the remarks I have to offer upon this route in reference to its adaptation for the line of a Canal. The Section shews the most elevated tract of country between Shediac Harbour and the Bay of for the purpose of navigation, and any measures to straighten it Fundy.

15. It will be seen at one view that, to carry a Canal by this route, it is necessary that there should be an ample supply of water upon this summit level, and that it must be looked for in the low ground or Basin through which the Scadouk flows.

desideratum. The first is to Dam up the Scadouk River where it enters the gorge, through which it flows on leaving the Carriboo Plain, as at O, Plan No. 2, and thus raise the waters to such a height as to fill the Canal and Locks terminating the summit level. The second is to convert the water so raised by the Dam at O, into to the expense. a Reservoir only, and not for the purposes of navigation.

17. With reference to the first of these methods, admitting that the Spring Freshets would fill the Canal to the extent required, in the first instance, the next point for consideration is, will the Scadouk River, uninfluenced by the Freshets, maintain this supply 24 hours. during the summer months? for it is evident that unless a full supply is constantly kept up, so as to ensure the depth of 9 feet over the Lock Sills, Vessels of the description for which this depth is calculated, could not pass.

18. The current of the Scadouk River across the low ground, in the Summer months, is scarcely perceptible, the width of the River is 33 feet, the depth averages 3 feet. Such dimensions with so small a velocity would afford a very insufficient accumulation of my course toward the Mill Pond, and thence continued it until I water, when not under the influence of the Freshets, and even of debouched on Babineau's Marsh, two miles below the settlement this accumulation, the whole would not be available, because an | called the Bend. I selected this Marsh because it appeared favorallowance must be made for unavoidable leakage, and also for the able to the formation of a Basin to hold vessels waiting for an exit effects of evaporation, which latter would be very considerable from | into the Petitcodiac River. so extensive a surface of water under the influence of the powerful Summer sun of this country. I cannot consider it safe to depend is considerably more elevated than that of either of the other routes, on so inadequate a supply for keeping up the necessary demand for and I found that the Mill Pond is 119 feet 4-8 inches higher than a large Canal.

for a Canal, it must be borne in mind that a Reservoir should always be subject to two conditions : First, it ought in itself to be found between the two points, but not without passing over an sufficiently low to collect flood waters from an ample surface of elevation equal to that which the Mill Pond possesses, but in the country; and Secondly, so high as to enable the whole of the water in it, being drawn into the summit level of the Canal.

20. The position of the Scadouk River is such as not to comply with the first of the two conditions stated, because, there is not elevation of land sufficient to afford an ample surface from which accompanying section, to shew the impracticability of carrying a to collect flood waters under ordinary circumstances; it is only Canal by this route, but admitting a more level line might be found under the extraordinary cases of freshets that reliance could be to the Mill Pond, and even that a Canal might be formed, whose placed for an adequate supply. These influences are not of long surface water would be twenty feet lower than that of the Mill Pond, continuance, and vary in quantity according to the quantity of snow it would require 19 Locks of 10 feet lift each, to pass over the that may fall during the Winter, and the extent of the rains which elevation, which, with a regulating Lock at each end, would make usually occur at the breaking up of that season; the questions 21 Locks necessary; the expense of each of which would not be therefore that naturally arise are : Can a sufficient quantity of water reckoned at less than £10,000. The cost of Lockage alone would be collected during the freshets to furnish the requisite supply for therefore amount to £210,000. the working season? and, can that supply be made available? rounding the Reservoir proposed, can alone determine the extent is the very shoal water in Shediac Harbour, to overcome which, to which the waters might be raised in answer to the first question ; and the second question can only be answered by ascertaining if the relative positions of the Canal and Reservoir are in accordance with the second condition stated in paragraph 19, or can be made To make them comply effectually with the condition, viz: that \$0. the Reservoir shall be so high that the whole of the water may be drawn into the summit level of the Canal, it will be necessary to find a route so much lower than the marsh which would form the bottom of the Reservoir, that these marshes shall be on a level or rather above the surface water of the Canal. 22. The only probability of obtaining such a result appears to be, to endeavour to find a route which will admit of carrying the Canal so much below the point O, as to render the whole of the water in the Reservoir available ; judging, however, from the appearance of the surrounding country, I do not think such a route can be obtained without an enormous quantity of excavation, and at the expense of lengthening the Canal several miles. An exploration might be made with this view, should it meet Your Excellency's wishes, but I am by no means sanguine in my expectations of any favorable result. 23. The practicability of forming a Canal on this route hinges entirely on the possibility of obtaining an adequate supply of water on the summit level. However advantageous other parts of the line may prove, either in respect to the supply of water, or general level of the ground, they can not be made use of until the summit level be perfected. It may appear therefore almost superfluous to discuss their merits now, but as it may be satisfactory to Your Excellency to be put in possession of such facts regarding them as I may be nd would be overflowed and destroyed. The tide flows to the arise from the muddy waters of the Bay of Fundy. The subject

Scadouk and Memramcook Rivers, sufficient, I hope, to elucidate | Mill, below which the River winds through low and almost level marshes to Dorchester Island.

24. The great winding of the River renders it very exceptionable would tend to increase the already very rapid tide. It would be preferable to cut the Canal the whole way, or nearly so, from the Mill to Dorchester Island, to making use of the River; but as it is not advisable to admit the tidal waters of the Bay of Fundy, for reasons before stated, such a measure would very much increase 16, There appear to be two probable methods of creating this the demand for fresh water to maintain so great a length of Canal. 25. Independent of the deficiency of water on this route, there would necessarily be a great amount of Lockage, and a distance of nearly half a mile to carry the Canal into Shediac Harbour to insure a proper depth of water, both of which would add very materially

> 26. The Chart of Shediac Harbour shews the soundings in feet at low water. The ordinary flood tides are from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet, the Spring tides rise 4 feet. It is a singular fact that in Shediac Harbor the tide ebbs to the ordinary low water mark once only in

> 27. The third and last route examined by me, was from Shediac Harbour to the Bend of the Petitcodiac River, 151 miles. Having previously passed over the ground between these two points, I at once perceived that the only dependance to be placed for water on the summit level, was in the Mill Pond shewn in Plan No. 3. Under these circumstances it was scarcely worth the trouble of minute examination, nevertheless in justice to the public, I directed

28. The ground passed over, shewn by a red line on Plan No. 3, the neap flood tide in Shediac Harbour, and 113 feet 6-6 inches 19 With reference to the second method of acquiring head water above the corresponding tide in the Petitcodiac River. I think it probable that a more level course than that I adopted might be absence of a more liberal supply of head water than could be afforded by the Mill Pond, it is scarcely advisable to expend time and money in the search.

29. It will require an inspection only of the Plan No. 3 and

30. I may observe that the access to a Canal on this route would 21. An accurate survey and sections taken of the ground sur- be attended with considerable difficulty and expense; on one side would require the Canal to be carried nearly a mile into the sea, a work which could not be executed without resorting to the use of expensive Coffer Dams, or of the Diving Bell; on the other hand are 18 miles of the Petitcodiac River by no means of easy navigation, although I am informed that Vessels in the hands of skilful Pilots rarely meet with an accident. 31. It is only in a case when the requisite supply of water, and other favourable circumstances, render the practicability of carrying such a project, as has been suggested, successfully into operation, that the entering upon the undertaking, which must necessarily involve great expense, is justifiable; I cannot consider it so in the present instance. If I am in error, I have erred on the side of caution, and much as I shall regret that my opinion may overthrow what has been long a favorite project in this Province, I consider from what I have observed upon the examination of the several routes, that the deficiency of head water renders the construction of a Canal of the ordinary description impracticable. 32. The most natural position for a Channel of communication, between the Bay of Fundy and the Gulf of St. Lawrence, is evidently from the head of Cumberland Basin to Bay Verte, and since it is not advisable to attempt to construct a Canal of the ordinary description, for the reasons above stated, it may be worth while to consider what would be the effect of cutting a Channel from water to water, leaving it to the waters themselves to complete the communication to render it navigable. The level of the neap flood tide at Tignish River is 9 feet 1 inch lower than the corresponding tide in the Tantamar River; at flood tide in the latter the water would flow into Bay Verte, and so soon as the tide ebbed below the corable to produce, I proceed to state, that the Memramcook River, responding tide in Tignish River, which it would do because it ebbs from the place where I crossed it, to the Mill, shewn on Plan No. so much more in Cumberland Basin than in Bay Verte, the waters 2, is a succession of Rapids, very shallow, being in many places not of the latter would flow into the former, and would, on account of more than one foot deep, the bottom sand stone rock, which forms the great ebb in the Bay of Fundy, continue to flow much longer the substratum of nearly the whole ground over which I passed. than it would the other way. The prevailing water therefore At the Mill the Dam might be raised considerably higher than it flowing through the Channel would be the clear water of the Gulf is at present; by raising it, however, a great deal of fine alluvial of St. Lawrence, and would counteract any ill effects that might