

Engineering by Land and Sea.

Highest Dam in the World.

(From Our American Correspondent.)

Shoshone Irrigation Enterprise.

Los Angeles, May 15.

The Government has added another sprig of laurel to its wreath of victory by building the highest dam in the world. Incidentally it has waved the magic wand for an additional flourish and a vast tract of land, parched and unproductive desert, lost in the wild eddies of rugged mountains, has thrown off a lethargy and is blooming as the valley of the Nile. In this desert are being planted towns that are to be cities. Thought is being given to the future, and they are being laid down for posterity for a hundred years to come.

years' task, at which men had worked three shifts, night and day, was completed, and in this wild canyon had been placed an additional monument to the prowess of America, a monument that is intended to last for ever. The dam, 328 feet high, measuring from bedrock, 48 feet higher than the Flatiron building, and containing enough material to build a hundred like it. Yet so precipitous were the walls of the canyon, rising half a mile above the stream almost perpendicularly, that they were about 200 feet apart at the top of the dam. The base of the structure, measuring up and down stream, is 108 feet. This width decreases gradually towards the top, forming a parapet only as wide as a waggon road. The Croton dam, which supplies water to

into these to weld itself with them. The Government prosecuted the work alike in summer and in winter weather. The structure was heated by steam pipes and encased in a canvas covering that damp cement might not freeze and crack in winter. All the material came over a road blasted into the cliff side, for only the mountain goat might find secure footing here. The immense structure was built as in an arch laid on its side, with the top turned upstream. The arch is a bearer of great weight. Immense buildings in all the cities rest upon arches. This dam is to bear great weight, but the pressure is to come from the waters that are impounded behind it. Therefore, the top of the arch is turned upstream, and all the pressure that bears against it will



THE SPILL WAY.

A DIVERSION CANAL.

WORKING TO A TUNNEL.

A STAGE OF ROCK CUTTING.

Each is being modelled after Washington, the Capital City, and the only municipality ever built with the far future in mind. A score of little Washingtons are being planted in the West by the Reclamation Service, but the latest of these is Powell, under the great Shoshone dam.

The announcement of this project's completion has just been made. When the snows of Yellowstone Park melt this spring and rush, as they usually do, into the precipitous gorges thereabouts, they will find one outlet blocked. Across the great Shoshone Canyon there stands a bar of masonry that will effectually block the progress of these rapid waters. They will be halted and imprisoned, and when the time comes that they can serve man well they will be led to the near-by plains and set to work doing his will. In the big Buffalo Horn Basin, where the buffalo made its last stand, the plough will have opened a furrow for the waters to follow, and alfalfa will be set to grow where a score of years ago "Buffalo Bill" rode forth in buckskins to shoot big game.

A month ago the huge cranes lifted the last bucket of concrete to the top of the dam at Shoshone, a lever was pulled and the substance spilled over the mould which represented the completed dam. A three

Denver, had hitherto held the record for height, it mounting up the 300-foot mark. Long since had America passed the altitude of the Assuan Dam in Egypt, once regarded as a world's wonder, and lacking 100 feet of the height of the Shoshone.

The engineering data for complete project is:—Reservoir, Shoshone—Area, 6600 acres; capacity, 456,000 acre-feet; length of spillway, 300 feet; elevation of spillway, 233 feet above stream bed. Storage dam, Shoshone—Type, concrete arch; maximum height, 328½ feet; length of crest, 200 feet; contents, 69,000 cubic yards. Diversion dams, Corbett—Type, reinforced concrete; maximum height, 18ft.; length of masonry, 400 feet; length of earth fill, 440 feet. Length of canals—13 miles with capacities greater than 300 second-feet; 21 miles with capacities less than 300 and greater than 50 second-feet. Aggregate length of tunnels, 19,000 feet.

The new structure has been so put up as to become one solid rock, and to form a part of the cliffs on each side, just as though it had been placed there in geologic times as a part of them. It is a solid concrete mass. Its feet are driven far into the bedrock that underlies the stream. Great ditches were cut into the sides of the cliffs, and the concrete was poured

but have the effect of making it more solid.

When the waters are stopped here a lake will be formed that will cover ten square miles of surface, and have an average depth of seventy feet. This will amount to the storage of 456,000 acre-feet of water, or enough of it to cover the entire state of Rhode Island to a depth of one foot. The artificial lake will take the place of a natural one, which existed there in prehistoric times, before the stream cut its way through these cliffs and ate its way down. It will be fed by streams that abound in fish, and its shores will be visited by things of the wild from the country round about, a country that has felt the hand of man less than any other section of the United States. It will be the Mecca of sportsmen and an outing resort equal to those of the Alps.

The dam will stop the waters and hold them for ever. But its usefulness depends upon supplementary works. Into the cliff on one side near the base plunges a tunnel in the solid rock, guarded by gates of iron, so big and heavy as to weigh 10,000 pounds each, and to require an engine to lift them. It is the purpose of these gates to let the desired amount of water back into the stream that it may find its way to the diversion dam lower down and