

posal of every one of them, but no quantities were submitted to them, because they were informed that they must make the tender on their own information. We would not, of course, be responsible for a statement of quantities; otherwise a great number of questions would arise when the work came to be performed as to whether the work were greater or less, &c.

Mr. BLAKE. The hon. gentleman says that all the contractors were told that they might see whatever was there, and if that were so they were placed upon an equal footing. I am anxious to know whether, as a matter of fact, all the tenderers did look at the papers in the Department.

Sir CHARLES TUPPER. I presume so.

Mr. BLAKE. The hon. gentleman is not aware?

Sir CHARLES TUPPER. Some tenders were signed by parties in British Columbia who were not here, and perhaps were not represented here; but all parties had an equal opportunity, as the papers were equally accessible to all.

Motion, as amended, agreed to.

METEOROLOGICAL SERVICE OF CANADA.

Mr. PATTERSON (Essex), in moving for a detailed statement showing the amounts paid for the Meteorological Service of Canada during the years 1877, 1878, 1879, 1880 and 1881, said: I do not make this motion with any desire to find fault with the very moderate amount which has been expended for this important service during these years, but rather with the view of suggesting that certain improvements might be made which would render the service more effective. These improvements would involve a certain amount of expenditure, which, however, would be more than compensated for by the advantages which would result. The first and most important of these improvements would be to have the forecasts issued at midnight. At present these forecasts only reach the Maritime Provinces after half the day is over, at about one o'clock in the afternoon. The bulletins are only posted in Ontario between ten and eleven o'clock, long after the parties interested, especially shipping men, have started on their day's work. If the forecasts were printed at midnight there would be a little more expenditure for telegraphing, but they could be sent throughout the whole Dominion and published in every morning paper, while the bulletins could be posted at every telegraph office and railway station as soon as they were opened in the morning. This would be a great benefit, not only to our shipping interests, but to our agricultural, forwarding, and commission interests. I have a letter here from a friend who tells me that, in conversation with a large commission merchant in Toronto, largely interested in shipping, he was assured by that gentleman that the public had no idea of the large amount of property annually saved to the country by this system of storm warnings, and he mentioned several instances in which he considered his vessels had been saved by paying proper attention to the storm signals. I think also that the system of coast telegraphy might be extended to our lake regions. If cables were extended to Manitoulin Island, the storm signals would be available for our shipping at the head of Lake Huron, and if telegraph lines were run to the lighthouses at Point Pelée and Long Point, on Lake Erie, and to those at South Bay and Presqu'Isle, on Lake Ontario, so that the storm signals might be displayed to passing vessels, it would be a great benefit to the shipping interests. Not only would disasters be averted by the warnings of approaching storms, but if loss did occur, more prompt means would be used for securing assistance, and thereby the actual loss sustained would be greatly lessened. A great deal of money has been spent on our gulf telegraph system; and if the small amount I

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suggest were expended—only a small amount would be required—it would be of great practical benefit to the shipping interests on our inland waters. I would draw the attention of the Government to the remarks made by the late Superintendent of the Meteorological Service in the last report that gentleman laid before the Department of Marine. He says:

“Although, owing to the limited funds placed at my disposal, it is impossible to do all that is desirable in the way of placing information and conclusions regarding the weather immediately before the public, I trust that the efforts already made in this direction will be appreciated.

“The great interests which the country has at stake in its shipping has led me in the past to pay as much attention as possible to the prompt issue and publication of storm warnings. There is still, however, much to be accomplished in this branch of the service. The accuracy of the warnings has, as already stated, gradually increased, and the time has now come when it would be advisable to make this information available at all points of the coast at which there is any shipping. Dr. Fortin's scheme will do much in this direction, but there are still many points which are not reached. Were only two or three vessels saved it would more than pay for the cost of the whole service.

“To increase our knowledge of meteorology, and especially of the laws of the formation and progress of storms, it is necessary that we should obtain observations taken at sea. Other countries have paid special attention to the subject of maritime meteorology; but in Canada nothing has been done, the time and energies of the office being taken up in other directions. Considering, however, that the shipping interest occupies such a prominent position among the interests of the country, and now that our storm warnings and probabilities are an assured success, an effort might be made to obtain information from parts of the ocean which few except Canadian vessels traverse—particularly between Nova Scotia and the West Indies. In England there is a special department of the meteorological office presided over by a superintendent who devotes his sole attention to this work, and which, in addition to discussing general questions of ocean meteorology, publishes from time to time instructions for aiding mariners in their navigation, and also for avoiding severe storms. Charts are also issued showing the prevalent winds in different parts of the ocean during each month in the year. Similar information is collected by the ships of European and other countries, and also by those of the United States.

“Before it was thought possible to predict the weather with any certainty, the agricultural interests received most attention; but in Canada agricultural meteorology has unfortunately fallen somewhat into the background, much reliable information, which would have been of very great value for disseminating among intended immigrants, might have been collected, and would have aided greatly in the settlement of the North-West.

“To collect information available for agricultural purposes we require a very large increase in the number of stations at which observations are taken of the rainfall and general weather, and a smaller number at which temperature observations are also taken. The study of the influence of the weather on crops should prove of great interest to the farming population of Canada.”

In the part of the country where I reside, the weather bulletins have proved very satisfactory. American vessel owners and master mariners are in the habit, in the Detroit and St. Clair rivers, of crossing over to Sarnia and Windsor to ascertain what the reports from the Toronto Observatory are, apparently placing more reliance on our reports than on those found at Port Huron or Detroit, which come from Washington. At an interview with leading mariners, interested in our inland shipping, I was requested to bring this matter under the notice of the hon. the Minister of Marine and the Government, and to urge upon them the necessity of establishing telegraph lines and storm signals at the points I have mentioned on Lake Ontario and Lake Erie. The expense of running wires to the lighthouses on Long Point and Point Pelée would be very small, and the establishment of storm signals would do very much to protect vessels traversing our inland waters.

Mr. PLUMB. Living as I do on the border of Lake Ontario, and knowing as I do something of the great importance of this work, I wish to add my voice to what has been said by my hon. friend in favor of extending this service so far as the Government think it possible to do so. I have an intimate acquaintance with the gentleman who now so ably presides over that Department. I believe him to be thoroughly conversant with the work, and I trust that the Government will see their way to deal liberally with him, and to extend the service of which he has charge, with advantage both to the agricultural and the commercial