeholders, £5,408; annual charges for working, including interest on and depreciation of fixed plant, £1,742; inclusive of interest on, and depreciation of fixed plant, the average cost per 100 cubic feet was 3s. 5¾d.; inclusive of interest on, and depreciation of fixed plant, and also gas fittings in cars, the average cost per 100 cubic feet was 5s. 7¼d.; total quantity of gas produced from the two works, year ending 31st March, 1900, 1,000,000 cubic feet.

The total cost of the several installations of the Pintsch gas system on the New Zealand railways up to the 31st March, 1900, and the cost of working, has been as follows: Cost of five fixed plants and seven travelling storeholders, £11,784; cost of fitting and equipping 439 cars, £21,666; annual charges for working all installations, including interest on and depreciation of fixed plant, £3,380; annual charges for working all installations, including interest on, and depreciation of fixed plant, also car equipment, £5,550; total quantity of gas produced during the year, 1,500,000 cubic feet.

BY-PRODUCTS.

Tar.—This is successfully used as fuel, by means of a steam jet and spray, for the gasworks steam-boilers, the grate being first covered with ordinary gas-coke.

Hydro-carbon.—There is not at present a local market for this by-product, and it is of too inflammable a nature to warrant transportation.

GENERAL.

After retorts become properly heated about 400 cubic feet of gas, at ordinary low pressure, are produced per hour at each installation with an hourly consumption of about 40 lb. of common gas-coke.

The cost of lighting 439 cars with gas, at 7s. 4¾d. per 100 cubic feet, amounted to £5,550 for the year, as compared with which a similar number of cars, fitted with oil-lamps, giving an equivalent volume of light, would have cost £6,160, all interest and depreciation charges included: a reduction of expenditure amounting to £610.

The first cost of equipment of cars for Pintsch gas is greater than for kerosene lighting, but the result of a year's working of Pintsch gas shows a direct saving, while at the same time a far more satisfactory and reliable light was obtained.

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