TRANSPORTATION.

CHAPTER VII.

The methods of transportation of the products of the Everglade terrace when drained and cultivated to the markets and of supplies from the markets inland, will be primarily by means of steam or gasoline launches navigating the drainage canals which lead to the seaports of Miami and Fort Myers on the East and West coasts respectively of the lower Florida peninsula, and to the railroad stations of the present systems, where they are crossed by the drainage canals or the rivers into which they discharge their waters.

In this connection it is well to call attention to the fact that the seaport of Miami on the west shore of Biscayne Bay, at a width here of three miles, is within four miles of the Gulf stream and the deep water of the Atlantic, by means of a ship canal of a quarter of a mile in length, through the narrow sandy peninsula bordering the bay on the east as a breakwater; and that the U. S. Government has already expended very nearly half a million dollars excavating this cut to a depth of 18 feet, and in building north and south jetties some 1,600 feet seaward to the edge of the gulf stream, in order to protect the entrance. There is a dredged channel of 11 feet from the 18 foot Government canal mentioned to the Miami docks and wharves; and a contract between the Government and Mr. Flagler of the Florida East Coast Railway for the further excavation of this channel to a total depth equal to that in the Government cut of eighteen feet.

The normal rise and fall of the tide in Biscayne Bay, as determined by observations extending over a year, taken by Capt. O. N. Ble, U. S. Engineer supervising work on Government canal and jetties, is thirteen and two-tenths inches; and the mean tidal rise and fall at Fort Myers on the west coast, is one foot seven inches. (Gen'l Meigs, U. S. Engineering Corps, report of survey of Caloosahatchie river, March and April, 1879.)

The main canals of the State drainage project are all of a uniform width of sixty feet, and of a depth of ten feet; and they will doubtless be eventually paralleled by other main canals, at such distances apart as experience has demonstrated to be adequate to secure the success of the project.

It will also be requisite to erect the necessary locks at the several drainage canal outlets of Lake Okeechobee, in order to control the flow of water on the Everglade horizon, and to prevent the reckless lowering of the water level below the point authorized by the Government; and

it will also be requisite in any well considered scheme embodying both drainage and irrigation features, to provide necessary locks on the drainage canals to hold back the waters necessary for irrigation in times of drought, as well as to admit the raising and lowering to the different water levels, of such transportation vessels as are permitted by the rules to navigate these waters.

In order to render the State drainage project effective, the main canals must be intersected by smaller drainage canals, probably at the township and section lines, so as to permit the drainage of the tracts tributary to them between the main canals, as well as the passage of permissable vessels in the carriage of the various products of these drained lands to and from the seaports and railroads.

That these smaller canals will themselves be the drainage or irrigation sources for still smaller and innumerable private canals cannot be doubted, if the scheme of the drainage project is to be carried out to its legitimate conclusion; and that is, a multitude of small, well watered and well drained tracts of very rich land, tilled by intensive husbandry to its best productive capacity.

In the wake of these primitive methods of transportation and at a very early period will come the construction of roads, highways and bridges. At first upon the elevated banks of the main canals, and formed from the glade soil of humus, sand and marl with a top dressing of coral rock resulting from the excavation of the material forming the bottom of the canal; and later on similar roads upon the banks of the smaller canals.

Following closely on these constructions, and contemporaneously with them, as soon as these drained lands are settled sufficiently to show their value by their yields, and their salubrity as a place of residence, will inevitably come the railways of commerce.

No sentiment will attract them. It will be properly and purely a question of business, and not of patriotism. The first five hundred families who settle and build homes on these beautiful and healthful lands, and show by their intensive system of farming what these rich lands are susceptible of producing, will bring extensions of the railways from the East, West and North in the commercial struggle to reap the golden harvest from the carriage of the inbound and outbound passengers and freight from this district.

And with or without the advent of railroads, the demonstration of thrift, comfort, health and independence afforded by the example of the first setlers, will cause a rush of homeseekers to this favored section, paralleled only by the throngs of earnest men and women who have peo-

pled Oklahoma, and planted the seeds of liberty, intelligence, sobriety and good citizenship in that once sparsely inhabited country.

The Expense of the Undertaking.

CHAPTER VIII.

In order to answer the question put at the outset of this inquiry; that is, whether the value of the Everglades when drained is worth the expense of the operation, it is necessary to consider the proposition from two or three different standpoints; that of the citizen, the state and the nation.

Let us consider first the question from the standpoint of the citizen.

At present, except a few small drainage canals, now under construction near Miami and Fort Lauderdale, the work is being conducted exclusively by the State of Florida, without aid from the Government other than the services of a competent corps of engineers in determining levels, etc.

The cost of the reclamation of these lands has been reckoned at one dollar per acre. This seems to be too low an estimate, in view of the fact that the average operating expenses for the removal of the excavated material is reported to be seven cents per cubic yard. Bearing in mind that the canals are sixty feet wide and ten feet deep below the soil surface, and that the two dredges engaged on this work are capable of an average progression forward of the dimensions stated of one hundred and fifty feet per day for 25 days in each month, (the dredge Okeechobee has a record of over 6,000 feet during one month) the daily excavation would be 3,333 cubic yards. In one month the progress would be 3,750 feet forward of the dimensions stated, and the material excavated would be 83,333 cubic yards.

The canals now projected and underway are the West canal from Ft. Lauderdale and the West canal from Miami, the North canal from Fort Lauderdale toward Lake Okeechobee, and the North canal from the Caloosahatchie river toward the same lake. Only the two former will be considered in this inquiry.

These two canals it is reported are to be run West for twenty miles each and then to be joined by a North and South canal of approxi-