

Relative power developed with various qualities of gas is shown in diagram, Fig. 4, in which semi-water gas at 150 B.T.U. is taken as standard.

Producer gas of	110	B.T.U. = 90 H.P.
Semi-water gas of	150	" = 100 H.P.
Water gas of	300	" = 112 H.P.
Coal gas of	600	" = 117 H.P.

RELATIVE COST OF POWER.

In making a comparison of the costs of the various motive powers, to simplify the matter we will consider the question of fuel only, except in the case of illuminating gas, which we can only consider at its cost (\$1.00) per 1,000 cubic feet.

Gasoline.—The consumption of gasoline in a gasoline engine is one-eighth of a gallon per B.H.P. hour. This at 20 cents per gallon will figure out as follows:—

$.125 \times 10 \times 312 = 390$ gallons @ 20 cents = \$78.00 per B.H.P. per annum.

Illuminating Gas with the Modern Gas Engine.—A B.H.P. can be produced with from 14 to 16 cubic feet of illuminating gas, or, an average of 15 feet per hour. This would figure out as follows:—

15×10 (hours per day) = 150×312 (days per year) = 46,800 cubic feet @ \$1.00 = \$46.80 per annum per B.H.P.

Steam.—The average automatic high pressure engine of small powers requires from four to eight pounds of coal per hour per B.H.P., take the average six pounds; this figures out as follows:—

6×10 (hours per day) $\times 312 = 18,720$ lbs. @ \$4.00 per ton = \$37.44 per B.H.P. per annum.

Semi-Water Gas from Anthracite Coal.—The most reputable gas engine builders will guarantee their engines to develop a B.H.P. on one pound of coal in the generator; this will figure out as follows:—

$1 \times 10 \times 312 = 3,120$ lbs. of coal, \$5.00 per ton = \$7.80 per B.H.P. per annum.

Semi-Water Gas, from Gas Coke.—The author has recently obtained a copy of a test of an electric power plant of about 80 H.P. The fuel was common gas coke and the consumption was .92 lbs. per hour per B.H.P.; this figures out as follows:—

$.92 \times 10 \times 312 = 2,870$ lbs. of coke @ \$4.00 = \$5.74 per B.H.P. per annum.

Water Gas.—With large gas plants of 500 H.P. and over, the Crossley Bros. can produce a B.H.P. on .80 lb. of bituminous coal per B.H.P.; this would figure out as follows:—

$.80 \times 10 \times 312 = 2,870$ lbs. of bituminous coal @ \$4.00 = \$5.00 per B.H.P. per annum.