IV.—CLIMATE AND METEOROLOGY.

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So many and so diverse are the climates to be found within the widely extended borders of the Dominion of Canada that it is difficult to compress within the limits of a short article any account of them which will be concise and at the same time informing, broadly descriptive and yet not misleading. If however one bears in mind that over a land area the climate tends to extremes, while over a water area the great specific heat of that liquid always powerfully opposes the thermal changes which atmospheric movements induce, then a glance over the map of Canada will suggest the probable type of climate peculiar to any portion of it. Over the great land area of the western plains, for instance, we may expect extreme heat in summer and great cold in winter ; over that portion of the Dominion where the immense volume of water of the Great Lakes and Hudson Bay exercises a tempering influence, the winters are neither so long nor so cold. In the Maritime provinces and in British Columbia the waters of the two oceans, whose temperature varies but little, act as an enormous refrigerator in summer, and as an equally efficient modifying factor in winter. The Maritime provinces are, however, but ill-protected from the chill winds which sometimes in winter blow down from the icy reaches of the subarctic plains ; while nature has upraised the enduring and lofty barriers of three great mountain-ranges to ward the valleys of British Columbia from the cold waves of the northwest.

The climate of Canada may be classified roughly, if not exactly, according to four main types, viz. : (1) The valley type of British Columbia ; (2) the prairie type of the three Northwest provinces ; (3) the lake region of old Ontario ; and (4) the Maritime provinces.

In Table I averages of temperature and precipitation are given for nine widely-separated cities of Canada, which may be taken as fairly typical, as regards climate, of the large areas surrounding them. The averages are based upon the varying periods for which the records are available, viz.: Victoria, B.C. (20 years), Edmonton, Alberta (25 years), Calgary, Alberta (20 years), Prince Albert, Sask. (20 years), Winnipeg, Man. (70 years), Toronto, Ont. (70 years), Montreal, Que. (49 years), Quebec, Que. (20 years), and St. John, N.B. (50 years).

The valley type is not well shown by the records for Victoria, which are better representative of the averages for Vancouver Island. The same general characteristics are preserved in the valley of the Lower Fraser river ; but in the Okanagan and Kootenay valleys the winter temperatures are lower, and there is a much more pronounced tendency to extremes of heat in the summer and of cold in the winter. This tendency lessens rapidly as the lower levels and the coast are approached.

The outstanding features of the prairie type are the much scantier precipitation and the much more severe cold of winter. How the Northwest provinces are able to produce their great grain crops under these natural difficulties is more readily seen by a reference to the

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