Vancouver Island; and the tides and currents in these are very complicated in their character. As the Gulf of Georgia, which forms the largest of these interior waters, communicates with the Pacific both to the west and to the north, the tides enter from both these directions; and the tidal currents of the numerous sounds and inlets which open off the Gulf itself, are thus complicated with those of the entering tides. It will therefore be necessary to determine as a basis the tide in the open Pacific, where it is uninfluenced by the effects of the currents in the inlets. For this purpose the best point to select is probably Cape Beale on the west side of Vancouver Island. It is the most northerly lighthouse point on that shore, and furthest removed from the mouth of the strait of San Juan de Fuca; and the form of the Cape itself indicates a good shelter besides it.

In selecting a position at which to observe the general tide in the area of the Gulf of Georgia, it must be remembered that the object in view is chiefly to establish a standard to which the direction and time of change of the currents can be referred; just as the currents in the English channel are referred to the time of high water at Dover. For the straits and inlets of the Pacific Coast, the speed of the currents, their direction and time of change, are fully more important to a vessel than the actual time of high water at the harbour to which it may be bound. With this in view, the harbours of Vancouver and New Westminster which open off the Gulf, are not likely to prove suitable for the purpose; on account of the disturbing influences of Burrard Inlet and the Fraser River. The position chosen should be on the open shore of the Gulf, where it would be free from such influences, and also from the tide-rips which occur at the mouths of the smaller channels. A position at or near Nanaimo would fulfil these requirements, and would also be centrally situated with regard to the area of the Gulf. It is probable that this will prove on the whole the most suitable position for a tide-station, to which the currents throughout these straits can be referred. It will serve at the same time as a reference station from which the tides at Vancouver and New Westminster can be determined.

The harbour of Victoria occupies an intermediate position between the outside tides of the Pacific and those of the interior waters of the Gulf. It would be well, therefore, to have a tide station at Victoria or Esquimalt to command the Strait of Fuca, and to serve as a connecting link between the outside and inside tides as found at the other two stations, as well as for the sake of the harbour of Victoria itself.

The northern navigation to Alaska must remain for some time to come in the hands of captains who have had the opportunities to acquire a local acquaintance with the tides and currents on that route. But for the principal harbours of British Columbia the three positions I have indicated will serve as reference stations for the tides and currents on the main lines of navigation. The tide gauges at these points should be erected at the same time, to obtain the relation required between the observations.

In considering where additional tide gauges are first required and where the survey of the currents should be commenced, the relative needs in the interest of shipping should be kept in view. On the Pacific coast the currents themselves are on the whole stronger and more variable than those encountered by the same classes of vessels on our eastern shores. On the main lines of navigation, however, the pilots join the vessels at the entrance to the Strait of Fuca; and the vessels thus obtain the assistance of local knowledge from the outset, for the straits and inlets of that coast. In the Gulf of St. Lawrence, which is traversed on two different routes by trans-Atlantic vessels, the captains have to navigate its whole extent of some 600 miles after making land, before they reach the pilot station at Father Point. It is therefore advisable that the credit which may be made available for the purposes of this survey, should be laid out during the coming season in completing on our eastern shores the number of tide gauges required, and commencing the survey of the currents. If these are completed this season, a corresponding outlay in the season of next year, to that now estimated for the establishment of tide gauges, would equip the Pacific coast with the gauges required to obtain a basis of reference for both tides and currents.