quire to be carefully settled, so that the future interests of the city will not suffer from any oversight or want of precaution.

WEATHER PROGNOSTICATION.

Until within the last few years there has not been any systematic endeavor to foretell the character of the weather. During this period a method has been recognized, which it is needful to adopt if we would penetrate the laws which govern the movements of our atmosphere. This method is unique in that it requires to the fullest extent the united efforts of those engaged in the work. The element under consideration must be continuously observed in all available portions of the globe, thus giving a complete view of the movements of the atmosphere as a whole. All attempt at investigation by isolated observation must utterly fail. With regard to the latter method of procedure Sir W. Herschel says: "We are in the position of a man who hears at intervals a few fragments of a long history related in a prosy, unmethodical manner. A host of circumstances omitted or forgotten, and the want of connection between the parts, prevent the hearer from obtaining possession of the entire story."

To the Government of the United States is due the credit of having established the first organized system of investigation, within its own territory, and of having brought about, through the agency of its Signal Service Bureau, the co-operation of the civilized world. Modelled after the plan adopted by our neighbors, we in Canada have our own meteorological service, under the able direction of Professor Kingston. The two offices work in intimate connection with one another. On this continent there are nearly two hundred stations. There were 173 in 1877, 14 of these belonging to Canada. The number of Canadian stations has not been increased. These are distributed over the country as evenly as possible, and simultaneous observations are taken at each and immediately telegraphed to the central offices. All the Canadian stations and nearly all those in the United States report three times each day. In addition to the telegraphic reports the American Bureau received daily reports from five hundred and sixty voluntary observers, and from stations in foreign countries two hundred and ninety-three reports of observations taken simultaneously with the morning telegraphic signal of the American series. The Canadian office receives upwards of one hundred reports of daily observations.

From the information thus obtained is sought a solution of the laws which regulate our climate, and—by the aid of the rules already established—from the tri-daily system of telegraphic reports are deduced the probabilities and storm-warnings which are one practical and important outcome of the movement. It becomes, then, of interest to inquire, as we have done in previous articles, about the accuracy of these predictions and their value to the community.

Weather forecasts have been issued by the Washington Bureau since 1870. and, independently, by the Toronto office since October 1876. Of the probabilities of Canada since Jany. 1, 1877, seventy-three per cent. uave been fully verified and ninety-three per cent. partly so; during the present year the percentage has risen to 80 fully verified and 94 partly. In the United States during the same period the percentage fully verified has been slightly under 70, and that partly verified amounted to 97 per cent. In order that the terms *fully* and *partly* verified may be understood, it may be stated that a single indication gives the probable state of the weather, the wind, the temperature and the barometer, for a given period; and that when all of these are found to be as predicted the forecast is said to be fully verified; when one or more but not all of these items are confirmed it is said to be partly so. Of these components of a forecast, the weather—that is whether the state of the atmosphere be clear, cloudy or falling—receives much the largest percentage of verification. Of the "storm-warnings" which have been issued to the United States during the three years ending June 30, 1878, 77 per cent. have been verified. This result is an increase of seven per cent. over that obtained in the year 1872, which is the earliest record the writer has seen. In Canada the mean result is almost the same, with a marked advance in accuracy during the present year. Thus both the weather forecasts and the storm warnings have already attained to a fair degree of accuracy, and we notice the encouraging feature that the percentage of verification is on the increase.

A storm warning is forwarded to any port when it is considered that a storm will probably occur within a distance of 100 miles by water of that port. It is not therefore necessarily understood that a storm will rage at the exact locality to which the warning is sent, but it is meant rather to warn those connected with shipping that there is danger, and that vessels should not proceed to sea during the continuance of a warning. The signal is said to be justified by the existence of a storm area having a wind velocity of twenty-five miles per hour on land, which at a distance of ten or twenty miles from land frequently indicates velocities of over forty miles. In this connection the chief signal officer in his report for 1877 says:

"It is one of the most difficult tasks which falls to the lot of this office to determine in advance over what ports to be selected, to the exclusion of others, an advancing storm area will pass, and in such a manner as to be accompanied at these ports with a given wind velocity. Within the same area the winds differ in force at different points. They differ also with different contours of the earth's surface. There is the danger that warnings unnecessarily given may delay the movements of shipping. A heavy responsibility is incurred if the warnings are not given when they ought to be. Time, increasing experience, and increasing facilities will insure improvement."

To give an idea of the magnitude of this work it may be said that during last year over eighteen hundred signals were ordered in the United States and 743 in Canada.

The Washington Bureau have endeavored to determine the benefit which has accrued to shipping from the display of their signals, and report many instances in which danger has been avoided by vessels remaining in port in recognition of these warnings. And a series of tables of disasters to shipping, compiled for a number of years past, appear to show that the annual average of disasters occurring has been perceptibly lessened in the vicinity of points at which cautionary signals have been displayed. The Canadian Board of Inland Marine Exchange have, as we stated last year, expressed their appreciation of the Canadian service.

TURVEYDROP OUT OF HIS LATITUDE.

Strangers coming to North America have sometimes suffered from not taking into account the danger of exposure to a climate more severe than that which they have been accustomed to, and the same neglect has sometimes proved fatal even to natives. The celebrated Spurzheim fell a victim to this want of precaution, when on a visit to Boston, Mass., with the result that his lecturing tour ended in Mount Auburn. A young lady, in Toronto, a couple of winters ago, thinly dressed for an evening party, took a chill at her own door and in two hours was a corpse. In spite of the notoriety of such facts as these, the ladies of Canada have been inconsiderately asked to expose themselves to no little danger in paying homage to the Princess Louise and her husband, the new Governor General of Canada. The order, signed by Col. Littletown, required that ladies should appear at the reception at Montreal, in low-necked