

The works are built in the most substantial manner—masonry walls founded on what is called "tosca" (loess), the hard substratum that is found in this part of the country. The four docks, or basins, are from 620 to 750 yards long, and are all 170 yards wide, connected by passage-ways 22 to 27 yards wide, over which passes by hydraulic turning bridges the foot, vehicular, and rail traffic. A sea-wall in front protects the entire port. On the city side are three- and four-story brick warehouses, thirty-two in all, with a total frontage of a mile and a half. Sheds, cattle-yards, railroad-tracks, hydraulic cranes and capstans, and other important appurtenances give the port modern facilities for handling cargo.

When the docks were opened at the southern end in 1899, the registered tonnage of vessels arriving and departing at the Port of Buenos Aires was 3,800,000; in 1901, 8,661,299, more than 100 per cent. increase. There are only twelve ports in the world of greater tonnage, and none of them show such phenomenal growth. In 1880, about the time that the works were proposed, the tonnage was 644,570, and the plans were made for 2,000,000 tons only. The Government has recently begun the extension of the North Channel straight out to the anchorage, and later will deepen it to 22 ft. or 23 ft. In the meantime the navigation uses a crooked channel beyond the intersection, which has been partly dredged. The depth of water in the northern entrance basin of the port is about 21 ft., but in the four great docks 23 ft., with tidal gates, so that the vessels at low tide may be afloat.

The plan also provides facilities for "inflammables"—coal, petroleum, gasoline, naphtha, and some explosives. The Standard Oil Company of New York is now arranging to bring bulk oil in tank steamers to Argentine, and the Shell Transport Company is preparing to make a specialty of the importation of fuel-oil from Texas and the Dutch East Indies.

The work of enlargement of the port is divided into sections, so that it can be carried out section by section, as the increase of commerce will require. The general plan also includes the protection and deepening of the entrance-channels.

One of the principal ports of the country is Rosario. Ocean navigation reaches it, and, for that matter, reaches Colastiné, the port of the City of Santa Fé, the capital of the province.

THE GREAT RIVERS OF THE ARGENTINE REPUBLIC.

Before concluding this brief report on my investigations in the Argentine, I am fully convinced that a report touching on the possibilities of agriculture would not be complete unless some information or particulars were given of the vast rivers of that great republic. Although I have seen the majority of the most important rivers in the Argentine, and was very much impressed with their vastness, I am nevertheless not an expert on the subject of great rivers. I, therefore, beg to quote from the work of perhaps one of the greatest living investigators of the enormous rivers of South America, Elmer E. Corthell, D.R.S.C. I may also point out that Elmer E. Corthell has for years studied and investigated nearly all the large rivers of North America, and his comparisons of them with the rivers of South America must prove interesting to New Zealand people.

In the year 1899 the Argentine Government conceived a very extensive project of river and harbour improvements, and at that time asked the United States Government for an expert engineer to execute the plans. The result was that Elmer E. Corthell, D.R.S.C., was selected, and the extracts quoted are from the work on his two years' labours in the Argentine.

My object in bringing this question of rivers before the agriculturists of New Zealand is with a view to pointing out the advantages this great republic holds over many other agricultural exporting countries. In the first place it must be remembered that where a country has so many marvellously large rivers penetrating the agricultural districts, in some cases to the extent of four hundred miles, they afford an easy and ready means of conveying the farmers' products to the sea-coast at a much lower cost than by railways. That is not all. In many of the best agricultural districts these great rivers act as a valuable source of irrigation for the land. Even the smaller rivers assist in this direction, for the reason that when slight floods take place a valuable amount of plant-food is left on the land, which naturally tends to add to the general fertility of the soil. Dealing with this subject, Mr. Corthell says,—

"First, a deep shore-line of the Gulf of Mexico, in the United States, when the site of Galveston was far out in the waters and the coast was a hundred miles inland from the site of New Orleans—a wide and deep estuary a thousand miles long, reaching into the heart of the continent to between St. Louis and Cairo, where, at Cape Girardeau, it met the ridge of the Ozark Mountains stretching across the valley and holding back the ancient great lake, which covered Chicago 200 ft. deep and spread over all the great prairie States, and received and distributed over its bed the immense sediments of the Missouri and other great rivers in the north. Then came the cyclic change, lifting Florida out of the water and turning continental drainage north, cutting its way through the alluvion to Hudson's Bay. Then the breaking-down of the Ozark barrier, the draining of the submerged area, the subsequent filling of the estuary, and the advance of the alluvial lands into the gulf to their present line, 110 miles beyond New Orleans. A great and wonderful beneficence for the use and convenience of man by the Great Architect of the universe.

"Had not my engineering experience upon the Mississippi River and its delta drawn my attention to this extremely interesting ancient history of the great river of North America, I might not have been so deeply impressed by its remarkable similarity to that of the Paraná River in South America; and for both histories I am indebted to engineering investigators, General Warren in the first instance, and Colonel George Earl Church, an American engineer, in the second instance, the latter probably better acquainted by personal contact with the geography and hydraulics of South America than any living man. I am indebted to him and to the Royal Geographic Society, of which he is a director and a correspondent, for most of what follows in relation to this ancient history of the great rivers of Argentine and Central South America.