

Previous Descriptive Works on Canadian Flora.—The earliest descriptive work on the flora of Canada is that of J. P. Cornuti entitled "*Canadensium Plantarum Historia*", published at Paris in 1635.¹ It is written in Latin and contains a considerable number of figures of the species, many of which, such as *Adiantum pedatum*, *Asarum canadense*, etc., can be recognized readily although the names may be different. It includes, in addition, some species which are not indigenous. As might be expected from the date of publication, definite localities in this country are not specified.

At a much later date (1862) appeared Abbé L. Provancher's "*Flore Canadienne*",² written in French and also containing a number of illustrations. In addition to the native flora, it included descriptions of many plants cultivated in gardens as well as some species of the lower cryptogams, namely, mosses, lichens, fungi, and algæ. But Canada, in the sense used by Provancher, was mostly synonymous with the present provinces of Quebec and Ontario. More recent manuals devoted mainly to the description of the species mentioned, rather than their detailed distribution in Canada, are those by Marie-Victorin,³ Spotton, Cosens, and Ivey,⁴ Hales,⁵ Brown and Schäffer,⁶ and Henry.⁷ The forest trees have been dealt with in an adequate manner by Morton and Lewis.⁸

The first and only work to show the detailed distribution of the native plants throughout the Dominion was John Macoun's "*Catalogue of Canadian Plants*"⁹ published in seven parts at intervals between the years 1883 and 1902. It comprised all groups of the plant kingdom with the exceptions of fungi and algæ. Other sectional lists dealing with a part or the whole of a particular province have appeared from time to time and are referred to in the proper places under their respective floral regions. But for a list of all the important papers on the distribution of Canadian plants published between the years 1635 and 1935, inclusive, reference should be made to the "*Bibliography of Canadian Plant Geography*".¹⁰

FACTORS AFFECTING PLANT LIFE.

Climate.

A full general account of the climate of Canada will be found in Koeppé's work¹¹ on the subject. The maps prepared by Brooks, Connor, and others¹² are also very instructive, while the meteorological reports¹³ form the basis of practically all our knowledge of the subject apart from observations made by explorers. The relation of plants to climatic factors has been dealt with to some extent by Adams¹⁴ and much more fully by Livingston and Shreve.¹⁵ The adaptations of many plants in the Arctic Region to the difficulties of the climate under which they live are briefly described later on in this article at p. 40, while characteristics which aid other plants to withstand arid conditions in certain sections of the prairies are mentioned on pp. 47 and 48.

The study of plants in relation to climate involves consideration of a number of different factors such as temperature, rainfall, snowfall, evaporation, light, wind, humidity, and fog.

Temperature.—For a plant to function properly, a certain range of temperature is necessary. If the temperature is too low the plant may become dormant or may suffer temporary injury or may even be killed. Plants, however, vary greatly in their resistance to cold. As a result of this, the assemblage of species in a northern latitude may be entirely different from that in a region nearer the equator with the production of distinct floral areas. The method usually attempted of