

general sketch and brief argument in favour of the practicability of such a method will need to be given, and a comparison made between this method and that by ordinary canals and railroads.

The financial and political subject will embrace the question of what it will cost each of the two Governments to carry out the plans proposed, or the cost to private companies of constructing the proposed routes; and under this subject the relations of the two Governments to each other, so far as relates to commerce, must be briefly stated.

In discussing the commercial features it will be necessary to predict the effects upon the various large ports of the Great Lakes and the St. Lawrence, and, also, of the Atlantic seaboard, of completing and putting into operation the water-way or the water-ways recommended; and to state also the probable changes in methods of transportation which will take place, and also the change in the methods of trade with the Atlantic seaboard and with Europe, when steamers of 5000 tons displacement weight when laden are built on the Great Lakes, and put in direct trade between lake ports and the ports of the Atlantic seaboard, Great Britain and the Continent.

Great and astonishing changes have taken place in comparatively recent geological times in the basins of the Great Lakes. There are well defined high water marks to indicate, at least, that the three great Northwestern lakes were probably 200 feet higher than they are to day; that there was a still greater lake, now Lake Winnipeg; that the immense overflow from all these lakes flowed southward to the Gulf of Mexico; and that great areas of country now inhabited and cultivated by man were at that time submerged to a great depth.

The great valleys of the Illinois River, the Minnesota River, and the Upper Mississippi as well, now occupied by comparatively small streams, prove conclusively that at a comparatively recent period there flowed southward great volumes of water, and that Lake Winnipeg drained southward, although now draining northward. A hypothesis was advanced, and an endeavour made to sustain it, by the late General Warren, to account for this remarkable change in the drainage of the continent. He attributed it to a great cyclic change in the continental slopes which depressed the northerly part of the continent and raised the southerly, as, for instance, the Florida Peninsula, as well as Cape Cod and other formerly submerged portions of the Atlantic Coast. This great southerly current of the vast interior basins of fresh water of the continent was hemmed in on the south by an ancient barrier, which evidently crossed the Mississippi near Grand Tower, Ill.; but the waters gradually cut their way through, and thus largely drained the great inland sea. Either by this means or by the changes in the continental slopes, the waters were drained from the land, and the conditions were slowly changed until we have the Great Lakes of to-day.

At Chicago is the lowest line cross section of the trough or "thalweg" through which the waters of the lakes flowed southward. The bottom of this trough is only about 8 ft. above the present level of Lake Michigan, with a natural drainage and a steep slope down the Illinois River Valley from the immediate suburbs of the city. At this location has been built within the last half century the second city of the continent, and at this point, connecting the lake with the tributaries of the Mississippi River, there was projected in 1670 a canal to the Illinois River. It was proposed by one of the earliest pioneers—Joliet—to dig a canal across the Chicago Divide for commercial and military purposes. In 1804 Albert Gallatin, secretary of Treasury of the United States, spoke of the national character of this proposed waterway. In the first comprehensive report on internal communication, De Witt Clinton and Gouverneur Morris in 1808 to 1825 urged the "proposed ship canal" as an extension of the Erie Canal to the Mississippi, in order to open up water communication by the lakes from the Hudson River to the Gulf of Mexico. The Congress of the United States assisted in the project, and made a land grant of 284,000 acres in 1827 for the construction of the work. The first canal was opened for navigation in 1848. In 1865 the State of Illinois provided for its completion; it was completed by the city of Chicago for drainage purposes in July, 1871, but the flow through it proved insufficient for the purpose, and in 1881 the State required the city to erect pumping