

either side of which is the sea. The temperature registered there cannot be accepted as a true index of what may be the maximum and minimum of heat prevailing in the great inland valleys of the north: 90° is quite an exceptional maximum for Auckland City, yet it is often registered in the warmer and more confined districts of the north. In fact, the climate of Auckland is, in many respects, greatly at variance with that further north, owing more to the topography of the country than to distance; and no doubt the same thing applies to other parts of the colony, notably to Wellington, where the local character of the weather is most marked. Most probably the climate of the district lying between the Hutt and Napier is quite different from that which prevails at Port Nicholson. The meteorological data available in the colony are of a somewhat meagre description, and it has occurred to me that it is very desirable that arrangements should be made with the Signal Office in Wellington to collect daily reports from the Telegraph Office with the weather reports, with a view of publishing yearly tables showing the rainfall of each district for each month, and the number of days in each month upon which rain falls; also the mean temperature of each month, together with the maximum and minimum heat. This information could be gathered with very little extra expense, and would be an invaluable guide to persons interested in fruit-culture, and viticulture particularly. It is very important, too, to have recorded in each district the first day on which frost appears and the last, so that the length of the season can be judged for, say, grapes. If the season is short, quite a different variety would be planted than if it were a long season. In America the Signal Office does a good work, by notifying a district of the approach of frost, and this enables the vineyardist to have fires ready to light so as to make a cloud of smoke to keep off the rays of the early morning sun. In this way the vines are guarded from all harm from late frosts.

From the topography of the country it is reasonable to suppose that the great eastern foothills of the mountain-ranges of the interior of the North Island will ultimately be found to contain the most suitable locations for vineyards in the colony, being favoured most likely with a warmer temperature and drier atmosphere than the coast districts. Napier itself has, so far as rainfall is concerned, the best climate in New Zealand for vine-culture, but is subject to late cutting frosts, consequently only a rapidly-maturing grape would answer there. In the Opotiki District we see in the successful culture of maize a sure indication that the vine would also do well there. And in the interior it is quite possible that the pumice-plains would prove a genial home to the vine. These are all matters for experiment, but tend to show the necessity of having meteorological records kept of every part of the Island. No doubt the whole country right through from the Bay of Plenty to Wanganui would furnish many favourable locations for vine-culture. The Wanganui River has been likened to the Rhine, and we know that for some time past good wine has been produced at Wanganui. It is quite the popular idea to suppose that for grape-culture it is necessary to go to the district having the warmest climate—to the far north—for instance, to Hokianga or Mongonui; but it must be remembered that the farther north one goes the heavier is the rainfall, and the extra heat hardly compensates for the excess of moisture. At Napier the rainfall is 38in., at Auckland 47in., and at Mongonui 58in.—a difference of 10in. as between Auckland and Mongonui, and of 20in. as between Mongonui and Napier. Mongonui, on the other hand, has a decided advantage over Auckland in only having 152 days upon which rain falls, against Auckland's 186; and, while the daily wind-velocity at Auckland is 331 miles, it is only 193 at Mongonui. Napier records 250; Los Angeles, Southern California, 120; Chincoteague, Virginia, 290. The number of days upon which rain falls in the Middle Atlantic States (New York, New Jersey, Pennsylvania, Maryland, Delaware, and Virginia) varies from 122 to 146, or slightly less than Mongonui; while in the Lower Lakes District (part of New York, Pennsylvania, Ohio, and Michigan) the number of days varies from 150 to 169, or more than at Mongonui. What is very important to observe in this connection is this: that throughout the Eastern States of America, where this particular vine has its native habitat, the rainfall is nearly equally distributed throughout every month of the year—there is no dry season such as is required to ripen and mature the European grape. We have no such dry season in the northern part of New Zealand; hence another cause why the *vinifera* does not succeed with us, and why we should make an effort to discover what varieties of the American stock will adapt themselves to our climate. Varieties that will suit the north will not answer in the southern districts, and consequently it will be necessary to have more than one experimental station. Napier has only 74 rainy days, and Wanganui 134, but these districts have the disadvantage of late frosts, while between Auckland and Mongonui frostless districts may be found, and in this respect we have a decided advantage over nearly the whole of the Eastern States of America, for, excepting a few frostless districts in Florida, everywhere else is subject to the terrors of King Frost. I may remark here, as showing how prejudices are sometimes unjustly made to work against new industries, that on my return from America I was informed by a gentleman that grapes would never grow here excepting under glass, "because we had no frost to insure the requisite rest for the sap of the plant." On being pressed, he also informed me that his authority was a gardener holding a public position. It is well that theories such as these should be refuted, because there is no doubt that the fruit industry generally suffers very much from the fact of the bulk of our fruit-growers placing altogether too much reliance on the wisdom of gardeners who, however practical they may be, seldom have any acquaintance with any of the sciences which underlie horticulture. To say that frost is necessary to the growth of the vine is nonsense, as shown from the fact of its doing best in the frostless districts of Spain and Portugal, and in Los Angeles, Southern California, or, nearer home, at Albury, New South Wales. No finer grapes are grown in the world than at Los Angeles, and a frost is hardly ever known there. But the manner in which the Isabella has grown here for years past should be sufficient evidence to anybody but the wildest theorist.

The climate of the Eastern States differs from ours in the matter of temperature in a marked degree. The growing season is much shorter, the day is hotter, the night is colder, and the rainfall in many districts just similar. In the Lower Lakes District the means of temperature are as follow:—