

APPENDIX.

HYDRAULIC MINING.

The extraction of gold from soils, as distinguished from veins in the solid rock, has been carried on most extensively for the past fifty years upon the Pacific coast of the United States and Canada, and what is known as hydraulic as distinguished from "placer" mining has been brought to great perfection there. California has been more systematically explored and her resources estimated in this respect than Canada. Those of Canada are yet but partially known, but the probability is that they will prove far greater. According to the State Mineralogist, California has already produced over one thousand millions of dollars in gold from her auriferous gravels—in the working of which over one hundred millions of dollars have been invested. This gold was obtained from the beds of ancient rivers where it is found covered with drift and forest, which must be washed away by the power of water, before it is reached. California has four hundred miles of these ancient water courses, estimated to contain an average of two millions of gold per mile, or \$800,000,000 in all. Besides those which may be called "free milling" deposits, there are ancient channels where the gold is found in cemented material and cannot be washed out ; and, again, there are one thousand miles of ancient channels in which the gold is "lava-capped" and can only be reached by "drifting" for it. These lava-capped channels are estimated to contain \$500,000,000.

For hydraulic mining the power canal or "ditch" should have an elevation of at least one hundred feet above the working level ; and this may be increased to five hundred feet without becoming unmanageable. The higher the head the farther it will throw an effective stream, and such head is necessary when working against a high bank in order to secure a safe distance for the "giant" attacking it.

The elevated ditch terminates in a large wooden tank called the "pressure box," which feeds the pipe descending the slope to the field of action. This pipe is constructed of wrought iron or steel sheets,