

crease. The vote is larger this year because we are making provision for the inauguration of the eastern end of our service to Montreal and Toronto this year.

Mr. GREEN: Does the vote include any expenditure in connection with the trans-atlantic service?

Mr. HOWE: None at all.

Mr. LENNARD: I notice that this item is partly for meteorological services. Will the minister explain why meteorological services are included in this vote when item No. 391 is a vote for meteorological services?

Mr. HOWE: The vote for meteorological services generally is for the services that have been performed for a great number of years, but the meteorological services included in this vote are those pertaining directly to the airways. It includes the cost of a teletype service connecting the fields and forecasting centres along the route, as well as spot observers. It is simply the services directly pertaining to this route. Of course the airways have the benefit of all the observations that are paid for under the other vote as well.

Mr. MARSH: I note that this vote is increased by \$52,000, and after looking at the items which are included I am not surprised at that. I note that the minister is paying due attention to what might be considered one of the prime requisites of safety in flying, by making plans for proper meteorological service. I see that there is to be one controller, a climatologist, six weather forecasters, eight meteorologists, several meteorological observers and a clerical staff numbering a score or more, all of whom are necessary. I assume that this meteorological service will include barometric readings, charts, weather maps and information regarding the storm routes and channels.

There are a number of questions I should like to ask. At what places will this equipment be centred? Will it be located at the various airports across the country, and in addition will there be stations at points where, because of the geological formation of the country, it would appear advisable to locate a meteorological station? Also, will there be a meteorological station at Hamilton? I do not ask that question because of any selfish motive on the part of the city of Hamilton. The meteorological bureau in Toronto, which forecasts weather for Ontario, can do so with, we shall say, about seventy-five to eighty per cent success in coverage of the province as a whole. But down in the Niagara peninsula, due to the fact that it is at the tail end of about three storm routes, the fore-

casting in connection with weather is not more than about fifty-five to sixty per cent correct. And in saying that, I do not cast any reflection on the meteorological bureau at Toronto.

Mr. HOWE: While Toronto is the headquarters for the entire service, we have forecasting centres particularly for aviation at such points as Vancouver, Lethbridge, Edmonton, Winnipeg, Kapuskasing and Montreal, and later on there will be a forecasting station at Moncton. I assume, when the line pushes west from Toronto, there will be a forecasting station at Windsor as well. At the forecasting centre, maps are drawn at two hour intervals, and the forecasts which the pilot needs, when he is under the control of that particular centre, are telephoned to him according to the weather which is interpreted for that locality. That is, when the pilot is near a forecasting centre, he is controlled by the weather reports from that station, but of course all weather reports are sent on the teletype from coast to coast. The teletype also carries reports from the United States and spot observations along the route of the Trans-Canada line, so that the forecasting is available not only locally; the weather maps cover the whole country as well.

Mr. MARSH: I assume, then, that there will be other weather stations apart from the airports?

Mr. HOWE: Oh, yes. We have had a very fine meteorological service in this country for many years. The airports are a special service in addition to the usual meteorological service. But we have meteorological stations controlling the agriculture and weather maps service, and service to ships at sea, which is more or less independent of this service.

Mr. BROOKS: I notice in the year 1937-38 there was an item of \$12,400 for expenses in connection with the training of pilots, and the awarding of the Webster trophy. This year it has been dropped. Does that mean that there will be no competition for the Webster trophy in 1938-39?

Mr. HOWE: That award was a joint vote between the Department of National Defence and the Department of Transport. By agreement with flying clubs we have made different arrangements. I am advised by my officers that the award will be continued, and that the vote was to pay for the expense of judging the candidates for the award. That is being taken care of in the civil aviation vote, as part of the departmental expenses. Although the vote is different, the result will be the same.