

relieved through the consumption of the gas at the burners it allows the carbide to drop into the water, when the evolution of the gas begins again.

Of course there is the same objection to this mode of lighting that attends all open burners; it is constantly discharging into the air the products of combustion, chiefly carbon dioxide, which is poisonous to animal life. As has been explained in some of the chapters on heat, in Volume II, the illuminating property of any gas is determined by the number of carbon particles that are contained in it, which become heated to incandescence as soon as they come in contact with the oxygen of the air, and remain so, for a brief period, during their passage between the two extremes of the flame. While acetylene equals electricity in its illuminating properties, the latter still stands without a rival when considered from a sanitary standpoint, as the use of electricity does not in any degree vitiate the air in a room where it is used.

We have now given somewhat in detail the following processes that are carried on at Niagara Falls through the agency of electricity, viz.: The reduction of aluminum from its oxide alumina; the production of the new and useful compound called carborundum; the formation of calcium carbide used for the production of acetylene gas, and a large chem-