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discussion as possible at earliest date.

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### GAS, GAS ENGINES, AND GAS PRODUCERS.

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(Read before the Mechanical Section, February 28, 1907.)

The thermal efficiency of a modern steam plant is about 10%, and that of a gas engine plant about 20%. This is the principal reason for the large amount of work that has been done in recent years on the gas engine.

Again, while gas can be manufactured in a gas producer for about three cents per 1,000 cubic feet, city lighting gas costs between 50 and 100 cents per 1,000 cubic feet. This explains why so much attention is being paid to the development of the gas producer for the making of power gas.

The many methods adopted for the production of power gas may be divided into three general classes:

1. When a carbonaceous substance such as coal is heated in a closed retort, gases are given off which may be collected and used for power. This method is that at present in use for the manufacture of illuminating gas.

2. If steam be blown through a mass of incandescent fuel, a combustible gas is produced. In this process the fuel is kept incandescent by a blast of air, the steaming and blowing periods being intermittent.

3. If steam and air together be uninterruptedly blown into incandescent fuel, a gas, containing hydrogen and carbon monoxide, is produced continuously. The amounts of steam and air are regulated so as to keep the fuel at a fairly constant temperature.