(editor's note: This paper was transcribed from a handwritten cursive copy with various difficulties. For a perfect rendition, the reader might wish to consult the original, itself a copy, in the volume entitled *Literary Club Papers*, May 30, 1891 to February 6, 1892)

The Nicaragua Canal

Some years since I disembarked from a ship on the Pacific Ocean fifteen miles south east of Brito in Nicaragua, and traversed the State in the vicinity of the projected interoceanic canal. The only part of the journey by land was twelve miles on mule back across the Continental divide to Lake Nicaragua. Thence across the lake to its outlet at the head of the River San Juan, and thence down the stream winding through dense tropical forests, stopping two or three times to make portage's around rapids and landing at Greytown within sound of the breakers of the Caribbean Sea. This journey awoke an interest in the project of an isthmian Canal which has caused me to follow its development to the present time.

The explorations and surveys of nearly four hundred years since Balboa crossed the Isthmus and waved the standard of Spain over the waters of the Pacific, had demonstrated that there were but four feasible routes for an interoceanic canal; Darien, San Blas, Panama and Nicaragua. The limits of this paper will not permit even a general comparative view of the four but will deal with the last named alone. When the atmosphere of wealth which surrounded the undertaking at Panama, leading to the wildest extravagances in its administration and culminating in a financial storm which swept away $200,000,000,000 of the savings of the French people, while yet the construction was little more than begun, the hope of a sea level canal entirely abandoned, and the colossal problem of the diversion of the floods of the Chagres River still unresolved, the comatose Nicaragua project sprang into life again, energized by the failure of its rival.

An American company was organized with Mr. Warner Miller as President and Mr. A. G. Menocal a native of Nicaragua, but for a long time a civil engineer in the service of the United States Navy as Chief Engineer.

Mr. Menocal has been in earnest advocate of the Nicaragua route, had pretty thoroughly explored the country, and with Admiral Ammen was a delegate at the Interoceanic Canal Congress at Paris, who with the representatives of the other route opposed to Panama, were so unceremoniously choked into silence by the not very scrupulous French majority.

Taking a lesson from the blunders at Panama, the newly organized Company began a system of surveys so thorough that for every mile of line adopted for the canal, one hundred miles of line had been surveyed. Every physical question which could have the remotest bearing on the economy of construction or the

continued success of the canal was minutely examined. A hydrographic study of Lake Nicaragua, the river San Juan and the harbors at the termini was made. The rainfall and the floods of streams were investigated. Borings to determine the nature of the strata were made at intervals of one thousand feet; and even a geologist, expert in the science of earthquake phenomena, was sent from the Bureau of the U.S. Geological Survey to critically examine the country with reference to the effect of Seismic disturbances on the locks of the proposed canal.

Not until all these investigations have been completed and the canal planned as an entirety was construction begun.

The country traversed presents the Andean Cordillera dividing near the northern boundary of the state of Nicaragua, the western ridge skirting close to the Pacific shore, the Eastern chain curving around towards the Caribbean Sea and uniting again with the Western in Costa Rica in such manner as to form an oval basin 200 miles long and 75 miles wide in which are situated make Managua, without other outlet than evaporation, and Lake Nicaragua draining by the San Juan River through a rift in the eastern Cordillera and emptying through swampy flats into the Caribbean Sea. The route selected is from Greytown on the Atlantic side to Brito on the Pacific, an air-line distance of 140 miles in a course tending slightly north of due west; from which it air line the canal swinging to one side and the other will have the greatest departure of 17 Miles and a total length of 170 miles from harbor to harbor.

This distance may be divided into four distinct sections: beginning on the Atlantic side, the first section includes the harbor of Greytown once a fair one, but long since silted up by the sediment of the San Juan River and the litteral sands of the Caribbean Sea. An artificial harbor will be formed by jetties at the entrance of the canal one mile or so west of Greytown and the mouth of the river.

From this point a straight line 32 miles long will be cut across the ocean flats and through the Eastern Cordillera to Ochoa on the San Juan River, avoiding a great sweeping bend of the river which receives it's only silt-bearing tributaries. The cutting through the eastern divide is made where its crest is 410 feet above sea level. Stepping up by three locks the depth of cutting will be reduced to 300 feet at the greatest but averaging 100 feet for 3 miles, all of which will be in hard trap rock guaranteeing the canal against costly slips from the slopes.

The second section of 64 miles from Ochoa to the lake, will utilize the river by the construction of a dam across it, which will raise the water from its present depth of 10 feet to a new depth of 60 feet making the surface 110 feet above sea level, and leveling the surface of the water of the tortuous river and above its gentle current and its rapids, all the way to its head and transforming its narrow valley.

The third section is the Lake Nicaragua which is crossed in its southern extremity in a distance of 56 miles. A large portion being too shallow for ocean vessels, the surface of the water is to be raised 10 feet to avoid heavy dredging, the Ochoa damn being built high enough to serve the double purpose of making the river navigable and elevating the lake surface.

The fourth section 18 miles, crosses the western divide at its lowest known elevation which is 140 feet above the sea and descends by three locks to Brito on the Pacific through the valley of Trolla Creek and, a dam in Tola impounding a reservoir for the supply of the locks. The western divide is little more than a plateau requiring a cut 9 miles long and 70 feet deep. Brito harbor the Pacific embouchere of the canal, is a small one protected by high headlands. It is rather shallow, but can easily be deepened by a small amount of dredging and enlarged by the construction of two jetties.

In the 170 miles of canal there will be 155 miles of clear sailing between the locks on the Atlantic and Pacific sides, at the summit level of 110 feet above the sea. The canal will have a depth of 30 feet and a width in the rock of 80 feet and a bottom width in earth of 120 feet. The ceremony of turning the first sod took place October 22, 1889. It is estimated that the work can be finished by the year 1900, with a final cost of $150,000,000,000.

To date there has been an expenditure of about $3,000,000,000 including costs of surveys. The actual construction has been begun and enough has been done to show the earnestness of the Company.

The Greytown harbor has already been reclaimed by the partially completed jetties and a 12 ft. depth of water secured on the bar, which was entirely dry. A railroad 10 miles long is nearly completed to the eastern divide, to facilitate the work on the great cutting. Telephone and Telegraph lines are in operation and an aqueduct 12 miles long conveying water from the mountains to Greytown is finished. Several of the Panama dredges have been purchased and about a mile of the canal through the Caribbean swamps is actually built. Future progress will depend upon the Companies finances of which I have no information, but suspect a quantity of stock would gladly be issued to patriotic Americans for the purchase price. The probable commerce which will pass through the canal is difficult to measure with accuracy. In 1885 the Bureau of U. S. Statistics estimated 4000 vessels with 4,000,000 tons per annum. The present estimate of the tonnage has increased the figure to six or seven million.

It must be remembered that the opening of any new rapid transit highway has resulted in an enormous increase in commerce developed thereby. Thus the Sault Ste. Marie Canal in 1881 passed 2,000,000 tons while 1889 it was

7,000,000. The Suez Canal in 1870 had 440,000 tons but increased to 6,000,000 in 1888. The ocean distance from New York to San Francisco will be reduced from 15,000 to 5000 miles through Nicaragua; while from Liverpool to San Francisco the reduction will be from 1500 to 7500 miles. In view of the facts presented here, can any devout believer in the “Monroe Doctrine” withhold his sympathy and moral support to the greatest American Enterprise of this century, the Nicaragua Canal.

GB Nicholson
Nov 28, 1891
Cin Literary Club

Theo Kemper Editor