

To the north of Churchill there are a number of harbours in the inlets and bays, but the ground outside is bad, and until the channels are properly dredged there is great danger of running on shoals in the northern part between Churchill and Fullerton. York Factory at the mouth of the Hayes river is not a very good harbour. There are a great many bars off the mouth, and the ships anchor seven or eight miles below the Hudson bay post.

HUDSON STRAIT HARBOURS.

There are plenty of harbours on both sides of the Hudson strait. One is on the north side and east of Digges island, but has not been properly examined yet. But there is no doubt there are a number of good harbours there. On the south side the witness examined the coast from Cape Wolstenholme to the south part of Ungava bay, and there are a number of very good harbours along that coast. Between the end of July and the end of September when he was there, the strait was not quite clear of ice, for some was floating in the strait.

The straits are practically never clear, but the ice that was in there after the middle of July until November almost would not harm an ordinary vessel. The great danger in the autumn in the navigation of Hudson strait is the stream of Arctic ice that comes down from the Arctic ocean and from Baffin bay. Then from the end of September snow squalls are frequent. The navigator is in far more fear of snow squalls than fog. Late in September there is a heavy fog that rises from the water, brought on by the excessive cold. When the temperature gets below zero there is a continuous fog that rises from the water, sometimes 100 feet and sometimes 200 feet. You could not overcome that by lighting nor with anything, except getting on the top of the mast and looking over it; it is a light fog.

The strait is navigable from about the middle of July until the first day of November anyway, and a couple of weeks might be added at the end, because the ice in Hudson bay, the new ice, is of no consequence to a ship until it gets to be 15 or 18 inches thick, and not much ice forms before that date. The Arctic ice that comes down Baffin's bay is serious, because it is heavy ice and sometimes it is 40 feet thick. It comes down from the north, and the witness expected that at the end of November and December it is beginning to fill the eastern part of the straits. Part of it sweeps around Resolution island, and witness had seen heavy ice up as far as Digges island, about the middle of the straits, and it is quite a serious thing. That would not be the case every year. If there were high westerly winds it would drive that ice from the coast, and it would pass the straits without coming in.

In the report of his trip in the *Neptune*, Mr. Low had spoken of that ship having got into the ice about July 22, and of having to ram her way through it. He explained to the committee that that was coming out of the bay from Fullerton. They got in the ice just off Cape Wolstenholme. He thought they were too far south and met the ice, but to the north it looked as if they could have had open water if they had kept away from Cape Wolstenholm. Very heavy ice would not come very much earlier than November, because the Baffin bay ice would not break up sooner.

Mr. Low again expressed the opinion that from the latter end of July to the middle of November, from three and a half to four months, there was probably safe navigation, where ordinary iron tramp steamers could be used. He did not mean that it was absolutely free from ice, but sufficiently free to make it safe navigation. The ice would not sink your ship or anything like that. The ice that is met up there is rafted up, and sometimes rafted deep. In the midsummer months it gets warm and more easily broken. The cementing material is practically gone from it. You just run into it and it breaks to pieces, and you see four times as much as you did before.

The Hudson bay ships, as a rule, come into the Hudson bay about the first of August, and the ship from Churchill comes back again about the end of the month. It goes to Fort Charmell in the Ungava river and generally lies there until September