

unrelated to each other as a rule, and the records regarding them often unobtainable through loss of note books, fire, or destruction of bench-marks. Most of these are defined by some reference to the tide, such as high water, Mean Sea level or low water, but the tide levels assumed do not correspond with each other, and they are thus quite indefinite unless fixed by a bench-mark.

To correlate these for tidal purposes and to re-determine the chart datum, it was necessary to go fully into the history of the whole matter, and also to run special levels for three and a half miles, to connect Esquimalt and Victoria. We have also had the opportunity this season to go over the ground personally, to examine original plans and notes at Victoria, to inspect the bench-marks, to see the records in the Public Works office in New Westminster, and to discuss matters with those who had to do with them, in the endeavour to bring all the information into correspondence. We will give the results as concisely as possible, but it will make the matter clearer to follow the chronological order. For all practical purposes, anything, previous to 1880, if not prehistoric, may be regarded as ancient history.

There are several bench-marks in Victoria for which elevations are known with reference to more than one datum, but the resulting difference, instead of being constant, is found to vary within the limits of an inch or two. When a relation has had to be determined by averaging such differences, this will be explained. But there are four of the datum planes which can now be referred to an individual bench-mark, and these four are the most important from a tidal point of view. All the planes of reference at Esquimalt have also been connected with this same bench-mark, by the new levels run this season. The relations thus obtained are more trustworthy than if derived from averages, and will therefore be given the preference.

The bench-mark referred to is at the north-east corner of Wharf and Fort streets in Victoria, and is thus near the water front. The building at this corner, now occupied by the Hamilton Powder Company's offices, has a sandstone foundation below the brick work; and the top course of this foundation, which is nearly on a level with the sidewalk, forms the door sill on the Wharf street front of the building. The point used as a bench-mark is the surface of the sandstone, below the brickwork, at the corner, usually termed the plinth, or else the southern end of the first door sill, at two and a half feet from the corner. The level of these two points is identical. For brevity, we may term this the Standard bench-mark.

*Hudson's Bay Co's Datum.*—This is chiefly of importance because used as the basis of a contoured plan of Victoria, made by Mr.