

the very nature of farming, the necessary isolation of a farmer he will always be at a more or less disadvantage in obtaining the daily predictions compared for instance with another very interested party—the ship captain, who, when in port, is in direct contact with the telegraph service and weather bureau, and can govern his departure accordingly. Bankers and brokers appreciate and watch closely the forecasts. Obviously whatever affects crops, commerce, or business and industry affects them. Commission merchants and shippers of produce of a perishable nature find the forecasts of the greatest assistance. In maintaining equable and comfortable temperatures in large office buildings, for example, the predictions are of the greatest value if intelligently read.

In no branch of human affairs can the value of forecasts be so readily expressed in dollars as in shipping. For here we can easily find out at any time the number of vessels in port, and the number detained by storm warning from going to sea and exposing themselves to the furies of storms and tornados with possible utter destruction. The annual saving in this way to navigation on this continent runs into the millions, and in this interest alone the cost or outlay of the meteorological service is returned manifold. Frost warnings are of great importance. Thus, during the latter part of the season of 1891, just at harvest time, when the wheat crop of Northern Dakota and Northern Minnesota required a week or ten days to mature, extensive preparations were made by farmers to avert injury from frost. Material for smudge fires was collected and made ready to be fired upon receipt of the frost warning. Through the co-operation of the telegraph companies the warnings were widely disseminated and at the proper time the fires were lighted, and many million bushels of wheat saved. This was in the far north. In the far south in the same season 75 per cent. of the vegetable and fruit crop was protected by smudge fires kindled at the