

ACETYLENE GAS.

The most complete and accurate information yet given out concerning the new acetylene gas is probably contained in the recent report from the Ontario Bureau of Mines. The report states that the process for the economic production of calcium carbide and acetylene is the most promising discovery that has been made in recent years for the supply of light and fuel.

The inventor, Thomas Leopold Wilson, is a Canadian. The materials used are common lime and carbon—in any form—hard or soft coal, coal dust, petroleum, tar or peat. These are treated in an electric furnace, and Mr. Wilson is confident that where electricity can be generated with water-power, the cost of manufacturing calcium carbide brings it easily into competition with other materials from which fuel and light are obtained, and that a plant erected near a great water-power like that of Niagara Falls will supply a continent at a figure with which coal gas cannot compete. The power of Niagara is ample for almost any conceivable requirement; while it is alongside a mountain of limestone, and coal dust or culm can be had at little more than the cost of hauling from the mines of Pennsylvania and Ohio. Arrangements are already being made to procure electrical energy for this purpose from the falls on both sides of the Niagara River from the company which controls the power franchise at the falls; so that it is probable that the carbide will soon be manufactured on a commercial

scale in both the United States and Canada.

The carbide, containing forty parts by weight of the element calcium, which is the basis of lime, and twenty-four parts by weight of carbon, will be cast direct from the electric furnaces into rods, or cylindrical cartidges. One of these, twelve inches long and one and a quarter inches in diameter, will weigh a pound, and render five cubic feet of gas when simply subjected to the action of water, which is allowed to drip upon it slowly from a pipette or dropping-tube. The oxygen of the water combines with the calcium of the carbide to form lime, while the hydrogen of the water unites with the carbon of the carbide to form acetylene. Owing to the great richness of the gas, it can only be used in flat flame burners, in which it emits a light greater than any other known gas; its illuminating value, figuring on a consumption of five cubic feet per hour, being no less than that of two hundred and forty candles.

Prof. Lewis asserts that the calcic carbide can be produced in the United States for about twenty dollars per ton, and the beautifully pure lime obtained by the decomposition would net, as a by-product, two and a half dollars per ton.

The possibility of liquifying acetylene by moderate pressure permits enormous volumes of gas to be compressed into the liquid state in small wrought iron or steel cylinders, from which it may be fed slowly through burners. This quality promises to make it of the greatest possible value for floating buoys, and also for port-